INCLUDES

- Course framework
- Instructional section
- Sample exam questions

# AP® Psychology

## COURSE AND EXAM DESCRIPTION

Effective
**Fall 2024**

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Effective
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**AP COURSE AND EXAM DESCRIPTIONS ARE UPDATED PERIODICALLY**
Please visit AP Central (apcentral.collegeboard.org) to determine whether a more recent course and exam description is available.

# What AP® Stands For

Thousands of Advanced Placement teachers have contributed to the principles articulated here. These principles are not new; they are, rather, a reminder of how AP already works in classrooms nationwide. The following principles are designed to ensure that teachers' expertise is respected, required course content is understood, and that students are academically challenged and free to make up their own minds.

1. AP stands for clarity and transparency. Teachers and students deserve clear expectations. The Advanced Placement Program makes public its course frameworks and sample assessments. Confusion about what is permitted in the classroom disrupts teachers and students as they navigate demanding work.
2. AP is an unflinching encounter with evidence. AP courses enable students to develop as independent thinkers and to draw their own conclusions. Evidence and the scientific method are the starting place for conversations in AP courses.
3. AP opposes censorship. AP is animated by a deep respect for the intellectual freedom of teachers and students alike. If a school bans required topics from their AP courses, the AP Program removes the AP designation from that course and its inclusion in the AP Course Ledger provided to colleges and universities. For example, the concepts of evolution are at the heart of college biology, and a course that neglects such concepts does not pass muster as AP Biology.
4. AP opposes indoctrination. AP students are expected to analyze different perspectives from their own, and no points on an AP Exam are awarded for agreement with any specific viewpoint. AP students are not required to feel certain ways about themselves or the course content. AP courses instead develop students' abilities to assess the credibility of sources, draw conclusions, and make up their own minds.

   As the AP English Literature course description states: "AP students are not expected or asked to subscribe to any one specific set of cultural or political values, but are expected to have the maturity to analyze perspectives different from their own and to question the meaning, purpose, or effect of such content within the literary work as a whole."
5. AP courses foster an open-minded approach to the histories and cultures of different peoples. The study of different nationalities, cultures, religions, races, and ethnicities is essential within a variety of academic disciplines. AP courses ground such studies in primary sources so that students can evaluate experiences and evidence for themselves.
6. Every AP student who engages with evidence is listened to and respected. Students are encouraged to evaluate arguments but not one another. AP classrooms respect diversity in backgrounds, experiences, and viewpoints. The perspectives and contributions of the full range of AP students are sought and considered. Respectful debate of ideas is cultivated and protected; personal attacks have no place in AP.
7. AP is a choice for parents and students. Parents and students freely choose to enroll in AP courses. Course descriptions are available online for parents and students to inform their choice. Parents do not define which college-level topics are suitable within AP courses; AP course and exam materials are crafted by committees of professors and other expert educators in each field. AP courses and exams are then further validated by the American Council on Education and studies that confirm the use of AP scores for college credits by thousands of colleges and universities nationwide.

The AP Program encourages educators to review these principles with parents and students so they know what to expect in an AP course. Advanced Placement is always a choice, and it should be an informed one. AP teachers should be given the confidence and clarity that once parents have enrolled their child in an AP course, they have agreed to a classroom experience that embodies these principles.

# Contents

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# Acknowledgments

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# About AP

The Advanced Placement® Program (AP®) enables willing and academically prepared students to pursue college-level studies—with the opportunity to earn college credit, advanced placement, or both—while still in high school. Through AP courses in 40 subjects, each culminating in a challenging exam, students learn to think critically, construct solid arguments, and see many sides of an issue—skills that prepare them for college and beyond. Taking AP courses demonstrates to college admission officers that students have sought the most challenging curriculum available to them, and research indicates that students who score a 3 or higher on an AP Exam typically experience greater academic success in college and are more likely to earn a college degree than non-AP students. Each AP teacher's syllabus is evaluated and approved by faculty from some of the nation's leading colleges and universities, and AP Exams are developed and scored by college faculty and experienced AP teachers. Most four-year colleges and universities in the United States grant credit, advanced placement, or both on the basis of successful AP Exam scores—more than 3,300 institutions worldwide annually receive AP scores.

## AP Course Development

In an ongoing effort to maintain alignment with best practices in college-level learning, AP courses and exams emphasize challenging, research-based curricula aligned with higher education expectations.

Individual teachers are responsible for designing their own curriculum for AP courses, selecting appropriate college-level readings, assignments, and resources. This course and exam description presents the content and skills that are the focus of the corresponding college course and that appear on the AP Exam. It also organizes the content and skills into a series of units that represent a sequence found in widely adopted college textbooks and that many AP teachers have told us they follow in order to focus their instruction. The intention of this publication is to respect teachers' time and expertise by providing a roadmap that they can modify and adapt to their local priorities and preferences. Moreover, by organizing the AP course content and skills into units, the AP Program is able to provide teachers and students with free formative assessments—Progress Checks—that teachers can assign throughout the year to measure student progress as they acquire content knowledge and develop skills.

## Enrolling Students: Equity and Access

The AP Program strongly encourages educators to make equitable access a guiding principle for their AP programs by giving all willing and academically prepared students the opportunity to participate in AP. We encourage the elimination of barriers that restrict access to AP for students from ethnic, racial, and socioeconomic groups that have been traditionally underserved. College Board also believes that all students should have access to academically challenging coursework before they enroll in AP classes, which can prepare them for AP success. It is only through a commitment to equitable preparation and access that true equity and excellence can be achieved.

## Offering AP Courses: The AP Course Audit

The AP Program unequivocally supports the principle that each school implements its own curriculum that will enable students to develop the content understandings and skills described in the course framework.

While the unit sequence represented in this publication is optional, the AP Program does have a short list of curricular and resource requirements that must be fulfilled before a school can label a course "Advanced Placement" or "AP." Schools wishing to offer AP courses must participate in the AP Course Audit, a process through which AP teachers' course materials are reviewed by college faculty. The AP Course Audit was created to provide teachers and administrators with clear guidelines on curricular and resource requirements for AP courses and to help colleges and universities validate courses marked "AP" on students' transcripts. This process ensures that AP teachers' courses meet or exceed the curricular and resource expectations that college and secondary school faculty have established for college-level courses.

The AP Course Audit form is submitted by the AP teacher and the school principal (or designated administrator) to confirm awareness and understanding of the curricular and resource requirements. A syllabus or course outline, detailing how course requirements are met, is submitted by the AP teacher for review by college faculty.

Please visit **collegeboard.org/apcourseaudit** for more information to support the preparation and submission of materials for the AP Course Audit.

## How the AP Program Is Developed

The scope of content for an AP course and exam is derived from an analysis of hundreds of syllabi and course offerings of colleges and universities. Using this research and data, a committee of college faculty and expert AP teachers work within the scope of the corresponding college course to articulate what students should know and be able to do upon the completion of the AP course. The resulting course framework is the heart of this course and exam description and serves as a blueprint of the content and skills that can appear on an AP Exam.

The AP Test Development Committees are responsible for developing each AP Exam, ensuring the exam questions are aligned to the course framework. The AP Exam development process is a multiyear endeavor; all AP Exams undergo extensive review, revision, piloting, and analysis to ensure that questions are accurate, fair, and valid, and that there is an appropriate spread of difficulty across the questions.

Committee members are selected to represent a variety of perspectives and institutions (public and private, small and large schools and colleges), and a range of gender, racial/ethnic, and regional groups. A list of each subject's current AP Test Development Committee members is available on **apcentral.collegeboard.org**.

Throughout AP course and exam development, College Board gathers feedback from various stakeholders in both secondary schools and higher education institutions. This feedback is carefully considered to ensure that AP courses and exams are able to provide students with a college-level learning experience and the opportunity to demonstrate their qualifications for advanced placement and/or college credit.

## How AP Exams Are Scored

The exam scoring process, like the course and exam development process, relies on the expertise of both AP teachers and college faculty. While multiple-choice questions are scored by machine, the free-response questions and through-course performance assessments, as applicable, are scored by thousands of college faculty and expert AP teachers. Most are scored at the annual AP Reading, while a small portion is scored online. All AP Readers are thoroughly trained, and their work is monitored throughout the Reading for fairness and consistency. In each subject, a highly respected college faculty member serves as Chief Faculty Consultant and, with the help of AP Readers in leadership positions, maintains the accuracy of the scoring standards. Scores on the free-response questions and performance assessments are weighted and combined with the results of the computer-scored multiple-choice questions, and this raw score is converted into a composite AP score on a 1–5 scale.

AP Exams are **not** norm-referenced or graded on a curve. Instead, they are criterion-referenced, which means that every student who meets the criteria for an AP score of 2, 3, 4, or 5 will receive that score, no matter how many students that is. The criteria for the number of points a student must earn on the AP Exam to receive scores of 3, 4, or 5—the scores that research consistently validates for credit and placement purposes—include:

- The number of points successful college students earn when their professors administer AP Exam questions to them.
- Performance that researchers have found to be predictive of an AP student succeeding when placed into a subsequent higher-level college course.
- The number of points college faculty indicate, after reviewing each AP question, that they expect is necessary to achieve each AP grade level.

## Using and Interpreting AP Scores

The extensive work done by college faculty and AP teachers in the development of the course and exam and throughout the scoring process ensures that AP Exam scores accurately represent students' achievement in the equivalent college course. Frequent and regular research studies establish the validity of AP scores as follows:

| AP Score | Credit Recommendation | College Grade Equivalent |
|---|---|---|
| 5 | Extremely well qualified | A |
| 4 | Well qualified | A-, B+, B |
| 3 | Qualified | B-, C+, C |
| 2 | Possibly qualified | n/a |
| 1 | No recommendation | n/a |

While colleges and universities are responsible for setting their own credit and placement policies, most private colleges and universities award credit and/or advanced placement for AP scores of 3 or higher. Additionally, most states in the U.S. have adopted statewide credit policies that ensure college credit for scores of 3 or higher at public colleges and universities. To confirm a specific college's AP credit/placement policy, a search engine is available at **apstudent.org/creditpolicies**.

## BECOMING AN AP READER

Each June, thousands of AP teachers and college faculty members from around the world gather for seven days in multiple locations to evaluate and score the free-response sections of the AP Exams. Ninety-eight percent of surveyed educators who took part in the AP Reading say it was a positive experience.

There are many reasons to consider becoming an AP Reader, including opportunities to:

- **Bring positive changes to the classroom:** Surveys show that the vast majority of returning AP Readers—both high school and college educators—make improvements to the way they teach or score because of their experience at the AP Reading.
- **Gain in-depth understanding of AP Exam and AP scoring standards:** AP Readers gain exposure to the quality and depth of the responses from the entire pool of AP Exam takers, and thus are better able to assess their students' work in the classroom.
- **Receive compensation:** AP Readers are compensated for their work during the Reading. Expenses, lodging, and meals are covered for Readers who travel.
- **Score from home:** AP Readers have online distributed scoring opportunities for certain subjects. Check **collegeboard.org/apreading** for details.
- **Earn Continuing Education Units (CEUs):** AP Readers earn professional development hours and CEUs that can be applied to PD requirements by states, districts, and schools.

### How to Apply

Visit **collegeboard.org/apreading** for eligibility requirements and to start the application process.

# AP Resources and Supports

By completing a simple class selection process at the start of the school year, teachers and students receive access to a robust set of classroom resources.

## AP Classroom

**AP Classroom** is a dedicated online platform designed to support teachers and students throughout their AP experience. The platform provides a variety of powerful resources and tools to provide yearlong support to teachers and students, offering opportunities to give and get meaningful feedback on student progress.

### UNIT GUIDES

Appearing in this publication and on AP Classroom, these planning guides outline all required course content and skills, organized into commonly taught units. Each Unit Guide suggests a sequence and pacing of content, scaffolds skill instruction across units, organizes content into topics, and provides tips on taking the AP Exam.

### PROGRESS CHECKS

Formative AP questions for every unit provide feedback to students on the areas where they need to focus. Available online, Progress Checks measure knowledge and skills through multiple-choice questions with rationales to explain correct and incorrect answers, and free-response questions with scoring information. Because the Progress Checks are formative, the results of these assessments cannot be used to evaluate teacher effectiveness or assign letter grades to students, and any such misuses are grounds for losing school authorization to offer AP courses.*

### REPORTS

The Reports section provides teachers with a one-stop shop for student results on all assignment types, including Progress Checks. Teachers can view class trends and see where students struggle with content and skills that will be assessed on the AP Exam. Students can view their own progress over time to improve their performance before the AP Exam.

### QUESTION BANK

The Question Bank is a searchable library of all AP questions that teachers use to build custom practice for their students. Teachers can create and assign assessments with formative topic questions or questions from practice or released AP Exams.

Class Section Setup and Enrollment

- Teachers and students sign in to or create their College Board accounts.
- Teachers confirm that they have added the course they teach to their AP Course Audit account and have had it approved by their school's administrator.
- Teachers or AP coordinators, depending on who the school has decided is responsible, set up class sections so students can access AP resources and have exams ordered on their behalf.
- Students join class sections with a join code provided by their teacher or AP coordinator.
- Students will be asked for additional information upon joining their first class section.

*To report misuses, please call, 877-274-6474 (International: 212-632-1781).

# Instructional Model

Integrating AP resources throughout the course can help students develop skills and conceptual understandings. The instructional model outlined below shows possible ways to incorporate AP resources into the classroom.

## Plan

Teachers may consider the following approaches as they plan their instruction before teaching each unit.

- Review the overview at the start of each **Unit Guide** to identify essential questions, conceptual understandings, and skills for each unit.
- Use the **Unit at a Glance** table to identify related topics that build toward a common understanding, and then plan appropriate pacing for students.
- Identify useful strategies in the **Instructional Approaches** section to help teach the concepts and skills.

## Teach

When teaching, supporting resources could be used to build students' conceptual understanding and their mastery of skills.

- Use the topic pages in the **Unit Guides** to identify the required content.
- Integrate the content with a skill, considering any appropriate scaffolding.
- Employ any of the instructional strategies previously identified.
- Use the available resources, including **AP Daily**, on the topic pages to bring a variety of assets into the classroom.

## Assess

Teachers can measure student understanding of the content and skills covered in the unit and provide actionable feedback to students.

- As you teach each topic, use **AP Classroom** to assign student **Topic Questions**, as a way to continuously check student understanding and provide just in time feedback.
- At the end of each unit, use **AP Classroom** to assign students **Progress Checks**, as homework or an in-class task.
- Provide question-level feedback to students through answer rationales; provide unit- and skill-level formative feedback using **Reports**.
- Create additional practice opportunities using the **Question Bank** and assign them through **AP Classroom**.

# About the AP Psychology Course

The AP Psychology course introduces students to the systematic and scientific study of human behavior and mental processes. While considering the studies that have shaped the field, students explore and apply psychological theories, key concepts, and phenomena associated with major units of study, including biological bases of behavior, cognition, development, learning, social psychology, personality, and mental and physical health. Throughout the course, students apply psychological concepts and employ psychological research methods and data interpretation to evaluate claims, consider evidence, and effectively communicate ideas.

## College Course Equivalent

The AP Psychology course is equivalent to an introductory college-level psychology course.

## Prerequisites

There are no prerequisites for AP Psychology. Students should be able to read a college-level textbook and to express themselves clearly in writing.

AP PSYCHOLOGY

# Course Framework

# Introduction

*The AP Psychology framework is aligned with content and skills used in college-level courses and recommended by the American Psychological Association (APA) Introductory Psychology Initiative. The framework is organized into five units that mirror the content organization recommended by the APA. This framework integrates key skills throughout the course that students need to be successful in subsequent courses in psychology. The focus of the framework is to provide the student with a learning experience that supports learning of introductory psychology content and skills.*

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# Course Framework Components

## Overview

This course framework provides a clear and detailed description of the course requirements necessary for student success. The framework specifies what students should know and be able to do to qualify for college credit and/or placement.

### The course framework includes two essential components:

**1 SCIENCE PRACTICES**

The science practices and skills are central to the study and practice of psychology. Students should develop and apply the described skills on a regular basis over the span of the course.

**2 COURSE CONTENT**

The course content is organized into units of study that provide a suggested sequence for the course. These units comprise the content and conceptual understandings that colleges and universities typically expect students to be proficient in to qualify for college credit and/or placement.

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1

AP PSYCHOLOGY

# Science Practices

The science practices and skills for AP Psychology describe what a student should be able to do while exploring course concepts. The table that follows presents these practices along with their corresponding skills that students should develop during the AP Psychology course. These skills form the basis of tasks on the AP Psychology Exam.

The unit guides that follow embed and spiral these skills throughout the course, providing teachers with one way to integrate the skills into the course content, with sufficient repetition to prepare students to apply those skills when taking the AP Psychology Exam.

More detailed information about teaching the science practices and skills can be found in the **Instructional Approaches** section of this publication.

AP PSYCHOLOGY

# Science Practices

The table that follows presents the science practices that students should develop during the AP Psychology course. These practices form the basis of tasks on the AP Psychology Exam.

## Practice 1

### *Concept Application* 1

*Apply psychological perspectives, theories, concepts, and research findings.*

**1.A** Apply psychological perspectives, theories, concepts, and research findings to a scenario.

- Explain how psychological perspectives, theories, concepts, or research findings apply to a scenario.
- Compare and contrast how perspectives or theories explain behavior and mental processes.
- Draw logical and objective conclusions about behavior and mental processes.

**1.B** Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

- Explain how cultural norms, expectations, and circumstances apply to a scenario.
- Explain how cognitive biases such as confirmation bias, hindsight bias, and overconfidence apply to a scenario.
- Explain implications of applying psychological concepts or theories in inappropriate or discriminatory ways.

## Practice 2

### *Research Methods and Design* 2

*Evaluate qualitative and quantitative research methods and study designs.*

**2.A** Determine the type of research design(s) used in a given study.

- Determine whether a study is using experimental or non-experimental methodologies.
  - Experimental methodology involves the use of independent variable(s) and random assignment to groups.
  - Non-experimental methodologies include case study, correlation, meta-analysis, and naturalistic observation.

**2.B** Evaluate the appropriate use of research design elements in experimental methodology.

- State the hypothesis of a research scenario, including whether the hypothesis is falsifiable.
- Identify operational definitions of variables in research scenarios to determine how well the definitions allow for the study to be replicated.
- Identify the independent variable(s), dependent variable(s), and/or confounding variable(s) in a research scenario.

## Practice 3

### *Data Interpretation* 3

*Evaluate representations of psychological concepts in quantitative and qualitative research, including tables, graphs, charts, figures, and diagrams.*

**3.A** Identify psychology-related concepts in descriptions or representations of data.

- Identify variables in descriptions or representations of data.
- Identify statistical and psychological concept(s) depicted in a table, graph, chart, or figure.

**3.B** Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set.

- Calculate mean, median, mode, and range from a set of data.
- Explain the elements of the normal curve including percentages of distributions of scores across the curve, how to interpret skewness in a graph, and how to interpret a bimodal distribution.
- Interpret mean, median, mode, range, standard deviation, and percentile rank from a set of data.
- Explain how regression toward the mean occurs as more data are collected.

## Practice 4

### *Argumentation* 4

*Develop and justify psychological arguments using evidence.*

**4.A** Propose a defensible claim.

**4.B** Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm.

- Identify reasoning that supports, refutes, or modifies an established or provided claim, policy, or norm.
- Use scientifically derived evidence to explain nuances of claims, policies, or norms.
- Using scientifically derived evidence, explain how or why a claim, policy, or norm is or is not effective.

(Continued)

| Practice 1 | Practice 2 | Practice 3 | Practice 4 |
|---|---|---|---|
| ***Concept Application*** 1<br>*Apply psychological perspectives, theories, concepts, and research findings.* | ***Research Methods and Design*** 2<br>*Evaluate qualitative and quantitative research methods and study designs.* | ***Data Interpretation*** 3<br>*Evaluate representations of psychological concepts in quantitative and qualitative research, including tables, graphs, charts, figures, and diagrams.* | ***Argumentation*** 4<br>*Develop and justify psychological arguments using evidence.* |
| | ▪ In a research scenario, identify the participants of a study who make up the sample that is drawn from a population.<br>▪ Determine whether the sample used is representative of the population and is selected by either random sampling or convenience sampling.<br>▪ Evaluate whether the sampling procedure involves sampling bias.<br>▪ Determine to what extent the sampling method allows for results of the study to be generalized.<br>▪ Identify the experimental and control groups, including the process and purpose for assigning people to groups, whether a placebo was used with the control group, and the effect of the placebo on the results.<br>▪ Determine whether the study used single-blind or double-blind procedures to control for confounding variables like experimenter bias or the social desirability bias.<br>▪ Determine whether the measurement instrument for experimental research used qualitative (such as structured interviews) or quantitative measures (such as Likert scales).<br>▪ Describe the impact of appropriate representation of participants in conducting research and on the outcomes of research.<br>▪ Explain how conclusions from experimental research evolve via scientific processes such as peer review and replication. | 3.C Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram.<br>▪ Describe trends in and relationships between the variables as depicted in the data presented, such as interpreting correlational data from a scatterplot, including the correlation coefficient.<br>▪ Interpret results from research that could be expressed as effect sizes or statistical significance. | |

(Continued)

| Practice 1 | Practice 2 | Practice 3 | Practice 4 |
|---|---|---|---|
| ***Concept Application*** 1<br>*Apply psychological perspectives, theories, concepts, and research findings.* | ***Research Methods and Design*** 2<br>*Evaluate qualitative and quantitative research methods and study designs.* | ***Data Interpretation*** 3<br>*Evaluate representations of psychological concepts in quantitative and qualitative research, including tables, graphs, charts, figures, and diagrams.* | ***Argumentation*** 4<br>*Develop and justify psychological arguments using evidence.* |

2.C Evaluate the appropriate use of research design elements in non-experimental methodologies.

- State the hypothesis of a research scenario, including whether the hypothesis is falsifiable.
- Identify operational definitions of variables in research scenarios to determine how well the definitions allow for the study to be replicated.
- Identify the variables of interest in a research scenario.
- Evaluate whether the results of a correlational study have a directionality problem or third variable problem that demonstrates that correlation does not equal causation.
- Determine whether the measurement instrument for non-experimental research was qualitative (such as structured interviews) or quantitative measures (such as Likert scales).
- Determine whether the research used a survey technique and whether the wording of the survey could lead respondents to demonstrate self-report bias or social desirability bias.
- Describe the impact of appropriate representation of participants in conducting research and on the outcomes of research.
- Explain how conclusions from non-experimental research evolve via scientific processes such as peer review and replication.

(Continued)

| Practice 1 | Practice 2 | Practice 3 | Practice 4 |
|---|---|---|---|
| ***Concept Application*** 1<br>*Apply psychological perspectives, theories, concepts, and research findings.* | ***Research Methods and Design*** 2<br>*Evaluate qualitative and quantitative research methods and study designs.* | ***Data Interpretation*** 3<br>*Evaluate representations of psychological concepts in quantitative and qualitative research, including tables, graphs, charts, figures, and diagrams.* | ***Argumentation*** 4<br>*Develop and justify psychological arguments using evidence.* |
| | 2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.<br>▪ Explain the importance of institutional review for research involving human and non-human animals.<br>▪ Determine whether proper informed consent and/or informed assent was used in a research scenario.<br>▪ Determine whether researchers took steps to protect participants from harm.<br>▪ Determine whether researchers kept participant information confidential and/or anonymous.<br>▪ Determine whether deception was used in the research (possibly with the help of research confederates).<br>▪ Determine whether researchers used proper debriefing techniques with participants at the conclusion of the research. | | |

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2

## AP PSYCHOLOGY

# Course Content

The AP Psychology framework provides a clear and detailed description of the course requirements necessary for student success. The framework specifies what students must know, be able to do, and understand, with a focus on ideas that encompass perspectives, theories, concepts, and research findings of the discipline. The framework also encourages instruction that prepares students for advanced coursework in the field of psychology at the undergraduate level.

## UNITS

The five units in AP Psychology and their weighting on the multiple-choice section of the AP Exam are listed on the following page.

Pacing recommendations at the unit level and on the Course at a Glance provide suggestions for how to teach the required course content and administer the Progress Checks. The suggested class periods are based on a schedule in which the class meets five days a week for 45 minutes each day. While these recommendations have been made to aid planning, teachers should adjust pacing based on the needs of their students, alternate schedules (e.g., block scheduling), or their school's academic calendar.

| Units of Instruction | Exam Weighting |
|---|---|
| **Unit 1:** *Biological Bases of Behavior* | **15–25%** |
| **Unit 2:** *Cognition* | **15–25%** |
| **Unit 3:** *Development and Learning* | **15–25%** |
| **Unit 4:** *Social Psychology and Personality* | **15–25%** |
| **Unit 5:** *Mental and Physical Health* | **15–25%** |

## TOPICS

Each unit is broken down into teachable segments called topics. The topic pages (starting on page 27) contain the required content for each topic.

# Course at a Glance

## Plan

The Course at a Glance provides a useful visual organization of the AP Psychology curricular components, including:

- Sequence of units, along with approximate weighting and suggested pacing. Please note, pacing is based on 45-minute class periods, meeting five days each week for a full academic year.
- Progression of topics within each unit.
- Science practices across units.

## Teach

**SCIENCE PRACTICES**

1 Concept Understanding
2 Research Methods and Design
3 Data Interpretation
4 Argumentation

## Required Course Content

Each topic contains required Learning Objectives and Essential Knowledge Statements that form the basis of the assessment on the AP Exam.

## Assess

Assign the Progress Checks—either as homework or in class—for each unit. Each Progress Check contains formative multiple-choice and free-response questions. The feedback from the Progress Checks shows students the areas where they need to focus.

### UNIT 1 Biological Bases of Behavior

**~17–23** Class Periods | **15–25%** AP Exam Weighting

| | |
|---|---|
| 1 2 | 1.1 Interaction of Heredity and Environment |
| 1 3 | 1.2 Overview of the Nervous System |
| 1 2 3 | 1.3 The Neuron and Neural Firing |
| 1 2 3 | 1.4 The Brain |
| 1 2 4 | 1.5 Sleep |
| 1 2 3 | 1.6 Sensation |

### UNIT 2 Cognition

**~17–23** Class Periods | **15–25%** AP Exam Weighting

| | |
|---|---|
| 1 3 | 2.1 Perception |
| 1 2 | 2.2 Thinking, Problem-Solving, Judgments, and Decision-Making |
| 1 2 | 2.3 Introduction to Memory |
| 1 2 3 | 2.4 Encoding Memories |
| 1 2 | 2.5 Storing Memories |
| 1 3 | 2.6 Retrieving Memories |
| 1 2 4 | 2.7 Forgetting and Other Memory Challenges |
| 1 2 4 | 2.8 Intelligence and Achievement |

### Progress Check 1

**Multiple-choice: ~15 questions**
**Free-response: 2 questions**
- Article Analysis Question (partial)
- Article Analysis Question (partial)

### Progress Check 2

**Multiple-choice: ~25 questions**
**Free-response: 2 questions**
- Evidence-Based Question
- Evidence-Based Question

**NOTE:** Partial versions of the free-response questions are provided to prepare students for more complex, full questions that they will encounter on the AP Exam.

## UNIT 3 Development and Learning

**~17–23** Class Periods | **15–25%** AP Exam Weighting

- 1, 2 — **3.1** Themes and Methods in Developmental Psychology
- 1, 3, 4 — **3.2** Physical Development Across the Lifespan
- 2 — **3.3** Gender and Sexual Orientation
- 1, 2, 4 — **3.4** Cognitive Development Across the Lifespan
- 1, 2 — **3.5** Communication and Language Development
- 1, 2 — **3.6** Social-Emotional Development Across the Lifespan
- 1, 2, 3 — **3.7** Classical Conditioning
- 1, 3, 4 — **3.8** Operant Conditioning
- 1, 4 — **3.9** Social, Cognitive, and Neurological Factors in Learning

### Progress Check 3

**Multiple-choice: ~20 questions**
**Free-response: 2 questions**
- Article Analysis Question
- Evidence-Based Question

## UNIT 4 Social Psychology and Personality

**~17–23** Class Periods | **15–25%** AP Exam Weighting

- 1, 2, 4 — **4.1** Attribution Theory and Person Perception
- 1, 3, 4 — **4.2** Attitude Formation and Attitude Change
- 1, 2, 3, 4 — **4.3** Psychology of Social Situations
- 1, 2 — **4.4** Psychodynamic and Humanistic Theories of Personality
- 1, 2, 3 — **4.5** Social-Cognitive and Trait Theories of Personality
- 1, 2 — **4.6** Motivation
- 1, 2, 3, 4 — **4.7** Emotion

### Progress Check 4

**Multiple-choice: ~10 questions**
**Free-response: 2 questions**
- Article Analysis Question
- Evidence-Based Question

## UNIT 5 Mental and Physical Health

**~17–23** Class Periods | **15–25%** AP Exam Weighting

- 1, 3 — **5.1** Introduction to Health Psychology
- 1, 2, 4 — **5.2** Positive Psychology
- 1, 2, 4 — **5.3** Explaining and Classifying Psychological Disorders
- 1, 2, 3, 4 — **5.4** Selection of Categories of Psychological Disorders
- 1, 2, 3, 4 — **5.5** Treatment of Psychological Disorders

### Progress Check 5

**Multiple-choice: ~30 questions**
**Free-response: 2 questions**
- Article Analysis Question
- Evidence-Based Question

AP PSYCHOLOGY

# Unit Guides

## Introduction

Designed with extensive input from the community of AP Psychology educators, the unit guides offer teachers helpful guidance in building students' skills and knowledge. The suggested sequence was identified through a thorough analysis of the syllabi of highly effective AP teachers and the organization of typical college textbooks. This unit structure respects new AP teachers' time by providing one possible sequence they can adopt or modify rather than having to build from scratch. An additional benefit is that these units enable the AP Program to provide interested teachers with formative assessments—the Progress Checks—that they can assign their students at the end of each unit to gauge progress toward success on the AP Exam. However, experienced AP teachers who are satisfied with their current course organization and exam results should feel no pressure to adopt these units, which comprise an optional sequence for this course.

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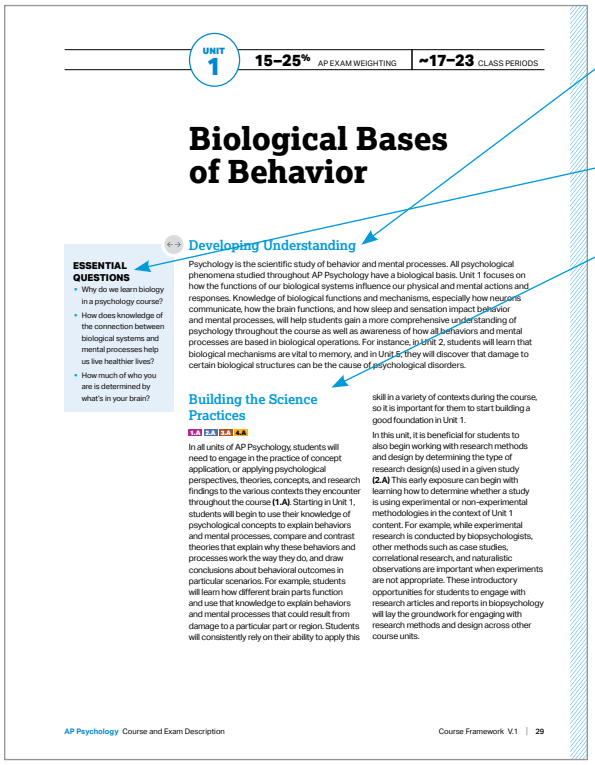
# Using the Unit Guides



UNIT 1 | 15–25% AP EXAM WEIGHTING | ~17–23 CLASS PERIODS

## Biological Bases of Behavior

**ESSENTIAL QUESTIONS**
- Why do we learn biology in a psychology course?
- How does knowledge of the connection between biological systems and mental processes help us live healthier lives?
- How much of who you are is determined by what's in your brain?

### Developing Understanding

Psychology is the scientific study of behavior and mental processes. All psychological phenomena studied throughout AP Psychology have a biological basis. Unit 1 focuses on how the functions of our biological systems influence our physical and mental actions and responses. Knowledge of biological functions and mechanisms, especially how neurons communicate, how the brain functions, and how sleep and sensation impact behavior and mental processes, will help students gain a more comprehensive understanding of psychology throughout the course as well as awareness of how all behaviors and mental processes are based in biological operations. For instance, in Unit 2, students will learn that biological mechanisms are vital to memory, and in Unit 5, they will discover that damage to certain biological structures can be the cause of psychological disorders.

### Building the Science Practices

1.A 2.A 3.A 4.A

In all units of AP Psychology, students will need to engage in the practice of concept application, or applying psychological perspectives, theories, concepts, and research findings to the various contexts they encounter throughout the course **(1.A)**. Starting in Unit 1, students will begin to use their knowledge of psychological concepts to explain behaviors and mental processes, compare and contrast theories that explain why these behaviors and processes work the way they do, and draw conclusions about behavioral outcomes in particular scenarios. For example, students will learn how different brain parts function and use that knowledge to explain behaviors and mental processes that could result from damage to a particular part or region. Students will consistently rely on their ability to apply this skill in a variety of contexts during the course, so it is important for them to start building a good foundation in Unit 1.

In this unit, it is beneficial for students to also begin working with research methods and design by determining the type of research design(s) used in a given study **(2.A)** This early exposure can begin with learning how to determine whether a study is using experimental or non-experimental methodologies in the context of Unit 1 content. For example, while experimental research is conducted by biopsychologists, other methods such as case studies, correlational research, and naturalistic observations are important when experiments are not appropriate. These introductory opportunities for students to engage with research articles and reports in biopsychology will lay the groundwork for engaging with research methods and design across other course units.

AP Psychology Course and Exam Description | Course Framework V.1 | 29

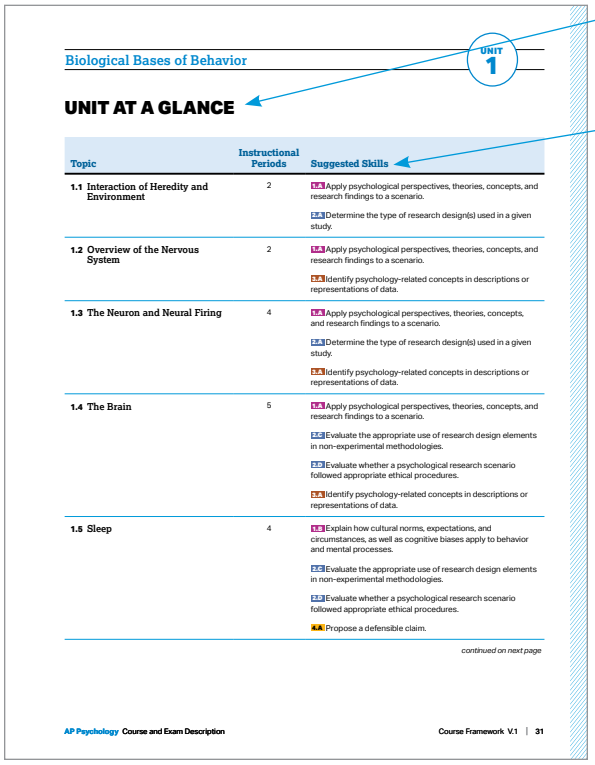
## UNIT OPENERS

**Developing Understanding** provides an overview that contextualizes and situates the key content of the unit within the scope of the course.

The **essential questions** are thought-provoking questions that motivate students and inspire inquiry.

**Building the Science Practices** describes skills within the practices that are appropriate to focus on in that unit. Certain practices have been noted to indicate areas of emphasis for that unit.

**Preparing for the AP Exam** provides helpful tips and common student misunderstandings identified from prior exam data.



Biological Bases of Behavior | UNIT 1

### UNIT AT A GLANCE

| Topic | Instructional Periods | Suggested Skills |
|---|---|---|
| 1.1 Interaction of Heredity and Environment | 2 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br>2.A Determine the type of research design(s) used in a given study. |
| 1.2 Overview of the Nervous System | 2 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br>3.A Identify psychology-related concepts in descriptions or representations of data. |
| 1.3 The Neuron and Neural Firing | 4 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br>2.A Determine the type of research design(s) used in a given study.<br>3.A Identify psychology-related concepts in descriptions or representations of data. |
| 1.4 The Brain | 5 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br>2.C Evaluate the appropriate use of research design elements in non-experimental methodologies.<br>2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.<br>3.A Identify psychology-related concepts in descriptions or representations of data. |
| 1.5 Sleep | 4 | 1.E Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br>2.C Evaluate the appropriate use of research design elements in non-experimental methodologies.<br>2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.<br>4.A Propose a defensible claim. |

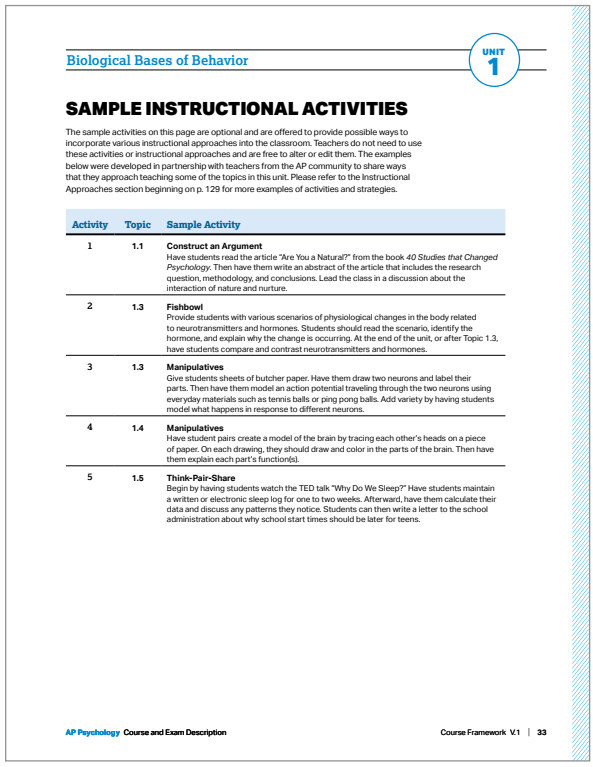
*continued on next page*

AP Psychology Course and Exam Description | Course Framework V.1 | 31

The **Unit at a Glance table** shows the topics and suggested skills.

The **suggested skills** for each topic show possible ways to link the content in that topic to specific AP Psychology skills. The individual skills have been thoughtfully chosen in a way that scaffolds the skills throughout the course. The questions on the Progress Checks are based on this pairing. However, AP Exam questions can pair the content with any of the skills.

# Using the Unit Guides



Biological Bases of Behavior — UNIT 1

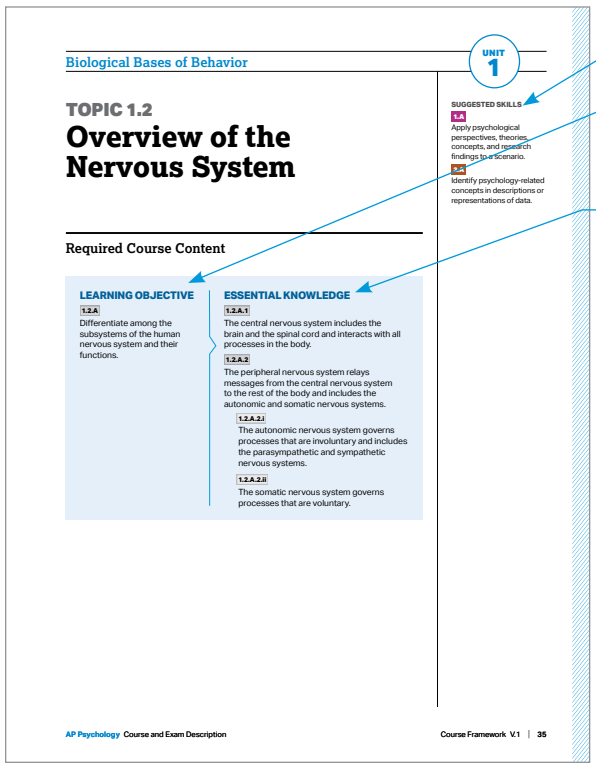
**SAMPLE INSTRUCTIONAL ACTIVITIES**

The sample activities on this page are optional and are offered to provide possible ways to incorporate various instructional approaches into the classroom. Teachers do not need to use these activities or instructional approaches and are free to alter or edit them. The examples below were developed in partnership with teachers from the AP community to share ways that they approach teaching some of the topics in this unit. Please refer to the Instructional Approaches section beginning on p. 129 for more examples of activities and strategies.

| Activity | Topic | Sample Activity |
|---|---|---|
| 1 | 1.1 | **Construct an Argument** Have students read the article "Are You a Natural?" from the book *40 Studies that Changed Psychology*. Then have them write an abstract of the article that includes the research question, methodology, and conclusions. Lead the class in a discussion about the interaction of nature and nurture. |
| 2 | 1.3 | **Fishbowl** Provide students with various scenarios of physiological changes in the body related to neurotransmitters and hormones. Students should read the scenario, identify the hormone, and explain why the change is occurring. At the end of the unit, or after Topic 1.3, have students compare and contrast neurotransmitters and hormones. |
| 3 | 1.3 | **Manipulatives** Give students sheets of butcher paper. Have them draw two neurons and label their parts. Then have them model an action potential traveling through the two neurons using everyday materials such as tennis balls or ping pong balls. Add variety by having students model what happens in response to different neurons. |
| 4 | 1.4 | **Manipulatives** Have student pairs create a model of the brain by tracing each other's heads on a piece of paper. On each drawing, they should draw and color in the parts of the brain. Then have them explain each part's function(s). |
| 5 | 1.5 | **Think-Pair-Share** Begin by having students watch the TED talk "Why Do We Sleep?" Have students maintain a written or electronic sleep log for one to two weeks. Afterward, have them calculate their data and discuss any patterns they notice. Students can then write a letter to the school administration about why school start times should be later for teens. |

AP Psychology Course and Exam Description — Course Framework V.1 | 33

The **Sample Instructional Activities** includes optional activities that can help teachers tie together the content and skill for a particular topic.



Biological Bases of Behavior — UNIT 1

TOPIC 1.2

**Overview of the Nervous System**

SUGGESTED SKILLS

1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.

2.A Identify psychology-related concepts in descriptions or representations of data.

Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| 1.2.A Differentiate among the subsystems of the human nervous system and their functions. | 1.2.A.1 The central nervous system includes the brain and the spinal cord and interacts with all processes in the body.<br>1.2.A.2 The peripheral nervous system relays messages from the central nervous system to the rest of the body and includes the autonomic and somatic nervous systems.<br>1.2.A.2.i The autonomic nervous system governs processes that are involuntary and includes the parasympathetic and sympathetic nervous systems.<br>1.2.A.2.ii The somatic nervous system governs processes that are voluntary. |

AP Psychology Course and Exam Description — Course Framework V.1 | 35

## TOPIC PAGES

The **suggested skill** offers a possible skill to pair with the topic.

**Learning Objectives** define what a student needs to be able to do with content knowledge in order to progress through the course.

**Essential knowledge** statements define the required content knowledge associated with each learning objective assessed on the AP Exam.

**Exclusion Statements** provide guidance to teachers regarding the content exclusions of the AP Psychology course.

AP PSYCHOLOGY

# UNIT 1

# Biological Bases of Behavior

**15–25%**
AP EXAM WEIGHTING

**~17–23**
CLASS PERIODS

Remember to go to **AP Classroom** to assign students the online **Progress Check** for this unit.

Whether assigned as homework or completed in class, the **Progress Check** provides each student with immediate feedback related to this unit's topics and skills.

### Progress Check 1

**Multiple-choice: ~15 questions**
**Free-response: 2 questions**

- Article Analysis Question (partial)
- Article Analysis Question (partial)

UNIT 1

**15–25%** AP EXAM WEIGHTING | **~17–23** CLASS PERIODS

# Biological Bases of Behavior

**ESSENTIAL QUESTIONS**

- Why do we learn biology in a psychology course?
- How does knowledge of the connection between biological systems and mental processes help us live healthier lives?
- How much of who you are is determined by what's in your brain?

## Developing Understanding

Psychology is the scientific study of behavior and mental processes. All psychological phenomena studied throughout AP Psychology have a biological basis. Unit 1 focuses on how the functions of our biological systems influence our physical and mental actions and responses. Knowledge of biological functions and mechanisms, especially how neurons communicate, how the brain functions, and how sleep and sensation impact behavior and mental processes, will help students gain a more comprehensive understanding of psychology throughout the course as well as awareness of how all behaviors and mental processes are based in biological operations. For instance, in Unit 2, students will learn that biological mechanisms are vital to memory, and in Unit 5, they will discover that damage to certain biological structures can be the cause of psychological disorders.

## Building the Science Practices

1.A 2.A 3.A 4.A

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In this unit, it is beneficial for students to also begin working with research methods and design by determining the type of research design(s) used in a given study **(2.A)** This early exposure can begin with learning how to determine whether a study is using experimental or non-experimental methodologies in the context of Unit 1 content. For example, while experimental research is conducted by biopsychologists, other methods such as case studies, correlational research, and naturalistic observations are important when experiments are not appropriate. These introductory opportunities for students to engage with research articles and reports in biopsychology will lay the groundwork for engaging with research methods and design across other course units.

# Biological Bases of Behavior

Unit 1 also provides students with an introduction to data interpretation by evaluating and analyzing representations of psychological concepts in quantitative and qualitative research, including tables, graphs, charts, figures, and diagrams. As a first step, students will learn to identify psychology-related concepts in descriptions or representations of data, as well as related variables and statistics **(3.A)**. Gaining a good foundation in identifying course concepts in data representations will help students be able to better interpret these representations and related statistics later in the course.

Engaging with the science practice of argumentation in every unit will help students gain proficiency throughout the course. In Unit 1, the focus should be on ensuring students can make a defensible claim about a psychological perspective, theory, concept, or research finding **(4.A)**. As teachers introduce research studies in biopsychology— those related to sleep, for example—to their students, they may want to have them practice articulating a claim that can be made from the research results. Students will need to become experienced with this skill in order to be able to move on to providing reasoning that supports their proposed claims, which they will start doing in Unit 2.

## Preparing for the AP Exam

Learning the content and skills emphasized in Unit 1 will enable students to explain, compare, and begin to propose claims about the biological bases of behavior and mental processes. While students may liken learning about the bases of behavior to similar lessons from an introductory biology class, the focus of the AP Psychology Exam's multiple-choice questions for this unit will be on functions, not structures. For example, students will be asked about the process of neural communication, but they will not be asked to identify parts of the neuron. They will need to be able to connect which neurotransmitters function with which biological processes—and how those functions relate to behavior and mental processes. By learning how the neurotransmitters work—and don't work—as intended during the neuronal firing process, students can understand how successful and disrupted transmission affects behavior and mental processes in disorders such as multiple sclerosis or myasthenia gravis (Topic 1.3).

In both free-response questions on the AP Psychology Exam, students will be expected to engage with research studies and the skill of argumentation. The Evidence-Based Question (EBQ) asks students to propose a defensible claim based in psychological science about a specific topic related to a set of three summarized sources—a direct application of skill 4.A. The Article Analysis Question (AAQ) asks students to identify specific research elements presented in a peer-reviewed, summarized source, including the methodology used **(2.A)**. Increased opportunities to practice these foundational skills in Unit 1 will help students build related, more advanced skills in later units.

# UNIT AT A GLANCE

| Topic | Instructional Periods | Suggested Skills |
|---|---|---|
| **1.1 Interaction of Heredity and Environment** | 2 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.A Determine the type of research design(s) used in a given study. |
| **1.2 Overview of the Nervous System** | 2 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>3.A Identify psychology-related concepts in descriptions or representations of data. |
| **1.3 The Neuron and Neural Firing** | 4 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.A Determine the type of research design(s) used in a given study.<br><br>3.A Identify psychology-related concepts in descriptions or representations of data. |
| **1.4 The Brain** | 5 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.C Evaluate the appropriate use of research design elements in non-experimental methodologies.<br><br>2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.<br><br>3.A Identify psychology-related concepts in descriptions or representations of data. |
| **1.5 Sleep** | 4 | 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br><br>2.C Evaluate the appropriate use of research design elements in non-experimental methodologies.<br><br>2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.<br><br>4.A Propose a defensible claim. |

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# UNIT AT A GLANCE *(cont'd)*

| Topic | Instructional Periods | Suggested Skills |
|---|---|---|
| **1.6 Sensation** | 5 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.B Evaluate the appropriate use of research design elements in experimental methodology.<br><br>3.B Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set.<br><br>3.C Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram. |

Go to **AP Classroom** to assign the **Progress Check** for Unit 1.
Review the results in class to identify and address any student misunderstandings.

# SAMPLE INSTRUCTIONAL ACTIVITIES

The sample activities on this page are optional and are offered to provide possible ways to incorporate various instructional approaches into the classroom. Teachers do not need to use these activities or instructional approaches and are free to alter or edit them. The examples below were developed in partnership with teachers from the AP community to share ways that they approach teaching some of the topics in this unit. Please refer to the Instructional Approaches section beginning on p. 129 for more examples of activities and strategies.

| Activity | Topic | Sample Activity |
|---|---|---|
| 1 | 1.1 | **Construct an Argument**<br>Have students read the article "Are You a Natural?" from the book *40 Studies that Changed Psychology*. Then have them write an abstract of the article that includes the research question, methodology, and conclusions. Lead the class in a discussion about the interaction of nature and nurture. |
| 2 | 1.3 | **Fishbowl**<br>Provide students with various scenarios of physiological changes in the body related to neurotransmitters and hormones. Students should read the scenario, identify the hormone, and explain why the change is occurring. At the end of the unit, or after Topic 1.3, have students compare and contrast neurotransmitters and hormones. |
| 3 | 1.3 | **Manipulatives**<br>Give students sheets of butcher paper. Have them draw two neurons and label their parts. Then have them model an action potential traveling through the two neurons using everyday materials such as tennis balls or ping pong balls. Add variety by having students model what happens in response to different neurons. |
| 4 | 1.4 | **Manipulatives**<br>Have student pairs create a model of the brain by tracing each other's heads on a piece of paper. On each drawing, they should draw and color in the parts of the brain. Then have them explain each part's function(s). |
| 5 | 1.5 | **Think-Pair-Share**<br>Begin by having students watch the TED talk "Why Do We Sleep?" Have students maintain a written or electronic sleep log for one to two weeks. Afterward, have them calculate their data and discuss any patterns they notice. Students can then write a letter to the school administration about why school start times should be later for teens. |

**SUGGESTED SKILLS**

**1.A**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.A**
Determine the type of research design(s) used in a given study.

# TOPIC 1.1
# Interaction of Heredity and Environment

## Required Course Content

### LEARNING OBJECTIVE

**1.1.A**
Explain the relationship between heredity and environment in shaping behavior and mental processes.

### ESSENTIAL KNOWLEDGE

**1.1.A.1**
Heredity and environmental factors interact to shape behavior and mental processes.

**1.1.A.1.i**
Heredity, or "nature," refers to genetic or predisposed characteristics that influence physical, behavioral, and mental traits and processes.

**1.1.A.1.ii**
Environmental factors, or "nurture," refers to the external factors that one experiences, such as family interactions or education.

*Exclusion Statement: Specific information about genetics (genotype, phenotype, DNA, chromosomes, and recessive and dominant gene expression) is beyond the scope of the AP Psychology Exam.*

**1.1.A.2**
The evolutionary perspective explores how natural selection affects the expression of behavior and mental processes to increase survival and reproductive success. Some theorists have sought to apply principles of the evolutionary perspective in ways that discriminate against others (eugenics).

**1.1.A.3**
Research on the effects of genes on individual behavior and mental processes is often conducted using twin studies, family studies, and adoption studies.

# TOPIC 1.2
# Overview of the Nervous System

**SUGGESTED SKILLS**

**1.A**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**3.A**
Identify psychology-related concepts in descriptions or representations of data.

## Required Course Content

### LEARNING OBJECTIVE

**1.2.A**
Differentiate among the subsystems of the human nervous system and their functions.

### ESSENTIAL KNOWLEDGE

**1.2.A.1**
The central nervous system includes the brain and the spinal cord and interacts with all processes in the body.

**1.2.A.2**
The peripheral nervous system relays messages from the central nervous system to the rest of the body and includes the autonomic and somatic nervous systems.

- **1.2.A.2.i**
  The autonomic nervous system governs processes that are involuntary and includes the parasympathetic and sympathetic nervous systems.
- **1.2.A.2.ii**
  The somatic nervous system governs processes that are voluntary.

**SUGGESTED SKILLS**

**1.A**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.A**
Determine the type of research design(s) used in a given study.

**3.A**
Identify psychology-related concepts in descriptions or representations of data.

# TOPIC 1.3
# The Neuron and Neural Firing

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **1.3.A** Explain how the structures and functions of typical neurons in the central nervous system affect behavior and mental processes. | **1.3.A.1** Two common types of neural cells in the brain are neurons (neural cells that transmit information) and glial cells (cells that provide structure, insulation, communication, and waste transport). These types of cells form the basis of the nervous system and are the building blocks of all behavior and mental processes. |
| | **1.3.A.2** In the spinal cord, the reflex arc demonstrates how neurons within the central and peripheral nervous systems work together to respond to stimuli. Three types of neurons work together in the spinal cord to create a reflex arc: sensory neurons, motor neurons, and interneurons. |
| **1.3.B** Explain how the basic process of neural transmission is related to behavior and mental processes. | **1.3.B.1** The process of neural transmission most commonly occurs in an orderly, systematic way and involves the all-or-nothing principle, depolarization, refractory period, resting potential, reuptake, and threshold. Disruptions to this process could lead to disorders such as multiple sclerosis or myasthenia gravis. *Exclusion Statement: The sodium-potassium pump is outside the scope of the AP Psychology Exam.* |

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| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| **1.3.B**<br>Explain how the basic process of neural transmission is related to behavior and mental processes. | **1.3.B.2**<br>Each neurotransmitter has specific function(s) related to behavior and mental processes, which may depend on the neurotransmitter's location in the nervous system. Neurotransmitters generally communicate either excitatory (making an action potential more likely) or inhibitory (making an action potential less likely) messages. Neurotransmitters related to behavior and mental processes for study in AP Psychology are limited to dopamine, serotonin, norepinephrine, glutamate, GABA, endorphins, substance p, and acetylcholine.<br>*Exclusion Statement: The AP Psychology Exam will only address the listed neurotransmitters in EK 1.3.B.2.*<br>**1.3.B.3**<br>Outside of the nervous system, hormones perform actions similar to neurotransmitters. Hormones related to behavior and mental processes for study in AP Psychology are limited to adrenaline, leptin, ghrelin, melatonin, and oxytocin.<br>*Exclusion Statement: The AP Psychology Exam will only address the listed hormones in EK 1.3.B.3.*<br>*Exclusion Statement: Specific information about the glands of the endocrine system (with the exception of the pituitary gland as referenced in EK 1.4.A.4) is outside the scope of the AP Psychology Exam.* |
| **1.3.C**<br>Explain how psychoactive drugs affect behavior and mental processes. | **1.3.C.1**<br>Psychoactive drugs can influence neurotransmitter function in various ways throughout the neural communication process. Some act as agonists which encourage neural firing. Some act as antagonists which discourage neural firing. Some act as reuptake inhibitors which block the reabsorption of neurotransmitters back into the cell. |

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## LEARNING OBJECTIVE

1.3.C

Explain how psychoactive drugs affect behavior and mental processes.

## ESSENTIAL KNOWLEDGE

**1.3.C.2**

Psychoactive drugs have psychological and physiological effects.

**1.3.C.2.i**

Stimulants, such as caffeine and cocaine, typically cause increased neural activity.

**1.3.C.2.ii**

Depressants, such as alcohol, typically cause decreased neural activity.

**1.3.C.2.iii**

Hallucinogens, such as marijuana, typically cause distortions in perception and/or cognition.

**1.3.C.2.iv**

Opioids, such as heroin, typically act as pain relievers.

**1.3.C.3**

Psychoactive drug use can lead to tolerance and/or addiction. Addiction can create significant withdrawal symptoms if the psychoactive drugs are no longer consumed.

# TOPIC 1.4
# The Brain

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **1.4.A** Explain how the structures and functions of the brain apply to behavior and mental processes. | **1.4.A.1** The brain stem (including the medulla) generally controls basic functioning such as breathing and heart rate. |
| | **1.4.A.2** The reticular activating system and the brain's reward center generally control some voluntary movement, eye movement, and some types of learning, cognition, and emotion. |
| | **1.4.A.3** The cerebellum generally controls coordination of muscle movement, balance, and some forms of procedural learning. |
| | **1.4.A.4** The cerebral cortex is divided into two hemispheres and includes the limbic system (thalamus, hypothalamus, pituitary gland, hippocampus, amygdala), corpus callosum, and the lobes of the cortex. |
| | **1.4.A.4.i** The occipital lobes generally control visual information processing and are located in the rear of the brain. |
| | **1.4.A.4.ii** The temporal lobes generally control auditory and linguistic processing and are located on the sides of the brain. |

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**SUGGESTED SKILLS**

**1.A** Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.C** Evaluate the appropriate use of research design elements in non-experimental methodologies.

**2.D** Evaluate whether a psychological research scenario followed appropriate ethical procedures.

**3.A** Identify psychology-related concepts in descriptions of representations of data.

## LEARNING OBJECTIVE

**1.4.A**

Explain how the structures and functions of the brain apply to behavior and mental processes.

## ESSENTIAL KNOWLEDGE

**1.4.A.4.iii**

The parietal lobes generally control association areas, which process and organize information, and the somatosensory cortex, which processes touch sensitivity. These lobes are located near the back crown of the brain.

**1.4.A.4.iv**

The frontal lobes, located just behind the forehead, generally control linguistic processing, higher-order thinking, and executive functioning, especially in the prefrontal cortex. The motor cortex is located at the rear of the frontal lobes and controls most types of skeletal movement.

**1.4.A.5**

Split brain research, achieved by severing the corpus callosum (often a treatment for severe epilepsy), reveals that the right and left hemispheres of the brain may specialize in different activities and functions.

**1.4.A.5.i**

Areas of the brain that affect language are typically located in the left hemisphere and include Broca's area (responsible for speech production) and Wernicke's area (responsible for speech comprehension). Damage to these parts of the brain can lead to aphasia.

**1.4.A.5.ii**

Researchers test for cortex specialization with split-brain patients by showing information in each visual field, taking advantage of the brain's contralateral hemispheric organization.

**1.4.A.6**

Brain plasticity is the ability of the brain to rewire itself or modify or create new connections throughout development and generally allows for the function of a damaged part of the brain to be assumed by a different part of the brain.

**1.4.A.7**

Research on the brain is done using scans (including EEG and fMRI), case studies, and surgical procedures (such as lesioning) to promote understanding of how the different structures of the brain work and how the brain functions together as a whole.

# TOPIC 1.5
# Sleep

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **1.5.A** Explain how the sleep/wake cycle affects behavior and mental processes throughout the day and night. | **1.5.A.1** Consciousness has varying levels of awareness of thoughts, feelings, behavior, and events in individuals' internal and external worlds. Sleep and wakefulness are two types of consciousness.<br>**1.5.A.2** The sleep/wake cycle is a circadian rhythm, which in humans is about a 24-hour cycle. Jet lag and shift work are disruptions of the circadian rhythm.<br>**1.5.A.3** The stages of sleep are identified by their specific EEG patterns.<br>**1.5.A.3 .i** NREM sleep occurs in Stages 1 through 3 and decreases in duration throughout the cycle. Hypnogogic sensations occur as one enters Initial Stage 1 sleep.<br>**1.5.A.3 .ii** REM sleep is considered paradoxical because it produces waves similar to wakefulness, but the body is at its most relaxed. Dreaming typically occurs in REM sleep. The frequency of REM sleep typically increases as the cycle progresses. When deprived of REM sleep, REM rebound can occur. |

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**SUGGESTED SKILLS**

**1.B** Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

**2.C** Evaluate the appropriate use of research design elements in non-experimental methodologies.

**2.D** Evaluate whether a psychological research scenario followed appropriate ethical procedures.

**4.A** Make a defensible claim.

## LEARNING OBJECTIVE

1.5.A

Explain how the sleep/wake cycle affects behavior and mental processes throughout the day and night.

## ESSENTIAL KNOWLEDGE

**1.5.A.4**

Theories regarding the structure and function of dreams include activation-synthesis and consolidation theory.

*Exclusion Statement: The psychoanalytic theory of dreams is outside of the scope of the AP Psychology Exam.*

**1.5.A.5**

Memory consolidation and restoration are current theories about why sleep occurs. These theories suggest that sleep is useful for organizing and consolidating memories or restoring depleted resources used throughout a given day.

**1.5.A.6**

Many disorders interrupt healthy sleep, and their effects on waking behavior and health vary. Sleep disruptions can affect physical and cognitive performance during wakefulness. Treating sleep disorders and following regular schedules for sleeping can improve waking performance and overall well-being. Disorders commonly studied in introductory psychology include insomnia, narcolepsy, REM sleep behavior disorder, sleep apnea, and somnambulism.

*Exclusion Statement: The AP Psychology Exam will only address the listed disorders in EK 1.5.A.6.*

# TOPIC 1.6
# Sensation

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **1.6.A** Explain how the process of sensation is related to behavior and mental processes. | **1.6.A.1** Sensation is the process of detecting information from the environment that meets a certain threshold and transducing stimuli into neurochemical messages for processing (perception) in the brain. The absolute threshold occurs when a stimulus can be detected at least 50% of the time. |
| | **1.6.A.2** Detection of change in stimuli or diminished sensitivity to stimuli can be explained by the just-noticeable difference and sensory adaptation. Weber's law describes the degree to which stimuli need to be different for the difference to be detected. |
| | **1.6.A.3** The sensory systems constantly work together in a process called sensory interaction. Synesthesia is an experience of sensation in which one system of sensation is experienced through another. |
| **1.6.B** Explain how the structures and functions of the visual sensory system relate to behavior and mental processes. | **1.6.B.1** The retina is the photosensitive surface at the back of the eye. Cells in the retina capture visual information that is transduced to the brain for processing. Evidence of incomplete images captured by the retina is demonstrated by the presence of the blind spot, where the visual nerve exits the eye. The brain fills in the gaps in the incomplete retinal images to perceive a relatively complete picture of the world. |

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**SUGGESTED SKILLS**

**1.A** Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.B** Evaluate the appropriate use of research design elements in experimental methodology.

**3.B** Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set.

**3.C** Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram.

## LEARNING OBJECTIVE

1.6.B

Explain how the structures and functions of the visual sensory system relate to behavior and mental processes.

## ESSENTIAL KNOWLEDGE

**1.6.B.2**

Visual stimuli are focused onto the retina by the lens via a process called accommodation. When this process is altered, nearsightedness or farsightedness can result.

**1.6.B.3**

Cells that lie in the periphery of the eye and detect shapes and movement, but not color, are called rods. These cells are mainly activated in low-light environments. These cells play a role in light and dark adaptation.

**1.6.B.4**

Color vision is explained by both the trichromatic theory and the opponent-process theory.

**1.6.B.4.i**

Photoreceptor cells located in the fovea of the eye that process color and detail are called cones. Researchers have identified blue (detecting short wavelengths), green (detecting medium wavelengths) and red (detecting long wavelengths) cones in the retina.

**1.6.B.4.ii**

Afterimages result when certain ganglion cells in the retina are activated while others are not. The ganglion cells involved in this opponent process are red/green, blue/yellow/ and black/white.

**1.6.B.4.iii**

Color vision deficiency involves damage or irregularities to one or more cones or ganglion cells (red/green, blue/yellow). Color vision deficiency includes dichromatism or monochromatism.

**1.6.B.5**

Damage to parts of the brain responsible for vision (mainly the occipital lobes) can result in disorders such as prosopagnosia (face blindness) and blindsight.

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| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **1.6.C** Explain how the structures and functions of the auditory sensory system relate to behavior and mental processes. | **1.6.C.1** Sound occurs through the movement of air molecules at different wavelengths (called pitch) and amplitudes (called loudness).<br>**1.6.C.2** Theories that help explain pitch perception include place theory, volley theory, and frequency theory.<br>**1.6.C.3** Sound localization describes how we identify where sounds in our environment are coming from.<br>**1.6.C.4** Hearing difficulties can result from aging and various kinds of damage to auditory structures. Types of hearing loss include conduction deafness and sensorineural deafness. |
| **1.6.D** Explain how the structures and functions of the chemical sensory systems relate to behavior and mental processes. | **1.6.D.1** Structures in the nose and brain process and/or transduce olfactory stimuli. Smell is the only sense not processed first in the thalamus of the brain. Pheromones produce chemical messages for the olfactory system.<br>**1.6.D.2** Gustation is the sense of taste, and types of tastes include sweet, sour, salty, bitter, umami, and oleogustus.<br>**1.6.D.3** Structures in the tongue, mouth, and brain process and/or transduce basic tastes. The number of taste receptors on the tongue is related to how sensitive people are to tastes, classifying them as supertasters, medium tasters, or nontasters.<br>**1.6.D.4** The chemical senses interact to create the sensation of taste. Without the sense of smell, taste sensations are either muted or not experienced. |
| **1.6.E** Explain how the structures and functions of the touch sensory system relate to behavior and mental processes. | **1.6.E.1** Structures within the skin and brain process and/or transduce touch stimuli. The sensation of "hot" is produced by the activation of warm and cold receptors in the skin. |

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| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| **1.6.F** Explain how the structures and functions of the pain sensory system relate to behavior and mental processes. | **1.6.F.1** Pain is processed both in the body and in the brain. Gate control theory is one attempt to describe the complexities of pain. Phantom limb sensation occurs when people who have lost limbs report sensation or pain where the limb used to be. |
| **1.6.G** Explain how the structures and functions that maintain balance (vestibular) and body movement (kinesthetic) relate to behavior and mental processes. | **1.6.G.1** The vestibular sense controls balance and is primarily detected by the semicircular canals and structures in the brain.<br>**1.6.G.2** Kinesthesis the sense of one's body movement. Kinesthesis allows the body to move in coordinated ways without having to look at the various parts of the body as it moves. |

AP PSYCHOLOGY

# UNIT 2

# Cognition

**15–25%**
AP EXAM WEIGHTING

**~17–23**
CLASS PERIODS


Remember to go to **AP Classroom** to assign students the online **Progress Check** for this unit.

Whether assigned as homework or completed in class, the **Progress Check** provides each student with immediate feedback related to this unit's topics and skills.

### Progress Check 2

**Multiple-choice: ~25 questions**
**Free-response: 2 questions**

- Evidence-Based Question
- Evidence-Based Question

UNIT 2

**15–25%** AP EXAM WEIGHTING | **~17–23** CLASS PERIODS

# Cognition

**ESSENTIAL QUESTIONS**

- Can you always trust your senses?
- Why don't people always make good decisions?
- What strategies do you use to help you remember important things?
- Why aren't our memories recorded by the brain exactly how we experienced them?

## Developing Understanding

Cognition plays a major role in the field of psychology. Building on the knowledge of anatomical structures and biological processes students learned in Unit 1, this unit introduces them to the memory processes and contains content that is relevant to their daily lives, such as how people remember and perceive the world around them. In Unit 2, students learn about the basic elements of thought, judgment, and problem-solving, as well as research-based strategies for memory improvement that can be directly applicable to their lives outside of the classroom. Students also delve into the measurement of intelligence and achievement, including how these assessments have been used both to identify students with aptitude to increase opportunities in school and the workplace, but also to limit access to jobs, military ranks, and educational institutions. The focus on perception in this unit, coupled with sensation from Unit 1, helps connect biological bases of behavior with cognitive psychology—ideas about how expectations and biases filter sensations to produce perception relate to theories about memory construction, forgetting, and judgment. Unit 2 content will remain important as students move on to discussions of cognitive development in children and adults in Unit 3, where they will encounter a reappearance of concepts, such as schema and memory failure.

## Building the Science Practices

1.A 1.B 2.A 2.B 4.A 4.B

While students will continue to apply psychological perspectives, theories, and concepts to different scenarios **(1.A)** in Unit 2, they will also start to explain how cultural norms, expectations, and circumstances along with cognitive biases apply to behavior and mental processes **(1.B)**. This is especially pertinent when studying perception, thinking, and problem-solving, since cultural experiences and contexts can filter an individual's view of the world.

Additional opportunities for students to hone their ability to determine the type of research design(s) used in a given study **(2.A)** are widespread in Unit 2, such as studies related to encoding memories, forgetting, and other memory challenges. As students work with these studies, the next step in building the science practice of research methods and design is to evaluate the appropriate use of research design elements in experimental methodology **(2.B)**.

As students are exposed to various research studies related to cognition, they will have the chance to continue to sharpen their ability to propose a defensible claim **(4.A)**, which they first started in Unit 1. However, these investigations also bring opportunities for students to build their use of the science practice of argumentation by providing reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm **(4.B)**. Additionally, since memory research is generally easy to replicate with students, short experiments completed during

class can allow students to practice both proposing claims about their observations and using evidence and reasoning to explain the nuances of those claims, as well as support or refute their own claims and the claims of others.

## Preparing for the AP Exam

In the multiple-choice section of the AP Psychology Exam, students will encounter sets of questions related to research scenarios provided in the question prompts to apply skills in the science practice of research methods and design to answer the questions. Thus, students' continued encounters with research studies and repeated application of skills 2.A and 2.B—including within the context of Unit 2 content—will have direct correlation to the AP Exam.

The science practices of research methods and design and argumentation come together in the free-response section. If the Article Analysis Question (AAQ) is based on an experimental study, students will be asked to apply skill 2.B and state the operational definition of an identified variable. They will also lean heavily on their ability to apply skill 4.B to provide evidence to justify the extent to which the study provided is generalizable and explain how the conclusions from the study support or refute a claim about a given psychological concept.

# UNIT AT A GLANCE

| Topic | Instructional Periods | Suggested Skills |
|---|---|---|
| **2.1 Perception** | 3 | 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br><br>3.A Identify psychology-related concepts in descriptions or representations of data. |
| **2.2 Thinking, Problem-Solving, Judgments, and Decision Making** | 3 | 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br><br>2.C Evaluate the appropriate use of research design elements in non-experimental methodologies. |
| **2.3 Introduction to Memory** | 2 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.A Determine the type of research design(s) used in a given study. |
| **2.4 Encoding Memories** | 3 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.B Evaluate the appropriate use of research design elements in experimental methodology.<br><br>3.B Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set. |
| **2.5 Storing Memories** | 2 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.C Evaluation the appropriate use of research design elements in non-experimental methodologies. |
| **2.6 Retrieving Memories** | 4 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>3.A Identify psychology-related concepts in descriptions or representations of data.<br><br>3.C Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram. |

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# UNIT AT A GLANCE *(cont'd)*

| Topic | Instructional Periods | Suggested Skills |
|---|---|---|
| **2.7 Forgetting and Other Memory Challenges** | 3 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.B Evaluate the appropriate use of research design elements in experimental methodology.<br><br>4.A Propose a defensible claim. |
| **2.8 Intelligence and Achievement** | 3 | 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br><br>2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.<br><br>4.B Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm. |

Go to **AP Classroom** to assign the **Progress Check** for Unit 2.
Review the results in class to identify and address any student misunderstandings.

# SAMPLE INSTRUCTIONAL ACTIVITIES

The sample activities on this page are optional and are offered to provide possible ways to incorporate various instructional approaches into the classroom. Teachers do not need to use these activities or instructional approaches and are free to alter or edit them. The examples below were developed in partnership with teachers from the AP community to share ways that they approach teaching some of the topics in this unit. Please refer to the Instructional Approaches section beginning on p. 129 for more examples of activities and strategies.

| Activity | Topic | Sample Activity |
|---|---|---|
| 1 | 2.1 | **Use Manipulatives**<br>Have students find advertisements in physical or digital media that demonstrate the different monocular depth cues. Be sure to have students write a brief description of the depth cue they have identified and how it is used effectively (or not) in the ad. |
| 2 | 2.2 | **Think-Pair-Share**<br>Develop a list of concrete nouns (car, house, pet, etc.) and/or abstract nouns (beauty, justice, truth, etc.) and give a pair of students the same word. Instruct each student to come up with a prototype for their noun individually. Then, have students share their prototype with the student who shares their noun and have them compare and contrast their prototypes. Let students share with the class why their prototypes may be similar and different, using concepts from Topic 2.2 to support their conclusions. |
| 3 | 2.4 | **One-Minute Essay**<br>Have students respond to the following prompt: Describe an encoding technique that you would like to try to use on an upcoming test. Be specific about how you plan to use it for the content you hope to learn. Once students have completed their essays, have them share a few with the class to discuss successful implementation of encoding techniques learned in Topic 2.4 |
| 4 | 2.4 | **Index Card Summaries/Questions**<br>Have students draw the face side of a penny from memory with as much detail as possible. Then have them read excerpts from the book *Moonwalking with Einstein*, by Joshua Foer. Ask students to summarize the methods Foer describes to help memory and then discuss the ways they remember information. |
| 5 | 2.6 | **Think-Pair-Share**<br>Have students try to recall the names of the seven dwarfs in *Snow White*. Then show them a list that includes the dwarfs, among other similar names, and ask them to pick out the correct names. |
| 6 | 2.7 | **One-Minute Essay**<br>Review Loftus's study on the misinformation effect as it pertains to car accidents. Have students reflect on the validity of eyewitness testimony and the misconception of how it is used in criminal justice trials. Review other related eyewitness studies, such as the weapons-focus effect and the other-race effect. Have them review studies that support the weapons-focus effect as well as others that don't. Have students examine the problems associated with wrongful convictions based on eyewitness testimony. |

**SUGGESTED SKILLS**

**1.B**
Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

**3.A**
Identify psychology-related concepts in descriptions or representations of data.

# TOPIC 2.1
# Perception

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **2.1.A** Explain how internal and external factors influence perception. | **2.1.A.1** Perception is influenced by whether one primarily relies on external sensory information (bottom-up processing) or internal prior expectations (top-down processing).<br>**2.1.A.2** Schemas and perceptual sets are internal factors that filter perceptions of the world.<br>**2.1.A.3** Contexts, experiences, and cultural experiences and expectations are external factors that filter perceptions of the world.<br>**2.1.A.4** Perceptual principles proposed by Gestalt psychology (closure, figure and ground, proximity, and similarity) help explain how humans organize their perceptual world.<br>**2.1.A.5** Attention is an interaction of sensation and perception that is affected by internal and external processes.<br>**2.1.A.5.i** Some experiences of attention can be selective, such as with the cocktail party effect, where people attend to mentions of their names or specific topics in loud or distracting environments.<br>**2.1.A.5.ii** Inattention can lead to a type of "blindness" to aspects of the environment. Change blindness occurs when changes to the environment are not perceived due to inattention. |

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## LEARNING OBJECTIVE

**2.1.B**

Explain how visual perceptual processes produce correct or incorrect interpretations of stimuli.

## ESSENTIAL KNOWLEDGE

**2.1.B.1**

Binocular depth cues of retinal disparity (the difference between the images projecting onto the retina) and convergence (the merging of the retinal images by the brain) utilize images from each eye to provide perception of depth.

**2.1.B.2**

Monocular depth cues (relative clarity, relative size, texture gradient, linear perspective, and interposition) give the illusion of depth on flat or two-dimensional surfaces.

*Exclusion Statement: The AP Psychology Exam will only address the listed monocular depth cues in EK 2.1.B.2.*

**2.1.B.3**

Visual perceptual constancies maintain the perception of an object even when the images of the object in the visual field change.

**2.1.B.4**

Apparent movement can be visually perceived even when objects are not actually moving.

**SUGGESTED SKILLS**

**1.B**
Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

**2.A**
Determine the type of research design(s) used in a given study.

# TOPIC 2.2
# Thinking, Problem-Solving, Judgments, and Decision-Making

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **2.2.A** Explain how psychological concepts and theories account for thinking, problem-solving, judgment, and decision-making. | **2.2.A.1** Concepts form the basis of thought. Prototypes are the ideal example for any given concept.<br>**2.2.A.2** People form and modify schemas, or frameworks for thinking, through assimilation (taking in new information but not changing the schema in light of it) and accommodation (taking in new information and changing the schema to incorporate the new information).<br>**2.2.A.3** Algorithms address problems by attempting all possible solutions until the correct one is found.<br>**2.2.A.4** Heuristics address problems by using mental shortcuts to make judgments. Using heuristics can lead to errors in judgment when decisions are made according to prior expectations or stereotypes (representativeness heuristic) or recalling the first or most vivid example that comes to mind (availability heuristic).<br>**2.2.A.5** Decision making can be influenced by prior experiences that were successful (mental set) or circumstances surrounding a decision (priming and framing).<br>**2.2.A.6** Cognitive processes such as gambler's fallacy and sunk-cost fallacy can hinder people from making good decisions. |

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| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| 2.2.A<br>Explain how psychological concepts and theories account for thinking, problem-solving, judgment, and decision-making. | **2.2.A.7**<br>Executive functions are cognitive processes that allow individuals to generate, organize, plan, and carry out goal-directed behaviors and experience critical thinking.<br><br>**2.2.A.8**<br>Creativity is a way of thinking that includes generating novel ideas and engaging in divergent (versus convergent) thinking. Creative thinking is hindered by functional fixedness. |

**SUGGESTED SKILLS**

**1.A**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.A**
Determine the type of research design(s) used in a given study.

# TOPIC 2.3
# Introduction to Memory

## Required Course Content

### LEARNING OBJECTIVE

**2.3.A**
Explain how the types, structures, and processes of memory work.

### ESSENTIAL KNOWLEDGE

**2.3.A.1**
Memories for learned knowledge, events, and experiences are differentiated by how they are processed by, stored in, and retrieved by the brain.

- **2.3.A.1.i**
  Explicit memory is a type of memory that is more easily described or explained to others. Types of explicit memory include episodic and semantic.
- **2.3.A.1.ii**
  Implicit memory is more challenging to describe or explain to others. Procedural memory is a type of implicit memory for procedures and processes.
- **2.3.A.1.iii**
  Prospective memory is a type of memory related to future actions.

**2.3.A.2**
Long-term potentiation, a process by which synaptic connections between neurons become stronger with frequent activation, is a biological process for memory.

**2.3.A.3**
The working memory model examines how our primary memory system—working memory—engages in a dynamic interaction with several components, namely the central executive, phonological loop, and visuospatial sketchpad, to process information into long-term memory.

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| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| 2.3.A<br>Explain how the types, structures, and processes of memory work. | **2.3.A.4**<br>The multi-store model proposes three interacting systems (sensory memory [including iconic and echoic memory], short-term memory, and long-term memory) that information must pass through to be remembered. This model focuses on the impact of automatic and effortful processing on memory encoding, storage, and retrieval.<br><br>**2.3.A.5**<br>The levels of processing model proposes that memory is encoded on three levels from shallowest to deepest: structural, phonemic, and semantic. |

**SUGGESTED SKILLS**

**1.A**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.B**
Evaluate the appropriate use of research design elements in experimental methodology.

**3.B**
Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set.

# TOPIC 2.4
# Encoding Memories

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **2.4.A** Explain how different encoding processes work to get information into memory. | **2.4.A.1** Encoding involves processes and strategies to get information into memory. How information is encoded can determine how effectively information is stored and retrieved.<br>**2.4.A.2** Mnemonic devices, such as method of loci, are processes that aid in encoding information into working and long-term memory.<br>**2.4.A.3** Encoding can be improved by the process of grouping information together into meaningful chunks ("chunking"), categories, or hierarchies.<br>**2.4.A.4** The spacing effect is a process that can cause significant differences in encoding and memory consolidation depending on whether the information is encoded all at once (massed practice) or distributed over time (distributed practice).<br>**2.4.A.5** Encoding processes can be affected by the order of how the information is presented, called the serial position effect. The serial position effect predicts that information presented at the beginning of a list (primacy effect) or the end of a list (recency effect) will be more memorable than information presented in the middle of a list. |

# TOPIC 2.5
# Storing Memories

**SUGGESTED SKILLS**

**1.A**

Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.C**

Evaluate the appropriate use of research design elements in non-experimental methodologies.

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **2.5.A** Explain how memory storage processes retain information in memory. | **2.5.A.1** Sensory memory, short-term memory, working memory, and long-term memory are processes that differ in storage duration, capacity, and content. |
| | **2.5.A.2** Storage may be prolonged by rehearsing information over time (maintenance rehearsal). Rehearsing information over time in ways that promote meaning (elaborative rehearsal) helps with memory retention. |
| | **2.5.A.3** Some people demonstrate highly superior autobiographical memory which may indicate that there are biological processes for superior memory storage. Autobiographical memory may also explain why memories connected to our own lives or selves are more memorable. |
| | **2.5.A.4** Storage processes may be negatively affected by physical impairment and developmental limitations, such as amnesia (retrograde and anterograde), Alzheimer's disease, and infantile amnesia. |

**SUGGESTED SKILLS**

**1.B**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**3.A**
Identify psychology-related concepts in descriptions or representations of data.

**3.C**
Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram.

# TOPIC 2.6
# Retrieving Memories

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **2.6.A** Explain how memory retrieval processes get information out of memory. | **2.6.A.1** The process of memory retrieval occurs through recall (remembering without cues) or recognition (which relies on retrieval cues).<br>**2.6.A.2** The process of memory retrieval can be enhanced when people are in the same environmental space (context-dependent memory), mood (mood-congruent memory), or physical state (state-dependent memory) as they were when they encoded the information to be retrieved.<br>**2.6.A.3** Successful retrieval is more likely when using retrieval practice processes, including testing effect and metacognition. |

# TOPIC 2.7
# Forgetting and Other Memory Challenges

**SUGGESTED SKILLS**

**1.A**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.B**
Evaluate the appropriate use of research design elements in experimental methodology.

**4.A**
Propose a defensible claim.

## Required Course Content

### LEARNING OBJECTIVE

**2.7.A**
Explain possible reasons why memory failure or errors may occur.

### ESSENTIAL KNOWLEDGE

**2.7.A.1**
The forgetting curve shows that time is a significant factor in forgetting. Forgetting occurs rapidly after initial learning and levels off over time.

**2.7.A.2**
Many memories are difficult to retrieve due to encoding failure, interference (proactive or retroactive), or inadequate retrieval (i.e., tip-of-the-tongue phenomenon).

**2.7.A.3**
Psychodynamic theorists believe that information or memories can be forgotten to defend the ego from distress (repression).

**2.7.A.4**
The accuracy of memories may be affected by the misinformation effect, source amnesia, or constructive memory (via memory consolidation and imagination inflation).

**SUGGESTED SKILLS**

**1.B**
Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

**2.D**
Evaluate whether a psychological research scenario followed appropriate ethical procedures.

**4.B**
Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm.

# TOPIC 2.8
# Intelligence and Achievement

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **2.8.A** Explain how modern and historical theories describe intelligence. | **2.8.A.1** Throughout history, consensus about how to define and measure intelligence continues to be elusive and can be subject to bias. Researchers debate whether intelligence is a general ability (called g) or is comprised of multiple abilities. |
| **2.8.B** Explain how intelligence is measured. | **2.8.B.1** Early formal intelligence tests yielded an intelligence quotient (IQ), which divided mental age by chronological age. In modern times, IQ scores are often used to identify students for educational services.<br>*Exclusion Statement: Labeling or describing cognitive abilities and disabilities are outside the scope of the AP Psychology Exam.*<br>**2.8.B.2** All psychological assessments, including intelligence tests, should adhere to sound psychometric principles to be considered useful.<br>**2.8.B.2.i** A test is said to be standardized when it is administered using consistent procedures and environments.<br>**2.8.B.2.ii** A test is considered valid if it measures what it is designed to measure. Types of validity include construct and predictive.<br>**2.8.B.2.iii** A test is considered reliable if it yields similar results each time it is administered. Types of reliability include test-retest and split-half. |

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| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| 2.8.B<br>Explain how intelligence is measured. | **2.8.B.3**<br>Researchers strive to develop assessments of intelligence that are socio-culturally responsive to reduce stereotype threat and potential inequity that may occur due to stereotype lift. |
| **2.8.C**<br>Explain how systemic issues relate to the quantitative and qualitative uses of intelligence assessments. | **2.8.C.1**<br>IQ scores across much of the world have generally increased over time (Flynn Effect) due to societal factors, such as higher socioeconomic status and access to better health care and better nutrition.<br>**2.8.C.2**<br>IQ scores tend to vary more within a group than between groups. Personal and sociocultural biases can impact the interpretation of individual IQ scores and the score's relationship with other outcomes. Poverty discrimination and educational inequalities can negatively influence intelligence scores of individuals and societal groups around the world.<br>**2.8.C.3**<br>Scores from intelligence tests have been used to limit access to jobs, military ranks, educational institutions, and immigration to the US. |
| **2.8.D**<br>Explain how academic achievement is measured and experienced as compared to intelligence. | **2.8.D.1**<br>Some academic tests attempt to measure what someone knows (achievement tests) or predict how someone will perform in the future (aptitude tests).<br>**2.8.D.2**<br>People's beliefs about whether intelligence is fixed from birth (fixed mindset) or malleable due to experience (growth mindset) can affect academic achievement. |

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AP PSYCHOLOGY

# UNIT 3

# Development and Learning

**15–25%**
AP EXAM WEIGHTING

**~17–23**
CLASS PERIODS

Remember to go to **AP Classroom** to assign students the online **Progress Check** for this unit.

Whether assigned as homework or completed in class, the **Progress Check** provides each student with immediate feedback related to this unit's topics and skills.

### Progress Check 3

**Multiple-choice: ~20 questions**
**Free-response: 1 question**

- Evidence-Based Question

UNIT 3

**15–25%** AP EXAM WEIGHTING | **~17–23** CLASS PERIODS

# Development and Learning

**ESSENTIAL QUESTIONS**

- Are you the same person now as you were when you were 10 years old? Do you think you will be the same person in 10 years as you are now? Why or why not?
- How do parents know if their baby is hungry?
- How can you unlearn a bad habit and replace it with a new, better one?

## Developing Understanding

Development and learning are about growth and change. The domains of development and learning encountered in Unit 3 give students opportunities to understand how biological, cognitive, and environmental factors—studied in Units 1 and 2—come together to influence growth throughout the lifespan. While the most noticeable and dramatic growth and development stage occurs from birth to roughly 18 years of age, people continue to grow and develop throughout their lives. Though some aspects of an individual person, such as personality or eye color, remain relatively stable throughout life, other aspects, such as memory retention or sensory acuity, can fluctuate with age.

People experience formal and informal learning throughout a significant portion of their lives. Classical conditioning and operant conditioning are two fundamental forms of learning that have been studied extensively for over 100 years. The advent of computers in the mid-20th century brought about new theories and methods for examining learning, and today, artificial intelligence models continue to unlock ways we can better understand how people learn.

## Building the Science Practices

1.A 2.B 2.D 3.B 4.A

Building on their knowledge from Units 1 and 2, students will apply perspectives and concepts related to physiological and cognitive functions to understand how behavior and mental processes change over the course of a lifetime, which includes discussion of stage theories of development **(1.A)**. With opportunities to explore the many experimental studies used to refine development and learning theories in Unit 3, students will likely encounter the two approaches developmental psychologists typically use in their research—cross-sectional and longitudinal research designs—and how these designs help control variables such as time and maturation. Identifying the types of research designs used by developmental psychologists can help students refine their knowledge of research methodology and how to control for confounding variables **(2.B)**. Experiments in development and learning may yield both qualitative and quantitative data from work with populations such as infants, small children, or non-human animals. When the data is quantitative, students will learn how researchers calculate measures of central tendency—such as mean, median, and mode—as well as interpret the meaning of those statistics within the experimental scenario **(3.B)**. Additionally, in their overarching investigation of any experiment on learning or development, students will want to evaluate whether that experiment followed appropriate

ethical procedures, such as parental permission and consent as well as steps to protect participants from harm **(2.D)**.

Finally, students can also practice proposing claims about the best way to learn new things or how to navigate the "social clock" (Topic 3.6), focusing on whether they will be able defend (or refute) their claims with evidence from related research studies **(4.A)**. Continuing to develop the skill of proposing a defensible claim will ensure that students are set up to firmly grasp the more advanced skill of providing reasoning to support, refute, modify, or explain the nuances of that claim.

## Preparing for the AP Exam

On the AP Psychology Exam, students often confuse classical and operant conditioning. Multiple-choice questions will require them to recognize that classical conditioning associates two, usually unrelated, stimuli together to elicit a response, while operant conditioning focuses on how the consequences of a behavior encourage future behavior.

In the free-response section of the AP Exam, the Article Analysis Question (AAQ) will ask students to describe the meaning of a specific statistic from the provided peer-reviewed article summary, as well as to describe one way in which the researchers who conducted the study applied ethical guidelines—direct applications of skills 3.B and 2.D, respectively. Given the ample research available related to learning and development theories, students have plenty of opportunities to practice these skills within the context of Unit 3 content so that they gain preparation for completing the AAQ.

# UNIT AT A GLANCE

| Topic | Instructional Periods | Suggested Skills |
|---|---|---|
| **3.1 Themes and Methods in Developmental Psychology** | 2 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.A Determine the type of research design(s) used in a given study. |
| **3.2 Physical Development Across the Lifespan** | 3 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>3.C Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram.<br><br>4.A Propose a defensible claim. |
| **3.3 Gender and Sexual Orientation** | 1 | 2.C Evaluate the appropriate use of research design elements in non-experimental methodologies. |
| **3.4 Cognitive Development Across the Lifespan** | 3 | 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br><br>2.C Evaluate the appropriate use of research design elements in non-experimental methodologies.<br><br>4.B Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm. |
| **3.5 Communication and Language Development** | 2 | 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br><br>2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures. |
| **3.6 Social-Emotional Development Across the Lifespan** | 3 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.A Determine the type of research design(s) used in a given study.<br><br>2.B Evaluate the appropriate use of research design elements in experimental methodology. |

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# UNIT AT A GLANCE *(cont'd)*

| Topic | Instructional Periods | Suggested Skills |
|---|---|---|
| **3.7 Classical Conditioning** | 3 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.<br><br>3.A Identify psychology-related concepts in descriptions or representations of data. |
| **3.8 Operant Conditioning** | 4 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>3.A Identify psychology-related concepts in descriptions or representations of data.<br><br>3.B Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set.<br><br>4.A Propose a defensible claim. |
| **3.9 Social, Cognitive, and Neurological Factors in Learning** | 2 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>4.B Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm. |

Go to **AP Classroom** to assign the **Progress Check** for Unit 3.
Review the results in class to identify and address any student misunderstandings.

# SAMPLE INSTRUCTIONAL ACTIVITIES

The sample activities on this page are optional and are offered to provide possible ways to incorporate various instructional approaches into the classroom. Teachers do not need to use these activities or instructional approaches and are free to alter or edit them. The examples below were developed in partnership with teachers from the AP community to share ways that they approach teaching some of the topics in this unit. Please refer to the Instructional Approaches section beginning on p. 129 for more examples of activities and strategies.

| Activity | Topic | Sample Activity |
|---|---|---|
| 1 | 3.3 | **Quickwrite**<br>Provide students with a published gender roles experiment and then ask them to identify the research method and evaluate the ethics of the experiment. Have students summarize the results of the study and then design a study that can be conducted as a follow-up. |
| 2 | 3.7 | **Ask the Expert (or Students as Experts)**<br>Have students create their own (appropriate) skit to demonstrate their understanding of classical conditioning. Required elements include neutral stimulus, unconditioned stimulus, unconditioned response, conditioned stimulus, and conditioned response. Students can perform their skits live in class or record them and upload them to YouTube. |
| 3 | 3.7 | **Misconception Check**<br>Provide students with a list of behaviors and ask them to write down which behaviors are examples of learning. Provide a mini-lecture on learning, including the definition and the different types of learning. At the end of the lesson, read the list of behaviors again and ask students to identify which behaviors are examples of learning. Compare answers from the beginning of class and clarify misconceptions. |
| 4 | 3.8 | **Construct an Argument**<br>Provide students with a list of scenarios that include examples of classical and operant conditioning. Have students identify the type of learning (classical or operant). If it is classical, have them identify the UCS, UCR, CS, and CR. If it is operant, have them determine if the scenario is punishment or reinforcement (positive or negative). |
| 5 | 3.9 | **Index Card Summaries/Questions**<br>Bonobos, closely related to humans, exhibit the capacity to share with members of their troop. Have students read articles with research findings on bonobos. Then have them develop research questions that could be asked based on findings in the articles. These questions should be relevant to the field of social and cognitive development and related to learning. |

**SUGGESTED SKILLS**

**1.A**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.A**
Determine the type of research design(s) used in a given study.

# TOPIC 3.1
# Themes and Methods in Developmental Psychology

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **3.1.A** Explain how enduring themes inform developmental psychology. | **3.1.A.1** Developmental psychology is concerned with both chronological order of development and/or thematic issues in development across the lifespan. Thematic issues of interest to developmental psychologists include stability and change, nature and nurture, and continuous and discontinuous stages of development. |
| **3.1.B** Describe ways cross-sectional and longitudinal research design methods used in developmental psychology inform understanding about behavior and mental processes. | There are no required essential knowledge statements for this learning objective. |

# TOPIC 3.2
# Physical Development Across the Lifespan

**SUGGESTED SKILLS**

**1.A**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**3.C**
Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram.

**4.A**
Propose a defensible claim.

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **3.2.A** Explain how physical development before birth applies to behavior and mental processes. | **3.2.A.1** Teratogens, maternal illness, genetic mutations, hormonal, and environmental factors can influence the major physical and psychological milestones that occur during prenatal development. *Exclusion Statement: The stages of prenatal development (zygote, embryo, and fetus) are outside the scope of the AP Psychology Exam.* |
| **3.2.B** Explain how physical development in infancy and childhood apply to behavior and mental processes. | **3.2.B.1** Physical development in infancy and childhood happens in generally the same order, but the timing of the development can vary. The development of fine and gross motor coordination is among the major physical and psychological milestones that define infancy and childhood. These physical skills develop as children mature, allowing children to develop critical skills needed to become more independent.<br>**3.2.B.2** Infants possess reflexes, like the rooting reflex, that indicate on-track physical and psychological milestone development.<br>**3.2.B.3** Research using the visual cliff apparatus demonstrates an early ability in infants to perceive depth and an innovative way to assess infant responses. |

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| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| 3.2.B<br>Explain how physical development in infancy and childhood apply to behavior and mental processes. | 3.2.B.4<br>Research suggests that critical or sensitive periods in infancy and childhood have strong developmental effects, especially for skills such as language. Some non-human animals will imprint on the first object they encounter as a means of survival. |
| 3.2.C<br>Explain how physical development in adolescence applies to behavior and mental processes. | 3.2.C.1<br>The main physical and psychological milestones that occur in adolescence are the adolescent growth spurt and puberty, in which reproductive ability develops. Adolescents develop primary and secondary sex characteristics during this time, such as menarche and spermarche. |
| 3.2.D<br>Explain how physical development in adulthood applies to behavior and mental processes. | 3.2.D.1<br>Adulthood spans most of the lifespan and is characterized by a general leveling off and then a varying decline in reproductive ability (i.e., menopause), mobility, flexibility, reaction time, and visual and auditory sensory acuity. |

# TOPIC 3.3
# Gender and Sexual Orientation

**SUGGESTED SKILLS**

2.C

Evaluate the appropriate use of research design elements in non-experimental methodologies.

## Required Course Content

### LEARNING OBJECTIVE

3.3.A

Describe how sex and gender influence socialization and other aspects of development.

There are no required essential knowledge statements for this learning objective.

**SUGGESTED SKILLS**

**1.B**
Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

**2.C**
Evaluate the appropriate use of research design elements in non-experimental methodologies.

**4.B**
Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm.

# TOPIC 3.4
# Cognitive Development Across the Lifespan

## Required Course Content

### LEARNING OBJECTIVE

**3.4.A**
Explain how theories of cognitive development apply to behavior and mental processes.

### ESSENTIAL KNOWLEDGE

**3.4.A.1**
According to Piaget, children develop schemas via continuous and discontinuous processes such as assimilation and accommodation.

**3.4.A.1.i**
The sensorimotor stage occurs from infancy through toddlerhood. Object permanence develops during this stage.

**3.4.A.1.ii**
The preoperational stage occurs from toddlerhood through early childhood. Children become proficient in using mental symbols and engage in pretend play. The preoperational stage is identified more by cognitive tasks children cannot perform such as conservation and reversibility, or by those they exhibit, such as animism and egocentrism. Children begin to develop a theory of mind during this stage.

**3.4.A.1.iii**
The concrete operational stage occurs from early through late childhood. Children in this stage can generally correct the cognitive errors made in the preoperational stage and understand the world in logical, realistic, and straightforward ways, but struggle to think systematically.

**3.4.A.1.iv**
The formal operational stage occurs from late childhood through adulthood. People in this stage gain the ability to think abstractly and hypothetically. Piaget proposed that not all people achieve formal operational thinking.

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## LEARNING OBJECTIVE

**3.4.A**

Explain how theories of cognitive development apply to behavior and mental processes.

## ESSENTIAL KNOWLEDGE

**3.4.A.2**

According to Vygotsky, children are social learners who learn through interacting with and scaffolding by other people within sociocultural contexts. Ideally, learning occurs while the person is in their zone of proximal development.

**3.4.A.3**

Adults experience changes in cognitive capabilities as they progress through the lifespan. Crystallized intelligence remains relatively stable through adulthood while fluid intelligence tends to wane as people age. Cognitive disorders that affect adults include dementia.

**SUGGESTED SKILLS**

**1.B**

Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

**2.D**

Evaluate whether a psychological research scenario followed appropriate ethical procedures.

# TOPIC 3.5
# Communication and Language Development

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **3.5.A** Explain how key components of language and communication apply to behavior and mental processes. | **3.5.A.1** Language is a shared (mutually agreed upon) system of arbitrary symbols (often expressed as and combined into phonemes, morphemes, and semantics) that are rule-governed (via grammar and syntax) and generative to produce an infinity of ideas. *Exclusion Statement: Pragmatics of language are outside the scope of the AP Psychology Exam.* |
| **3.5.B** Explain how language develops in humans. | **3.5.B.1** In language development across all cultures, people use nonverbal manual gestures (e.g., pointing) to communicate and develop formal language through specific stages (cooing, babbling, one-word stage, and telegraphic speech). People learning a language often make errors such as overgeneralization of language rules as they learn. |

# TOPIC 3.6
# Social-Emotional Development Across the Lifespan

## Required Course Content

### LEARNING OBJECTIVE

**3.6.A**
Explain how social development relates to behavior and mental processes.

### ESSENTIAL KNOWLEDGE

**3.6.A.1**
The ecological systems theory explores how the social environment influences development. The five systems in this theory are as follows:

- Microsystem (groups that have direct contact with the individual)
- Mesosystem (the relationships between groups in the microsystem)
- Exosystem (indirect factors in an individual's life)
- Macrosystem (cultural events that affect the individuals and others around them)
- Chronosystem (the individual's current stage of life).

**3.6.A.2**
Research has identified different parenting styles of caregivers, including authoritarian, authoritative, and permissive. Cultural differences exist in the ways these parenting styles affect outcomes in caregivers and children.

**3.6.A.3**
Research has identified different attachment styles demonstrated by infants and children, which vary by culture. The types of attachment infants and children display include secure and insecure (avoidant, anxious, and disorganized). Temperament is related to how children attach to caregivers.

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**SUGGESTED SKILLS**

**1.A**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.A**
Determine the type of research design(s) used in a given study.

**2.B**
Evaluate the appropriate use of research design elements in experimental methodology.

## LEARNING OBJECTIVE

**3.6.A**

Explain how social development relates to behavior and mental processes.

## ESSENTIAL KNOWLEDGE

**3.6.A.3.i**

Separation anxiety occurs when children express heightened anxiety or fear when away from a caregiver or in the presence of a stranger.

**3.6.A.3.ii**

Studies with monkeys demonstrate the importance of comfort over food in attachment.

**3.6.A.4**

Developmental psychologists study how peer relationships develop over time.

**3.6.A.4.i**

Children engage with peers via play (parallel and pretend).

**3.6.A.4.ii**

Adolescents gradually rely more on peer relationships as they age. As adolescents interact with peers, they demonstrate a type of egocentrism that is often demonstrated via the imaginary audience and the personal fable.

**3.6.A.5**

Developmental psychologists study how adults develop socially over time.

**3.6.A.5.i**

Culture plays a role in determining when adulthood begins and when major life events occur (social clock). Some cultures allow for a time of emerging adulthood as a transition from adolescence to adulthood.

**3.6.A.5.ii**

Relationships with other adults result in adults forming families or family-like relationships that should provide mutual support and care. Childhood attachment styles can affect how adults form attachments to other adults.

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## LEARNING OBJECTIVE

**3.6.A**

Explain how social development relates to behavior and mental processes.

## ESSENTIAL KNOWLEDGE

**3.6.A.6**

The stage theory of psychosocial development, which was a reconceptualization of the psychosexual theory, proposes that people must resolve psychosocial conflicts at each stage of the lifespan. The stages are as follows:

- Trust and mistrust
- Autonomy and shame and doubt
- Initiative and guilt
- Industry and inferiority
- Identity and role confusion
- Intimacy and isolation
- Generativity and stagnation
- Integrity and despair

*Exclusion Statement: The psychosexual stage theory of development is outside of the scope of the AP Psychology Exam.*

**3.6.A.7**

The experience of adverse childhood experiences (ACEs) has effects on relationships people form throughout the lifespan. Sociocultural differences exist in what is considered an ACE and how ACEs affect outcomes people may experience.

**3.6.A.8**

Adolescents develop a sense of identity for whom they will be as an adult through the processes of achievement, diffusion, foreclosure, and moratorium. Identity development also includes processes for developing identities such as racial/ethnic identity, gender identity, sexual orientation, religious identity, occupational identity, and familial identity, often through considering possible selves.

**SUGGESTED SKILLS**

**1.A**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.D**
Evaluate whether a psychological research scenario followed appropriate ethical procedures.

**3.A**
Identify psychology-related concepts in descriptions or representations of data.

# TOPIC 3.7
# Classical Conditioning

## Required Course Content

### LEARNING OBJECTIVE

**3.7.A**
Explain how classical conditioning applies to behavior and mental processes.

### ESSENTIAL KNOWLEDGE

**3.7.A.1**
The behavioral perspective evolved from theories about learning via conditioning. Behaviorists have traditionally focused on observable behavior to the exclusion of mental processes.

**3.7.A.2**
Classical conditioning focuses on the association of one stimulus with another stimulus to elicit a response. Learning the association (also known as acquisition) involves a series of steps that demonstrate principles of associative learning.

**3.7.A.2.i**
The unconditioned stimulus (UCS) elicits an unconditioned response (UCR). This response becomes the conditioned response (CR) when it is performed in response to the conditioned stimulus (CS).

**3.7.A.2.ii**
The order of presentation of the CS with the UCS is important to successful acquisition.

**3.7.A.2.iii**
A CR can become extinct when the CS is no longer paired with the UCS. A formerly extinct CR can be spontaneously recovered when the CS and UCS are paired together again.

**3.7.A.2.iv**
Stimulus discrimination and generalization have been demonstrated in studies of classical conditioning.

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## LEARNING OBJECTIVE

**3.7.A**

Explain how classical conditioning applies to behavior and mental processes.

## ESSENTIAL KNOWLEDGE

**3.7.A.2.v**

A CS can be used as a UCS in higher-order conditioning.

*Exclusion Statement: Delayed conditioning, trace conditioning, simultaneous conditioning, and backward conditioning are outside the scope of the AP Psychology Exam.*

**3.7.A.3**

Research has demonstrated that emotional responses can be classically conditioned. These findings form the basis of therapeutic interventions for many mental disorders, such as counterconditioning.

*Exclusion Statement: The expectancy theory is outside the scope of the AP Psychology Exam.*

**3.7.A.4**

Research on taste aversions, which are acquired through classical conditioning, demonstrates one-trial conditioning and biological preparedness. One-trial learning occurs when the association is acquired through one pairing of the stimulus and response and is not strengthened by further pairings. Biological preparedness refers to how animals are biologically predisposed to learning certain stimulus-response pairings more quickly than others.

**3.7.A.5**

Habituation occurs when organisms grow accustomed to and exhibit a diminished response to a repeated or enduring stimulus.

**SUGGESTED SKILLS**

**1.A**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**3.A**
Identify psychology-related concepts in descriptions or representations of data.

**3.B**
Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set.

**4.A**
Propose a defensible claim.

# TOPIC 3.8
# Operant Conditioning

## Required Course Content

### LEARNING OBJECTIVE

**3.8.A**
Explain how operant conditioning applies to behavior and mental processes.

### ESSENTIAL KNOWLEDGE

**3.8.A.1**
Operant conditioning focuses on associating consequences (reinforcement and punishment) with behaviors. The Law of Effect states that behaviors with reinforcing consequences are more likely to be repeated while behaviors with punishing consequences are not as likely to be repeated.

**3.8.A.2**
Reinforcement and punishment can be positive or negative. Reinforcers can be primary or secondary. Reinforcement discrimination and generalization have been demonstrated in studies of operant conditioning.

**3.8.A.3**
Reinforcement can be used to shape behavior ("shaping") gradually through rewarding successive approximations of the desired behavior. Research with animals shows that only certain behaviors can be shaped through reinforcement (known as instinctive drift).

**3.8.A.4**
Superstitious behavior occurs when consequences reinforce unrelated behaviors. Learned helplessness occurs when organisms learn that they have no control over their experience of aversive consequences in a given situation.

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## LEARNING OBJECTIVE

**3.8.A**

Explain how operant conditioning applies to behavior and mental processes.

## ESSENTIAL KNOWLEDGE

**3.8.A.5**

The schedule with which reinforcement is delivered can determine the strength of the association between the consequence and the response. The two main types of reinforcement schedules are continuous and partial. Each type of reinforcement behavior can be graphed, resulting in a distinctive pattern on the graph (e.g., fixed-interval schedule produces a scalloped graph).

**3.8.A.5.i**

Continuous reinforcement schedules deliver reinforcement for each and every correct behavior.

**3.8.A.5.ii**

The partial reinforcement schedules focus on whether reinforcement is delivered on a time-based schedule (fixed or variable interval) or for the number of behaviors performed (fixed or variable ratio).

**SUGGESTED SKILLS**

**1.A**

Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**4.B**

Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm.

## TOPIC 3.9

# Social, Cognitive, and Neurological Factors in Learning

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **3.9.A** Explain how social learning applies to behavior and mental processes. | **3.9.A.1** Social learning theory proposes that learning can occur by observation and does not have to involve personal experience with a consequence (vicarious conditioning). Learning can occur by copying the behavior of models. The more similar a model is, the more likely the behavior is to be learned. |
| **3.9.B** Explain how cognitive factors in learning apply to behavior and mental processes. | **3.9.B.1** Insight learning occurs when the solution to a problem occurs without any association, consequence, or model being present.<br>**3.9.B.2** Latent learning occurs when information is learned without reinforcement but is not immediately evident. Latent learning is often demonstrated by cognitive maps. |

AP PSYCHOLOGY

# UNIT 4

# Social Psychology and Personality

**15–25%**
AP EXAM WEIGHTING

**~17–23**
CLASS PERIODS

Remember to go to **AP Classroom** to assign students the online **Progress Check** for this unit.

Whether assigned as homework or completed in class, the **Progress Check** provides each student with immediate feedback related to this unit's topics and skills.

### Progress Check 4

**Multiple-choice: ~10 questions**
**Free-response: 1 question**

- Article Analysis Question

UNIT 4

**15–25%** AP EXAM WEIGHTING | **~17–23** CLASS PERIODS

# Social Psychology and Personality

**ESSENTIAL QUESTIONS**

- Do people act the same when they are alone versus when they are in a group? Why or why not?
- How do expectations, biases, and attitudes affect our relationships with ourselves and others?
- Why do you do what you do? Is your "why" determined by your personal choices or what you are rewarded to do?

## Developing Understanding

Social psychology is the study of how other people and groups influence behavior and mental processes, as well as how behavior and mental processes influence an individual's experiences in social situations. This unit explores how external social factors and internal personality variables come into play in a wide variety of everyday situations for people. Psychologists throughout history have proposed different theories that categorize different personalities and explain their connection to behavior and mental processes. Various perspectives in psychology have shaped these theories and how psychologists study personality. Some psychologists study what motivates us and/or our emotional responses to understand our individual differences; other psychologists seek to understand why different personalities exist, how they are developed, and if and how they change. As they explore the content of this unit, students will gain understanding about themselves, their peers, their families, and others whom they may meet in day-to-day life and begin to provide insight into factors that may contribute to mental and physical health issues that they will examine in Unit 5.

## Building the Science Practices

1.B 2.C 2.D 3.C 4.B

As students study attribution theory, attitude formation, and the psychology of social situations (Topics 4.1–4.3), they will continue to uncover areas of the course where they will explain how cultural norms, expectations, and circumstances apply to behavior and mental processes **(1.B)**—such as the effects of individualism, collectivism, and multiculturalism have on how a person sees themselves and others.

In addition to applying the concepts and perspectives in this unit to different social scenarios and examining associated research—including the evaluation of the appropriate use of research design elements in non-experimental methodologies, such as those seen in studies of personality and motivation **(2.C)**—students will learn that the history of social psychology is filled with studies that are no longer considered ethical. Through a breakdown of these missteps seen when using both experimental and non-experimental methods, students will have opportunities to recognize how to conduct valid research, identify ethical flaws, and use appropriate data and data collection processes **(2.D)**.

Finally, in their investigation of various research studies, students may encounter data that is presented in various forms—such as specialized personality inventories. To best understand the meaning of the study's results, students may be required to interpret quantitative or qualitative inferential data from a table, graph, chart, figure, or diagram **(3.C)**. Through that interpretation, students will describe trends in and relationships between

the variables used in the study, including whether those variables are correlated. In order for students to fully engage with this skill, they may want to return to the work they did with practicing skills 3.A and 3.B in Units 1 and 3, respectively. Applying their data interpretations to claims they have made about social psychology concepts may also help students to further hone their argumentation skills, as these interpretations may serve as evidence that can be used to support, refute, or modify a proposed claim **(4.B)**.

## Preparing for the AP Exam

Students often have difficulty differentiating social psychology key terms and phrases correctly to answer questions posed as scenarios. A common example of often-confused terms includes conformity versus obedience, so providing opportunities for students to identify and explain the distinctions among concepts like these can help students as they prepare for the multiple-choice section of the AP Exam. Consider asking students about common behaviors such as attending school or wearing certain styles of clothing to see if they feel those are influenced by obedience or conformity.

While plenty of scholarly research exists for topics in Unit 4, there are also topics that are written about extensively in popular media, giving plenty of sources to use for practice with either of the free-response questions (FRQ) on the AP Exam. For example, for the Evidence-Based Question (EBQ), teachers can curate a set of peer-reviewed articles on a specific social psychology or personality topic—which may bring in concepts from previous units—with which students can practice developing and justifying an argument. Using these critical thinking skills can help students not only prepare for the AP Psychology Exam but also make sense of the media stories they consume about popular topics in psychology.

# UNIT AT A GLANCE

| Topic | Instructional Periods | Suggested Skills |
|---|---|---|
| **4.1 Attribution Theory and Person Perception** | 4 | 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br><br>2.B Evaluate the appropriate use of research design elements in experimental methodology.<br><br>2.C Evaluate the appropriate use of research design elements in non-experimental methodologies.<br><br>4.A Propose a defensible claim. |
| **4.2 Attitude Formation and Attitude Change** | 4 | 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br><br>3.A Identify psychology-related concepts in descriptions or representations of data.<br><br>3.B Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set.<br><br>4.B Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm. |
| **4.3 Psychology of Social Situations** | 4 | 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br><br>2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.<br><br>3.B Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set.<br><br>4.A Propose a defensible claim. |
| **4.4 Psychodynamic and Humanistic Theories of Personality** | 2 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.C Evaluate the appropriate use of research design elements in non-experimental methodologies. |

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# UNIT AT A GLANCE *(cont'd)*

| Topic | Instructional Periods | Suggested Skills |
|---|---|---|
| **4.5 Social-Cognitive and Trait Theories of Personality** | 3 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.A Determine the type of research design(s) used in a given study.<br><br>3.C Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram. |
| **4.6 Motivation** | 3 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.B Evaluate the appropriate use of research design elements in experimental methodology.<br><br>2.C Evaluate the appropriate use of research design elements in non-experimental methodologies. |
| **4.7 Emotion** | 3 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.<br><br>3.A Identify psychology-related concepts in descriptions or representations of data.<br><br>4.B Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm. |

Go to **AP Classroom** to assign the **Progress Check** for Unit 4.
Review the results in class to identify and address any student misunderstandings.

# SAMPLE INSTRUCTIONAL ACTIVITIES

The sample activities on this page are optional and are offered to provide possible ways to incorporate various instructional approaches into the classroom. Teachers do not need to use these activities or instructional approaches and are free to alter or edit them. The examples below were developed in partnership with teachers from the AP community to share ways that they approach teaching some of the topics in this unit. Please refer to the Instructional Approaches section beginning on p. 129 for more examples of activities and strategies.

| Activity | Topic | Sample Activity |
|---|---|---|
| 1 | 4.1 | **Quickwrite**<br>Provide students with a card or paper that includes an attribution scale on each side. On one side, have them circle the traits that they identify with. On the other, have them circle the traits that describe the teacher. Have students count the number of "depends on the situation" responses on each side and compare the two. |
| 2 | 4.3 | **Debate**<br>Have students read about the Stanford Prison Experiment or watch an excerpt from a documentary about the study.Then ask students to identify the methodological issues with the study and describe and evaluate the ethics of the experiment. Students can then debate the merits, ethics, and criticism of the experiment. Include the response to recent criticism published by Zimbardo and other researchers. |
| 3 | 4.4 | **Construct an Argument**<br>Have students read the article "A Real-Life Lord of the Flies: The Troubling Legacy of the Robbers Cave Experiment." Then ask them to identify the research methods described in the article and evaluate the ethics of the experiments. Ask them if the studies described offer any insights about group dynamics and, if so, what those insights are. |
| 4 | 4.5 | **Jigsaw**<br>Select a fictional character familiar to your students. Have them discuss that character's personality in terms of the different psychological perspectives. Then divide students into groups and have each group select their own character and repeat the discussion. Students can then share with the class or you can use the jigsaw strategy. |
| 5 | 4.7 | **Think-Pair-Share**<br>Have students watch the well-known clip "These pretzels are making me thirsty" from the show *Seinfeld* (S3E11). In small groups, have them discuss how facial expressions and intonation convey emotion. Provide them with other scenarios and have them discuss how different theorists would explain the emotions conveyed in each scenario. |

**SUGGESTED SKILLS**

**1.B**
Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

**2.B**
Evaluate the appropriate use of research design elements in experimental methodology.

**2.C**
Evaluate the appropriate use of research design elements in non-experimental methodologies.

**4.A**
Propose a defensible claim.

# TOPIC 4.1
# Attribution Theory and Person Perception

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **4.1.A**<br>Explain how attribution theory applies to behavior and mental processes. | **4.1.A.1**<br>Attributions are how people explain behavior and mental processes of themselves and others. Dispositional attributions relate to internal qualities of others (such as intelligence or personality) while situational attributions relate to external circumstances that are experienced.<br>**4.1.A.2**<br>People demonstrate a predictable pattern of attributions called explanatory style. Explanatory style is how people explain good and bad events in their lives and in the lives of others. Explanatory style can be optimistic or pessimistic.<br>**4.1.A.3**<br>People are subject to biases in their attributions. Those biases include actor/observer bias, fundamental attribution error, and self-serving bias, all of which can affect behavior and mental processes. |
| **4.1.B**<br>Explain how locus of control (internal and external) applies to behavior and mental processes. | There are no required essential knowledge statements for this learning objective. |
| **4.1.C**<br>Explain how person perception applies to behavior and mental processes. | **4.1.C.1**<br>People's perception of how much they like something can be influenced by the mere exposure effect. The mere exposure effect occurs when people are exposed to a stimulus repeatedly over time, which causes them to like the stimulus more. |

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## LEARNING OBJECTIVE

4.1.C

Explain how person perception applies to behavior and mental processes.

## ESSENTIAL KNOWLEDGE

**4.1.C.2**

People can behave in ways that elicit behaviors from others that confirm their beliefs or perceptions about themselves or others (self-fulfilling prophecy).

**4.1.C.3**

Social comparison is a type of person perception that occurs when people evaluate themselves based on comparisons to other members of society or social circles. Social comparison can be upward or downward. People often judge their own sense of deprivation relative to others (relative deprivation).

**SUGGESTED SKILLS**

**1.B**
Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

**3.A**
Identify psychology-related concepts in descriptions or representations of data.

**3.B**
Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set.

**4.B**
Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm.

# TOPIC 4.2
# Attitude Formation and Attitude Change

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **4.2.A** Explain how stereotypes and implicit attitudes contribute to the behaviors and mental processes of prejudice and discrimination. | **4.2.A.1** A stereotype is a generalized concept about a group. Stereotypes can help reduce cognitive load when making decisions or judgments. Stereotypes can be the cause and/or result of biased perceptions and experiences and are frequently the basis of prejudiced attitudes and discriminatory behaviors.<br>**4.2.A.2** Implicit attitudes are those that individuals hold but may be unaware of or may not acknowledge. Research has focused on how implicit attitudes reflect negative evaluations of others, as demonstrated by the just-world phenomenon, out-group homogeneity bias, in-group bias, or ethnocentrism. |
| **4.2.B** Explain how belief perseverance and cognitive dissonance apply to attitude formation and change. | **4.2.B.1** Belief perseverance occurs when a belief persists even if evidence suggests it is not accurate. People experiencing belief perseverance may engage in confirmation bias, thereby clinging to an attitude or belief regardless of the evidence for or against it.<br>**4.2.B.2** Cognitive dissonance refers to the mental discomfort that occurs when actions or attitudes are in conflict. People are motivated to reduce the discomfort by changing either actions or attitudes to be more in line with each other. |

# TOPIC 4.3
# Psychology of Social Situations

## Required Course Content

### LEARNING OBJECTIVE

**4.3.A**
Explain how the social situation affects behavior and mental processes.

### ESSENTIAL KNOWLEDGE

**4.3.A.1**
Social norms define expectations and roles a society may have for its members in individual and social situations.

**4.3.A.2**
Social influence theory proposes that social pressure to behave or think in certain ways can be normative or informational.

**4.3.A.3**
Persuasion refers to the techniques applied to convince the self or others of particular ideas, actions, or beliefs.

**4.3.A.3.i**
Persuasion can depend on the route to persuasion. The elaboration likelihood model outlines two main routes to persuasion: central and peripheral. The halo effect is an example of a peripheral route to persuasion.

**4.3.A.3.ii**
Persuasion can depend on how information is presented, as demonstrated by the foot-in-the-door and the door-in-the-face techniques.

**4.3.A.4**
Research on conformity clarifies the conditions that strengthen the likelihood of people adhering to unspoken rules, norms, or expectations.

**4.3.A.5**
Research on obedience clarifies the conditions that strengthen the likelihood of people complying with the directives of an authority figure.

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### SUGGESTED SKILLS

**1.B**
Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

**2.D**
Evaluate whether a psychological research scenario followed appropriate ethical procedures.

**3.B**
Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set.

**4.A**
Propose a defensible claim.

# Social Psychology and Personality

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| **4.3.B**<br>Explain how being in a group can affect an individual's behavior and mental processes. | **4.3.B.1**<br>Cultural phenomena such as individualism, collectivism, and multiculturalism can influence how one perceives and behaves toward oneself and others. |
| | **4.3.B.2**<br>Being a member of a group can influence how one behaves or experiences mental processes via group polarization, groupthink, diffusion of responsibility, social loafing, and deindividuation. |
| | **4.3.B.3**<br>Performing a mental or physical behavior in front of a group can lead to social facilitation. |
| | **4.3.B.4**<br>People often overestimate the levels to which others agree with them, known as the false consensus effect. |
| | **4.3.B.5**<br>Superordinate goals serve to unite disparate groups under a common goal and help reduce negative affect and stereotyping among groups. Social traps occur when individuals do not unite and act in their own self-interest to the detriment of the group. |
| | **4.3.B.6**<br>Industrial-organizational (I/O) psychologists study how people perform in the workplace. I/O psychologists study best practices in management of work, relationships among people working together or for a common company or program, and how people feel about work (burnout). |
| **4.3.C**<br>Explain how prosocial behavior affects behavior and mental processes. | **4.3.C.1**<br>Altruism refers to selfless behavior, but some researchers suggest that people act in prosocial ways due to incurring social debt. The social reciprocity norm and the social responsibility norm explain this type of behavior. |
| | **4.3.C.2**<br>The bystander effect demonstrates that situational and attentional variables predict whether someone is likely to help another person. |

# TOPIC 4.4
# Psychodynamic and Humanistic Theories of Personality

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **4.4.A** Explain how the psychodynamic theory of personality defines and assesses personality. | **4.4.A.1** According to the psychodynamic theory of personality, unconscious processes drive personality. *Exclusion Statement: The stage theory of psychosexual development is out of scope for the AP Psychology Exam.* |
| | **4.4.A.2** Ego defense mechanisms (denial, displacement, projection, rationalization, reaction formation, regression, repression, and sublimation) serve to protect the ego unconsciously from threats. |
| | **4.4.A.3** Psychodynamic personality psychologists assess personality using projective tests that are designed to probe the preconscious and unconscious mind. |
| **4.4.B** Explain how the humanistic theory of personality defines and assesses personality. | **4.4.B.1** According to humanistic psychology, personality focuses on unconditional regard and the self-actualizing tendency as primary motivating factors. *Exclusion Statement: Maslow's hierarchy of needs is outside the scope of the AP Psychology Exam.* |

**SUGGESTED SKILLS**

**1.A** Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.C** Evaluate the appropriate use of research design elements in non-experimental methodologies.

**SUGGESTED SKILLS**

**1.A**
Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.A**
Determine the type of research design(s) used in a given study.

**3.C**
Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram.

# TOPIC 4.5
# Social-Cognitive and Trait Theories of Personality

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **4.5.A** Explain how the social-cognitive theory of personality defines and assesses personality. | **4.5.A.1** According to social-cognitive theory, reciprocal determinism shapes personality. Reciprocal determinism explores self-concept (how one views themselves and in relation to others) and how self-efficacy and self-esteem both contribute to self-concept. |
| **4.5.B** Explain how trait theories of personality define and assess personality. | **4.5.B.1** Trait theories of personality conclude that personality involves a set of enduring characteristics that lead to typical responses to stimuli.<br>**4.5.B.2** The Big Five theory of personality proposes that traits of agreeableness, openness to experience, extraversion, conscientiousness, and emotional stability make up one's personality. These traits are measured by specialized personality inventories that use factor analysis to organize item responses. |

# TOPIC 4.6
# Motivation

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **4.6.A** Explain how theories about motivation apply to behavior and mental processes. | **4.6.A.1** Some theories about motivation focus on behavior and mental processes that seek to address physical needs and desires such as drive-reduction theory and arousal theory. Drive-reduction theory addresses how certain behaviors help maintain homeostasis while arousal theory addresses how people seek an optimal level of arousal when they behave (as demonstrated by the Yerkes-Dodson Law).<br>**4.6.A.2** Self-determination theory proposes that people are motivated by intrinsic (internal) or extrinsic (external) motivations. Incentive theory explores the role of rewards (an extrinsic motivation) in motivating behavior.<br>**4.6.A.3** Many non-human animals are motivated by instincts (innate, typically fixed patterns of behavior in animals in response to certain stimuli). Humans do not seem to demonstrate instinctual behavior or mental processes.<br>**4.6.A.4** Lewin's motivational conflicts theory proposes that choices create conflicts one must resolve as the basis of motivation. The type of conflicts faced include approach-approach, approach-avoidance, and avoidance-avoidance.<br>**4.6.A.5** Sensation-seeking theory proposes that one's level of need for varied or novel experiences is the basis of motivation. The types of sensation seeking are experience seeking, thrill or adventure seeking, disinhibition, and boredom susceptibility. |

**SUGGESTED SKILLS**

**1.A** Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.B** Evaluate the appropriate use of research design elements in experimental methodology.

**2.C** Evaluate the appropriate use of research design elements in non-experimental methodologies.

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## LEARNING OBJECTIVE

**4.6.B**

Explain how eating and belongingness motivate behavior and mental processes.

## ESSENTIAL KNOWLEDGE

**4.6.B.1**

Eating is a complex motivated behavior that demonstrates how physical and mental processes interact.

**4.6.B.1.i**

Hormones, such as ghrelin and leptin (regulated by the hypothalamus via the pituitary gland), regulate feelings of hunger and satiety.

**4.6.B.1.ii**

External factors like the presence of food, time of day, or social gatherings around meals also influence the behavior of eating.

# TOPIC 4.7
# Emotion

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| **4.7.A** Explain how theories of emotion apply to behavior and mental processes. | **4.7.A.1** Emotion, or affect, is a complex psychological process that is distinguished from reasoning or knowledge. Emotions reflect internal and external factors affecting an individual. Early 20th century psychological theories of emotion parsed the distinction between the physiological and cognitive experiences of emotion. Some theories proposed that the physiological and cognitive experiences occurred in succession while others proposed that they occurred simultaneously. Other theories emphasize that the cognitive label is required to experience an emotion. The facial-feedback hypothesis suggests that the experience of emotion is influenced by facial expressions, which supports theories that propose the physiological experience of emotion precedes the cognitive appraisal, and research testing this hypothesis has produced mixed results.<br>*Exclusion Statement: Specific names of theories of emotion are outside the scope of the AP Psychology Exam.*<br>**4.7.A.2** The broaden-and-build theory of emotion proposes that positive emotional experiences tend to broaden awareness and encourage new actions and thoughts. Negative emotions tend to reduce awareness and narrow thinking and action. |

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**SUGGESTED SKILLS**

**1.A** Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.D** Evaluate whether a psychological research scenario followed appropriate ethical procedures.

**3.A** Identify psychology-related concepts in descriptions or representations of data.

**4.B** Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm.

## LEARNING OBJECTIVE

**4.7.B**

Explain how social norms and experiences influence the expression of emotions.

## ESSENTIAL KNOWLEDGE

**4.7.B.1**

Research has explored whether the expression of emotions is universally common. Some emotions that may be commonly experienced across cultures include anger, disgust, sadness, happiness, surprise, and fear. Research on the universality of emotions shows mixed results.

**4.7.B.2**

Display rules and elicitors for emotional expression can differ among cultures. Display rules and elicitors may regulate how people from different genders, ages, or socioeconomic classes within a culture can display and interpret emotions.

AP PSYCHOLOGY

# UNIT 5

# Mental and Physical Health

**15–25%**
AP EXAM WEIGHTING

**~17–23**
CLASS PERIODS

Remember to go to **AP Classroom** to assign students the online **Progress Check** for this unit.

Whether assigned as homework or completed in class, the **Progress Check** provides each student with immediate feedback related to this unit's topics and skills.

### Progress Check 5

**Multiple-choice: ~30 questions**
**Free-response: 1 question**

- Evidence-Based Question

UNIT 5

**15–25%** AP EXAM WEIGHTING | **~17–23** CLASS PERIODS

# Mental and Physical Health

**ESSENTIAL QUESTIONS**

- How do psychologists define "normal" behaving, thinking, and acting?
- How can we apply health, positive, and clinical psychology principles to change our lives, organizations, and communities in positive ways?
- Where can someone find help if they think they or someone they care about is experiencing a psychological illness?

## Developing Understanding

While people's overall health and well-being is a deep interest of all psychologists, there are more specific areas within these categories on which certain psychologists place their main research focus. Health psychologists explore factors that help people lead mentally and physically healthy lives. Positive psychologists explore factors related to mental health and happiness, focusing on positive emotions, cognitions, and experiences. Psychologists who study and/or treat psychological disorders utilize theoretical perspectives to explain a disorder's origin and/or determine the best method for its treatment. These explanations and treatments build on the theories, perspectives, concepts, and processes studied throughout the course. Connecting content and perspectives presented in this unit and those presented in the previous four units can help students realize why psychologists use integrated approaches and evidence-based practices to understand and treat psychological disorders. Overall, this final unit presents an opportunity for students to see real-world application of course content to people's authentic experiences of psychological health, illness, and wellness.

## Building the Science Practices

1.A 1.B 2.C 2.D

As with previous units, students will have the opportunity to apply psychological perspectives, theories, concepts, and research findings—this time, to scenarios involving mental and physical health **(1.A)**. This may involve comparing many of the psychological perspectives, theories, and concepts they studied in earlier units, now through the lenses of health, positive, and clinical psychology. Students will explore factors that lead to mental and physical health, using biological, psychological, and sociocultural theories learned throughout the course. In their exploration of psychological disorders (Topics 5.3–5.5), students may see that some of these disorders have consistent incidence rates around the world (e.g., schizophrenia), while others seem more prevalent in certain cultures (e.g., higher incidence of depression in the United States). This discovery could open discussions where students explain how cultural norms and biases apply to specific scenarios, as well as the implications of applying psychological concepts or theories in inappropriate or discriminatory ways **(1.B)**.

While reviewing research studies related to unit content, students may detect issues with generalizability and replicability. Evaluation of the appropriate use of design elements in case studies and other research can help students see that research conclusions may evolve during peer review and replication **(2.C)**. Still, students should note that clinical and research psychologists emphasize the importance of relying on research and evidence-based approaches to support mental health, well-being, and psychological growth. Students should not "diagnose" people with mental illness, whether the

scenarios presented are real or fictional, and understand that only trained and licensed practitioners should apply diagnostic labels to anyone. However, students can see how practitioners have applied those labels via case studies and how they have identified behaviors, thinking processes, or diagnostic criteria that match those presented in scenarios. Additionally, protection of vulnerable populations (e.g., people with psychological disorders) is important for research in this area, so opportunities to identify and evaluate ethical research practices, and discussing whether they were used appropriately, present themselves as students look at different studies **(2.D)**.

## Preparing for the AP Exam

In the multiple-choice section of the AP Exam, students often have difficulty distinguishing between key terms and phrases when answering questions posed as scenarios or set in a context. For instance, students may confuse obsessive-compulsive disorder with obsessive-compulsive personality disorder. Encouraging students to identify the key differences in disorders with similar names or within a common category will help them be aware of and identify these nuances on the AP Psychology Exam.

By this point in the course, students have all the skills they need to answer a full Article Analysis Question (AAQ) from the free-response section of the AP Exam. Using a peer-reviewed article summary on a topic from Unit 5—perhaps one that reports on a case study or correlational research—students can practice identifying the research method, stating the operational definition of a specific variable, describing the meaning of a specific statistic, and describing ethical guidelines that have been applied. Students will also need to apply the skill of argumentation in the AAQ by using evidence to justify whether the study is generalizable and whether the study's conclusions support or refute a particular idea or concept.

# UNIT AT A GLANCE

| Topic | Instructional Periods | Suggested Skills |
|---|---|---|
| **5.1 Introduction to Health Psychology** | 3 | 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br><br>3.A Identify psychology-related concepts in descriptions or representations of data.<br><br>3.B Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set. |
| **5.2 Positive Psychology** | 2 | 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br><br>2.C Evaluate the appropriate use of research design elements in non-experimental methodologies.<br><br>4.A Propose a defensible claim. |
| **5.3 Explaining and Classifying Psychological Disorders** | 5 | 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.<br><br>2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.<br><br>4.B Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm. |
| **5.4 Selection of Categories of Psychological Disorders** | 5 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.<br><br>3.A Identify psychology-related concepts in descriptions or representations of data.<br><br>4.A Propose a defensible claim. |

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# UNIT AT A GLANCE *(cont'd)*

| Topic | Instructional Periods | Suggested Skills |
|---|---|---|
| **5.5 Treatment of Psychological Disorders** | 5 | 1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario.<br><br>2.B Evaluate the appropriate use of research design elements in experimental methodology.<br><br>2.C Evaluate the appropriate use of research design elements in non-experimental methodologies.<br><br>2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.<br><br>3.C Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram.<br><br>4.B Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm. |

Go to **AP Classroom** to assign the **Progress Check** for Unit 5.
Review the results in class to identify and address any student misunderstandings.

# SAMPLE INSTRUCTIONAL ACTIVITIES

The sample activities on this page are optional and are offered to provide possible ways to incorporate various instructional approaches into the classroom. Teachers do not need to use these activities or instructional approaches and are free to alter or edit them. The examples below were developed in partnership with teachers from the AP community to share ways that they approach teaching some of the topics in this unit. Please refer to the Instructional Approaches section beginning on p. 129 for more examples of activities and strategies.

| Activity | Topic | Sample Activity |
|---|---|---|
| 1 | 5.2 | **Quickwrite**<br>Have students track their mood over the course of a week while teaching about positive psychology. Make sure their first entry (or entries) are prior to teaching the content. Then, at some point during each class period, have students do a Quickwrite where they jot down at least three things that they are grateful for that day. After the week is over, lead the class in collecting their data. Calculate any relevant statistics and/or plot their data in a graph or table. Have students use the data from class to support or refute any claims they make about the impact of the gratitude exercise. |
| 2 | 5.3 | **Jigsaw**<br>For each mental illness studied in class, students should explain the illness using different perspectives. Then have students switch groups to discuss all illnesses and share them. Divide students into groups to study a particular illness from all different perspectives for each. Alternatively, divide students into groups to study one perspective for each disease and then rearrange the groups so that all perspectives are represented in each group. Have students share with each other their assigned perspective for each illness. |
| 3 | 5.5 | **Construct an Argument**<br>Use scenarios to allow students to discriminate between therapeutic approaches: psychodynamic approach, behavior therapy, humanistic therapy, and cognitive therapy. |
| 4 | 5.5 | **Debate**<br>Have students debate the criticisms, strengths and weaknesses, and effectiveness of therapies for mental illness. |

**SUGGESTED SKILLS**

**1.B**
Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

**3.A**
Identify psychology-related concepts in descriptions or representations of data.

**3.B**
Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set.

# TOPIC 5.1
# Introduction to Health Psychology

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **5.1.A** Explain how health psychology addresses issues of physical health and wellness as they apply to behavior and mental processes. | There are no required essential knowledge statements for this learning objective. |
| **5.1.B** Explain how stress applies to behavior and mental processes. | **5.1.B.1** Stress is a factor in heightened susceptibility to disorders and disease. Stress has been linked to physiological issues such as hypertension, headaches, and immune suppression.<br>**5.1.B.2** Stressors can be viewed as motivating (eustress) or debilitating (distress). Stressors can be experienced as traumatic or as daily hassles that can build up over time. Adverse childhood experiences (ACEs) are sources of stress that can affect a person throughout the lifespan. |
| **5.1.C** Explain how reactions to stress apply to behavior and mental processes. | **5.1.C.1** The general adaptation syndrome (GAS) describes the process of experiencing stress. Initially, alarm reaction occurs when the stress is encountered. Then, a resistance phase occurs as the stress is confronted (via a fight-flight-freeze response). Finally, an exhaustion phase occurs when the stress subsides, or resources are spent. The greatest susceptibility to illness occurs during the exhaustion phase. |

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| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| 5.1.C<br>Explain how reactions to stress apply to behavior and mental processes. | 5.1.C.2<br>The tend-and-befriend theory proposes that some people react to stress by tending to their own needs and/or the needs of others and seeking connection with others. This phenomenon seems to occur mostly in women. |
| 5.1.D<br>Explain how the ways that people cope with stress applies to behavior and mental processes. | 5.1.D.1<br>Problem-focused coping involves seeing stress as a problem to be solved and working solutions until a solution is found.<br><br>5.1.D.2<br>Emotion-focused coping involves managing emotional reactions to stress as a means of coping. Strategies that are emotion-focused may include deep breathing, meditation, or taking medication aimed at reducing stressful emotional responses. |

**SUGGESTED SKILLS**

**1.B**
Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

**2.C**
Evaluate the appropriate use of research design elements in non-experimental methodologies.

**4.A**
Propose a defensible claim.

# TOPIC 5.2
# Positive Psychology

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **5.2.A** Explain how positive psychology approaches the study of behavior and mental processes. | **5.2.A.1** Positive psychology seeks to identify factors that lead to well-being, resilience, positive emotions, and psychological health. |
| **5.2.B** Explain how positive subjective experiences apply to behavior and mental processes. | **5.2.B.1** Expressing gratitude, a positive subjective experience, increases subjective well-being.<br>**5.2.B.2** People who exercise their signature strengths or virtues report higher levels of positive objective experiences such as happiness and subjective well-being. A classification of character strengths has been developed around 6 categories of virtues: wisdom, courage, humanity, justice, temperance, and transcendence.<br>**5.2.B.3** Posttraumatic growth, a positive subjective experience, may result after the experience of trauma or stress. |

# TOPIC 5.3
# Explaining and Classifying Psychological Disorders

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **5.3.A** Describe the approaches used to define behaviors and mental processes as psychological disorders. | **5.3.A.1** Level of dysfunction, perception of distress, and deviation from the social norm are all factors used to identify psychological disorders. |
| | **5.3.A.2** Diagnosing or classifying psychological disorders has positive and negative consequences depending on the nature of the disorder, the individual being diagnosed, and the presence of cultural/societal norms, stigma, racism, sexism, ageism, and discrimination. |
| | **5.3.A.3** Diagnosing psychological disorders requires specialized training and the use of evidence-based diagnostic tools. The American Psychiatric Association developed the Diagnostic and Statistical Manual (DSM) of Mental Disorders to classify mental disorders. The World Health Organization developed the International Classification of Mental Disorders (ICD) to classify mental disorders. These classification systems are updated regularly to be responsive to new research and practice advances. |
| **5.3.B** Explain how psychological perspectives define psychological disorders. | **5.3.B.1** Most psychologists employ an eclectic approach (using more than one psychological perspective) when diagnosing and treating clients. |

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**SUGGESTED SKILLS**

**1.B** Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes.

**2.D** Evaluate whether a psychological research scenario followed appropriate ethical procedures.

**4.B** Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm.

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| 5.3.B<br>Explain how psychological perspectives define psychological disorders. | 5.3.B.2<br>The behavioral perspective proposes that the causes of mental disorders focus on maladaptive learned associations between or among responses to stimuli. |
| | 5.3.B.3<br>The psychodynamic perspective proposes that the causes of mental disorders focus on unconscious thoughts and experiences, often developed during childhood. |
| | 5.3.B.4<br>The humanistic perspective proposes that the causes of mental disorders focus on a lack of social support and being unable to fulfill one's potential. |
| | 5.3.B.5<br>The cognitive perspective proposes that the causes of mental disorders focus on maladaptive thoughts, beliefs, attitudes, or emotions. |
| | 5.3.B.6<br>The evolutionary perspective proposes that the causes of mental disorders focus on behaviors and mental processes that reduce the likelihood of survival. |
| | 5.3.B.7<br>The sociocultural perspective proposes that the causes of mental disorders focus on maladaptive social and cultural relationships and dynamics. |
| | 5.3.B.8<br>The biological perspective proposes that the causes of mental disorders focus on physiological or genetic issues. |
| 5.3.C<br>Explain how interaction models define psychological disorders. | 5.3.C.1<br>The biopsychosocial model assumes that any psychological problem potentially involves a combination of biological, psychological, and sociocultural factors. |
| | 5.3.C.2<br>The diathesis-stress model assumes that psychological disorders develop due to a genetic vulnerability (diathesis) in combination with stressful life experiences (stress). |

# TOPIC 5.4
# Selection of Categories of Psychological Disorders

## Required Course Content

*Exclusion Statement: While there are many disorders listed in diagnostic manuals used by professionals in the field, the AP Psychology Exam focuses on the disorders listed in Topic 5.4 as representative of an introductory understanding of psychological disorders.*

### LEARNING OBJECTIVE

**5.4.A**

Describe the symptoms and possible causes of selected neurodevelopmental disorders.

### ESSENTIAL KNOWLEDGE

**5.4.A.1**

Neurodevelopmental disorders are a group of disorders with onset occurring during the developmental period. Symptoms of neurodevelopmental disorders focus on whether the person is exhibiting behaviors appropriate for their age or maturity range.

*Selected disorders in scope for AP Psychology in this category are attention-deficit/hyperactivity disorder (ADHD) and autism spectrum disorder (ASD).*

**5.4.A.2**

Possible causes of neurodevelopmental disorders may be environmental, physiological, or genetic in nature.

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### SUGGESTED SKILLS

**1.A**

Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.D**

Evaluate whether a psychological research scenario followed appropriate ethical procedures.

**3.A**

Identify psychology-related concepts in descriptions or representations of data.

**4.A**

Propose a defensible claim.

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| **5.4.B**<br>Describe the symptoms and possible causes of selected schizophrenic spectrum disorders. | **5.4.B.1**<br>Schizophrenic spectrum disorders are characterized by issues in one or more of these five areas: delusions, hallucinations, disorganized thinking or speech, disorganized motor behavior, and negative symptoms. Schizophrenia can be experienced as an acute or chronic condition.<br>**5.4.B.1.i**<br>Delusions (false beliefs) are positive symptoms and may manifest in ways such as delusions of persecution or grandeur.<br>**5.4.B.1.ii**<br>Hallucinations (false perceptions) are positive symptoms and may involve one or more of the senses.<br>**5.4.B.1.iii**<br>Disorganized thinking or speech is a positive symptom and may manifest as speaking in ways such as speaking in a word salad (stringing together words in nonsensical ways).<br>**5.4.B.1.iv**<br>Disorganized motor behavior may manifest as catatonia. Catatonia, or disordered movement, may be experienced as excitement (a positive symptom manifestation) or stupor (a negative symptom manifestation).<br>**5.4.B.1.v**<br>Negative symptoms present as the lack of a typical behavior, such as the lack of emotional expression (flat affect) or lack of movement (catatonic stupor).<br>**5.4.B.2**<br>Possible causes of schizophrenia suggest a genetic or biological link, such as prenatal virus exposure or imbalances with certain neurotransmitters (dopamine hypothesis). |
| **5.4.C**<br>Describe the symptoms and possible causes of selected depressive disorders. | **5.4.C.1**<br>Depressive disorders are characterized by the presence of sad, empty, or irritable mood along with physical and cognitive changes that affect a person's ability to function.<br>*Selected disorders in scope for AP Psychology in this category are major depressive disorder and persistent depressive disorder.* |

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| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| 5.4.C<br>Describe the symptoms and possible causes of selected depressive disorders. | 5.4.C.2<br>Possible causes of depressive disorders focus on biological, genetic, social, cultural, behavioral, or cognitive sources. |
| 5.4.D<br>Describe the symptoms and possible causes of selected bipolar disorders. | 5.4.D.1<br>Bipolar disorders are characterized by periods of mania and periods of depression. Bipolar cycling involves experiencing periods of depression and mania in alternating periods that can last various amounts of time.<br>*Selected disorders in scope for AP Psychology in this category are Bipolar I disorder and Bipolar II disorder.*<br>5.4.D.2<br>Possible causes of bipolar disorders focus on biological, genetic, social, cultural, behavioral, or cognitive sources. |
| 5.4.E<br>Describe the symptoms and possible causes of selected anxiety disorders. | 5.4.E.1<br>Anxiety disorders are characterized by excessive fear and/or anxiety with related disturbances to behavior.<br>*Selected disorders in scope for AP Psychology in this category are specific phobia, agoraphobia, panic disorder, social anxiety disorder, and generalized anxiety disorder.*<br>5.4.E.1.i<br>Specific phobia involves fear or anxiety toward a specific object or situation, such as acrophobia (heights) or arachnophobia (spiders).<br>5.4.E.1.ii<br>Agoraphobia is intense fear of specific social situations, including using public transportation, being in open spaces, being in enclosed spaces (e.g., shops, theaters, etc.), standing in line or being in a crowd, or being outside of the home alone.<br>5.4.E.1.iii<br>Panic disorder involves the experience of panic attacks (unanticipated and overwhelming biological, cognitive, and emotional experiences of fear/anxiety). Panic disorder can manifest as a culture-bound anxiety disorder such as *ataque de nervios* (experienced mainly by people of Caribbean or Iberian descent). |

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| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| **5.4.E**<br>Describe the symptoms and possible causes of selected anxiety disorders. | **5.4.E.1.iv**<br>Social anxiety disorder involves the intense fear of being judged or watched by others. Social anxiety disorder is distinct from but may include agoraphobia. *Taijin kyofusho* is a culture-bound anxiety disorder experienced mainly by Japanese people in which people fear others are judging their bodies as undesirable, offensive, or unpleasing.<br><br>**5.4.E.1.v**<br>Generalized anxiety disorder (GAD) involves prolonged experiences of nonspecific anxiety or fear.<br><br>**5.4.E.2**<br>Possible causes of anxiety disorders focus on learned associations between and among stimuli, maladaptive thinking or emotional responses, and biological or genetic sources. |
| **5.4.F**<br>Describe the symptoms and possible causes of selected obsessive-compulsive disorders and related disorders. | **5.4.F.1**<br>Obsessive-compulsive and related disorders are characterized by the presence of obsessions (intrusive thoughts) and compulsions (intrusive, often repetitive, behaviors intended to address obsessions).<br>*Selected disorders in scope for AP Psychology in this category are obsessive-compulsive disorder and hoarding disorder.*<br><br>**5.4.F.2**<br>Possible causes of obsessive-compulsive disorders involve learned associations between and among stimuli, maladaptive thinking or emotional responses, and biological or genetic sources. |
| **5.4.G**<br>Describe the symptoms and possible causes of selected dissociative disorders. | **5.4.G.1**<br>Dissociative disorders are characterized by dissociations from consciousness, memory, identity, emotion, perception, body representation, motor control, and behavior.<br>*Selected disorders in scope for AP Psychology in this category are dissociative amnesia (with and without fugue) and dissociative identity disorder.*<br><br>**5.4.G.2**<br>Possible causes of dissociative disorders involve the experience of trauma or stress. |

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| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| **5.4.H**<br>Describe the symptoms and possible causes of selected trauma and stressor-related disorders. | **5.4.H.1**<br>Trauma and stressor-related disorders are characterized by exposure to a traumatic or stressful event with subsequent psychological distress. Symptoms of trauma and stressor-related disorders may involve hypervigilance, severe anxiety, flashbacks to traumatic or stressful experiences, insomnia, emotional detachment, and hostility.<br>*The selected disorder in scope for AP Psychology in this category is posttraumatic stress disorder.*<br>**5.4.H.2**<br>Possible causes of trauma and stressor-related disorders involve the experience of trauma or stress. |
| **5.4.I**<br>Describe the symptoms and possible causes of selected feeding and eating disorders. | **5.4.I.1**<br>Feeding and eating disorders are characterized by altered consumption or absorption of food that impairs health or psychological functioning.<br>*Selected disorders in scope for AP Psychology in this category are anorexia nervosa and bulimia nervosa.*<br>**5.4.I.2**<br>Possible causes of feeding and eating disorders focus on biological, genetic, social, cultural, behavioral, or cognitive sources. |
| **5.4.J**<br>Describe the symptoms and possible causes of selected personality disorders. | **5.4.J.1**<br>Personality disorders (which fall into three clusters) are characterized by enduring patterns of internal experience and behavior that is deviant from one's culture; is pervasive and inflexible; begins in adolescence or early adulthood; is stable over time; and leads to personal distress or impairment.<br>**5.4.J.1.i**<br>Cluster A is the odd or eccentric cluster and includes paranoid, schizoid, and schizotypal personality disorders.<br>**5.4.J.1.ii**<br>Cluster B is the dramatic, emotional, or erratic cluster and includes antisocial, histrionic, narcissistic, and borderline personality disorders. |

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## LEARNING OBJECTIVE

5.4.J

Describe the symptoms and possible causes of selected personality disorders.

## ESSENTIAL KNOWLEDGE

**5.4.J.1.iii**

Cluster C is the anxious or fearful cluster and includes avoidant, dependent, and obsessive-compulsive personality disorders.

**5.4.J.2**

Possible causes of personality disorders focus on biological, genetic, social, cultural, behavioral, or cognitive sources.

# TOPIC 5.5
# Treatment of Psychological Disorders

## Required Course Content

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
|---|---|
| **5.5.A** Describe research and trends in the treatment of psychological disorders. | **5.5.A.1** Many researchers who have conducted meta-analytic studies of psychotherapy conclude that psychotherapies are generally effective. Many psychologists use evidence-based interventions to develop treatment plans. Therapists should exhibit cultural humility and establish a therapeutic alliance with the client to deliver therapy successfully. |
| **5.5.B** Describe research and trends in the treatment of psychological disorders. | **5.5.B.1** Due to the increased use and effectiveness of psychotropic medication therapy, hospitals and asylums deinstitutionalized massive numbers of people in the late 20th century. Therapists now prefer to treat in decentralized ways, often with a combination of medication and psychological therapies. |
| **5.5.C** Describe ethical principles in the treatment of psychological disorders. | **5.5.C.1** Psychologists in clinical or therapeutic situations must follow certain ethical principles as established by the APA, including nonmaleficence, fidelity, integrity, and respect for people's rights and dignity. |
| **5.5.D** Describe techniques used with psychological therapies. | **5.5.D.1** Psychodynamic therapies employ free association and dream interpretation to uncover the unconscious mind. |

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**SUGGESTED SKILLS**

**1.A** Apply psychological perspectives, theories, concepts, and research findings to a scenario.

**2.B** Evaluate the appropriate use of research design elements in experimental methodology.

**2.D** Evaluate whether a psychological research scenario followed appropriate ethical procedures.

**3.C** Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram.

**4.B** Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm.

| LEARNING OBJECTIVE | ESSENTIAL KNOWLEDGE |
| --- | --- |
| 5.5.D<br>Describe techniques used with psychological therapies. | **5.5.D.2**<br>Cognitive therapies may employ cognitive restructuring or fear hierarchies to combat maladaptive thinking. Cognitive therapy proposes that people should focus on the cognitive triad—negative thoughts about oneself, the world, and the future.<br><br>**5.5.D.3**<br>Applied behavior analysis involves applying principles of conditioning to address mental disorders and developmental disabilities. Exposure therapies (such as systematic desensitization), aversion therapies, and token economies all employ principles of applied behavior analysis. Biofeedback uses principles of conditioning to help clients regulate body systems (such as the sympathetic and parasympathetic nervous systems) that contribute to feelings of anxiety or depression.<br><br>**5.5.D.4**<br>Cognitive-behavioral therapies, such as dialectical behavior therapy and rational-emotive behavior therapy, combine techniques from the cognitive and behavioral perspectives to treat mental and behavioral disorders.<br><br>**5.5.D.5**<br>Therapy from the humanistic perspective, commonly referred to as person-centered therapy, employs active listening and unconditional positive regard. |
| **5.5.E**<br>Explain how group therapy is different from individual therapy. | There are no required essential knowledge statements for this learning objective. |
| **5.5.F**<br>Describe effective uses of hypnosis. | **5.5.F.1**<br>Hypnosis has shown effectiveness in treating pain and anxiety. Research does not support the use of hypnosis to retrieve accurate memories or regress in age. |

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## LEARNING OBJECTIVE

**5.5.G**

Describe interventions derived from the biological perspective.

## ESSENTIAL KNOWLEDGE

**5.5.G.1**

Psychoactive medications, such as antidepressants, antianxiety drugs, lithium, or antipsychotic medications, interact with specific neurotransmitters in the central nervous system to address possible biochemical causes of mental disorders. Psychoactive medications can have side effects such as tardive dyskinesia (a movement disorder related to the regulation of dopamine in the nervous system).

**5.5.G.2**

Surgical or invasive interventions include psychosurgery (which may involve lesioning), TMS (transcranial magnetic stimulation), or electroconvulsive therapy. The lobotomy is a form of psychosurgery that was popular in the mid-20th century but is rarely, if ever, performed today.

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AP PSYCHOLOGY

# Instructional Approaches

# Selecting and Using Course Materials

In addition to using a textbook that will cover the required course content, students should also examine summarized peer-reviewed and non-peer-reviewed source material in different and varied forms.

## Textbooks

While the AP Program provides examples of textbooks to help determine whether a text is considered appropriate in meeting the AP Psychology Course Audit curricular requirements, teachers select textbooks locally. AP Central has a **list of textbook examples** that meet the curricular requirements.

Any textbook used in the course should be written at the college level and encourage a conceptual understanding of psychology. The ideal textbook will use sufficient examples and approaches that enable students to make connections across different units within psychology and also between psychology and other social and natural sciences.

## Peer-reviewed Sources

Interaction with summarized peer-reviewed source material is considered an integral part of the AP Psychology course, and it is required on some portions of the AP Exam. While publishers are increasingly including summarized peer-reviewed source material in textbooks, introducing students to a wide variety of summarized peer-reviewed source material provides opportunities to analyze data from diverse sources. These sources should include data tables, charts, graphs, and figures. Ancillary materials and online resources that accompany most recently published textbooks may also provide quality materials to supplement classroom instruction. If a textbook does not provide ample summarized peer-reviewed sources, or its sources are too brief, it can be supplemented with summarized journal articles and/or abstracts from scientific literature related to particular topic areas. Many 'open-source' resources are available online and do not require purchasing individual articles or subscribing to a database. While the AP Program provides examples of textbooks to help determine whether a text is considered appropriate in meeting the AP Psychology Course Audit curricular requirements, teachers select textbooks locally.

# Developing the Science Practices

Throughout the course, students will develop science practices that are fundamental to the study of psychology. Students will benefit from multiple opportunities to develop these practices in a scaffolded manner.

The tables on the pages that follow look at each science practice and their associated skills and provide examples of questions with sample activities for incorporating instruction on that skill into the course.

## Science Practice 1: Concept Application

**Apply psychological perspectives, theories, concepts, and research findings to a scenario.**

Psychological perspectives, theories, concepts, and research findings are ways of thinking about behavior and mental processes. Studying these perspectives, theories, concepts, and research findings in the context of each unit can help students learn to differentiate among the various ideas in the course. They should be revisited, or spiraled, throughout the course at appropriate times through the inclusion of examples that are both accessible and interesting to students.

Application involves more than simple identification or description of a psychological perspective, theory, concept, or research finding; it requires discussion of how and/or why the perspective, theory, concept, or research finding relates to a given situation or context. Students should practice accurate application of their psychology knowledge in a variety of contexts throughout the course.

The table that follows provides examples of questions and sample activities for teaching students to successfully develop concept application for different topics throughout the course.

### Science Practice 1: *Concept Application*

| Skill | Questions to Ask Students | Sample Activity |
|---|---|---|
| 1.A<br>*Apply psychological perspectives, theories, concepts, and research findings to a scenario.* | Which psychological perspectives, theories, or concepts apply to this scenario?<br><br>What can you conclude about the behavior of the person in this scenario, given what you know about specific psychological perspectives, theories, or concepts? | Provide students with a set of note cards, post-it notes, or hexagonal tiles and have them write each major brain structure on each. Then, have them organize each card in relation to the other structures in the brain. Then, have them take each card and write down what would happen to the person if that particular structure were damaged. Encourage students to be as specific as they can about what behaviors or mental processes the person would experience a change in due to the damage. |

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## Science Practice 1: *Concept Application*

| Skill | Questions to Ask Students | Sample Activity |
|---|---|---|
| 1.B<br>*Explain how cultural norms, expectations, and circumstances and cognitive biases apply to behavior and mental processes* | How might a psychological theory be applied in an inappropriate or discriminatory way? What might happen to an individual who experiences that application? What might happen if that application becomes more widespread?<br><br>What are some implications of applying psychological concepts or theories in inappropriate or discriminatory ways? | To demonstrate overconfidence (a cognitive bias), ask students to recall a fact they may have learned in elementary school but may not recall as accurately as they think they can (e.g., state capitals; formulas from math class). Ask them how confident they are that they got the fact(s) absolutely correct. Have them rate their confidence on a scale of 1 (no confidence) to 100 (complete confidence). Then, reveal the answer and ask them to revisit and review their initial confidence rating to demonstrate the cognitive bias of overconfidence. |

## Science Practice 2: Research Methods and Design

**Apply psychological perspectives, theories, concepts, and research findings to a scenario.**

Psychologists use qualitative and quantitative research designs to explore behavior and mental processes. Qualitative designs involve interpretations or descriptions of non-numerical data. Quantitative designs use strategies and measurements that are "countable," meaning they are based in quantifiable numbers. Depending on the research question asked, the research design method, and/or measure determines what conclusions can be drawn from data. Students should practice identifying the types of research methods (i.e., experimental and non-experimental) psychologists use and the strengths and limitations of each.

Often, we can learn about research designs by analyzing whether the research has flaws. In order to identify a research design flaw, students will need to be familiar with the different research methods and designs, as well as the types of conclusions that can be drawn from each. They will then need to compare the conclusions of a given researcher with their method and design to determine if there are flaws and, if so, what they are.

Once students identify a research design flaw, they should be able to explain why it is a flaw and how it can be corrected. To do this, they will need to rely on their knowledge about methods and designs, as well as the conclusions that can be drawn from them.

The table that follows provides examples of questions and sample activities for teaching students to determine the types of research methods and designs, as well design flaws, in the context of different topics throughout the course.

### Science Practice 2: *Research Methods and Design*

| Skill | Questions to Ask Students | Sample Activity |
|---|---|---|
| 2.A<br>*Determine the type of research design(s) used in a given study.* | Is this study using an experimental or non-experimental methodology? How do you know?<br><br>What type of experimental/non-experimental methodology is being used in this study? How do you know?<br><br>Could this study have been completed using a different kind of methodology? If so, how? | Present students with a summary of a research study. Examples of summarized research can be found in sample FRQs on AP Classroom or the APA Monitor on Psychology magazine. Ask them the following:<br><br>▪ Is the study experimental or non-experimental?<br><br>▪ What information within the summary of the research study helps determine the type of research design?<br><br>Make sure students know that if a study does not manipulate an independent variable and/or does not randomly assign participants to groups, the study is not experimental. |

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## Science Practice 2: *Research Methods and Design*

| Skill | Questions to Ask Students | Sample Activity |
|---|---|---|
| **2.B**<br>*Evaluate the appropriate use of research design elements in experimental methodology.* | What is the researcher's hypothesis in this study?<br><br>What is the independent variable in this study? What is the dependent variable? Are there any confounding variables present?<br><br>Does the sample used in this experiment represent the full population it is meant to, or is it biased in some way? How do you know? | Have students practice writing operational definitions for research variables individually, based on concepts studied throughout the course, such as:<br><br>▪ Happiness<br>▪ Stress<br>▪ Memory<br>▪ Hunger<br><br>Then, have students swap their definitions with a partner and identify at least one observable behavior their partner's definition is measuring. Students can then discuss together whether they need to modify their original operational definitions based on their partner's feedback. |
| **2.C**<br>*Evaluate the appropriate use of research design elements in non-experimental methodologies.* | How is non-experimental research different from experimental research?<br><br>What types of conclusions are possible with non-experimental methodologies? How do these conclusions differ from those possible with experimental methodologies?<br><br>What are some key features that non-experimental research shares with experimental research? | Present students with several different types of survey questions, such as Likert scale, open-ended, and yes/no. Have students work in pairs to determine the following:<br><br>▪ Is the question collecting quantitative or qualitative data? How do you know?<br>▪ Is any of the language confusing in the question? How would you edit it to be less confusing?<br>▪ Is the question biased in any way? How can you tell?<br><br>Alternatively, ask students to develop their own survey questions to obtain specific information, such as ability to work well in a team setting or education level. Then, have students work in pairs to answer the same questions above. Conclude the activity with a whole-class discussion on the advantages and disadvantages of using surveys in research design. |
| **2.D**<br>*Evaluate whether a psychological research scenario followed appropriate ethical procedures.* | Why are ethics important in research?<br><br>What are ways researchers can protect populations such as children, people with disabilities, or non-human animals while conducting research studies? | Present students with research scenarios that include descriptions of ethical guidelines that have been applied either correctly or incorrectly—such as the proper use of informed consent or debriefing. Have students identify the ethical procedures implemented or the flawed use (or absence) of those procedures. Then, discuss the importance of following ethical guidelines as a whole class. |

## Science Practice 3: Data Interpretation

**Evaluate representations of psychological concepts depicted in quantitative research (tables, graphs, charts, and diagrams) and described in qualitative research.**

Data is important because of the information it conveys about psychological perspectives, theories, and concepts. To understand the information conveyed, researchers need to be able to describe data presented in tables, graphs, or charts and then identify and describe the patterns and trends observed in the data. Articulating these patterns and trends can make the data meaningful for the researcher and lead to the discovery and/or development of perspectives, theories, and concepts.

Researchers also use data to describe and predict behavior and mental processes. Psychologists conduct statistical analyses to see how the data collected relate to each other and the concepts being examined.

Some statistical analyses – such as measures of central tendency and variation – can be used to describe behavior and mental processes. Other statistical analyses – such as correlations, effect sizes, and statistical significance testing – allow researchers to demonstrate trends or predict behavior and mental processes.

As they interact with both quantitative and qualitative studies throughout the course, students should practice identifying the psychological concepts depicted in the research data, as well as interpreting these data in a way that allows them to discuss the appropriate measure of central tendency and patterns that reveal relationships between variables.

The table that follows provides examples of questions and sample activities for teaching students to interpret data presented in both quantitative and qualitative research in different topics throughout the course.

### Science Practice 3: *Data Interpretation*

| Skill | Questions to Ask Students | Sample Activity |
|---|---|---|
| 3.A<br>*Identify psychology-related concepts represented in descriptions or representations of data.* | What is the best format for presenting different types of data?<br><br>What features of a graph or table would give you the information you need to identify the concept it is depicting? | Have students look at graphs of response behavior for the different schedules of reinforcement in operant conditioning (see EK 3.8.A.5)—without labeling which graph represents which reinforcement schedule. Have students identify which schedule is being used in which graph based on the data depicted in the graph.<br><br>As an extension to this activity, have students narrate or write a verbal description of a scenario or context that represents the response behavior pattern depicted by their graph. Ensure that they're able to explain why the graph changes shape at different points. |

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## Science Practice 3: *Data Interpretation*

| Skill | Questions to Ask Students | Sample Activity |
|---|---|---|
| 3.B<br>*Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set.* | How are the mean, median, and mode related to each other in a normal distribution?<br><br>How should the standard deviation for a set of data be interpreted?<br><br>What does percentile rank tell us about a given data point? | Give students a range of numbers in a particular context. If possible, collect the data from students in your class first-hand, such as the number of hours each student spent using social media on their cell phones over the past week. After the data has been obtained, first have students calculate the measures of central tendency and variation for the number set. Next, have them graph the number set onto a coordinate plane. Finally, have students determine whether the graph represents a normal distribution, and if not, the type of distribution their data does depict. |
| 3.C<br>*Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram.* | What features of a correlation coefficient tell you about the strength and direction of the relationship?<br><br>How do you interpret effect size? | Have students collect data quantitatively and qualitatively by asking a survey question as both a closed-choice (e.g., multiple-choice, ranking, etc.) and open-ended question. Then, have students compare the responses to see if they can determine similar patterns in the responses. Have them discuss which type of data provided more or less information on the question based on the responses. |

## Science Practice 4: Argumentation

**Develop and justify psychological arguments using evidence.**

Psychological claims and arguments are often present in our daily lives. Our theories about how the world works are based on our observations of and best guesses about the world around us. Psychologists use evidence from scientific research to develop perspectives, theories, and concepts about behavior and mental processes. While many research studies may have begun as observations or intuitive guesses about how something might work, those observations or guesses do not become evidence until they are examined and investigated using the research methods used by psychologists.

Throughout the course, students will learn how to identify evidence and use it to support or refute claims and arguments.

Students might come to class wanting to discuss news reports or popular conversations about psychological perspectives, theories, concepts, and research findings. Helping students identify the evidence used in those reports or conversations and analyzing whether the evidence is both supported by research and sufficient to support the claims being made is important to understanding the applications of psychology in daily life.

The table that follows provides examples of questions and example activities for helping students develop the skill of argumentation, including justifying claims with evidence, for different topics throughout the course.

### Science Practice 4: *Argumentation*

| Skill | Questions to Ask Students | Sample Activity |
|---|---|---|
| **4.A**<br>*Propose a defensible claim.* | What makes a claim defensible?<br><br>How are a hypothesis and a claim related? | For each unit, assign students a specific topic. Have them propose a claim about that topic. Then, have students propose a quick way they could research their claim, being sure to do the following:<br><br>▪ Operationalize variables<br>▪ Determine whether they will use an experimental or non-experimental method<br>▪ Identify the ethical concerns that may arise from their research.<br><br>Have students do a gallery walk to get feedback from their peers about their research proposals. As a class, discuss any themes that emerged from the feedback that was shared. |
| **4.B**<br>*Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm.* | How can you tell if evidence is scientifically derived? | Present students with a summary of a peer-reviewed research article. [Consider referencing the book 40 Studies that Changed Psychology by Roger Hock.] Have students complete the following:<br><br>▪ Identify the research method used.<br>▪ Describe the main findings from the research and what evidence was used to support those findings.<br>▪ Explain how the findings support or refute what they learned about the topic of the article in class. |

# Instructional Strategies

The AP Psychology course framework outlines the concepts and skills students must know and be able to apply in order to be successful on the AP Exam. To address those concepts and skills effectively, it helps to incorporate a variety of instructional approaches into daily lessons and activities. The following table presents strategies that can help students apply their understanding of course concepts.

| Strategy | Definition | Example |
|---|---|---|
| ***Ask the Expert*** | Students are assigned as "experts" on concepts they understand well groups rotate through the expert stations to learn about concepts they need to work on, providing students with opportunities to share knowledge and learn from one another. | Assign a set of students as "experts" on one of several different components of a course topic. Each "expert" sits at a different station located at a specific location in the classroom. Then, have the remaining students rotate through the stations in groups, working with the station expert to complete a series of questions on the topic component. This activity could be used several times throughout the course—for example, when the following concepts are studied: parts of the brain, stages of childhood development, theories about motivation, and the psychological disorders listed in Topic 5.4. |
| ***Brain-Book-Buddy*** | Students are provided with multiple opportunities to retrieve and construct knowledge learned in a given lesson or unit: once on their own without assistance, again with the guidance of a notebook and/or textbook, and finally with the help of a classmate. | Assign students a short set of multiple-choice questions from a specific group of course topics or units, similar to those they would encounter on a quiz or exam. Have them divide a sheet of paper into three columns. In the first column, students should answer the questions only using what they remember, as they would on a quiz or exam. They should put an asterisk by any question for which they truly guessed the answer. After they finish, students should use the second column to respond to the questions again, but, this time, using their textbook or notes to help them. Finally, students should pair with a partner to respond to the questions again in the third column, discussing any answers one or both students may still be unsure of. Have students return to which questions from the first column they guessed on so they can use them as focus areas for future study. |

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| Strategy | Definition | Example |
|---|---|---|
| ***Construct an Argument*** | Students use scientific reasoning to present assumptions about scenarios, support conjectures with scientifically relevant and accurate data, and provide a logical progression of ideas leading to a conclusion that makes sense. | Show students a written or visual presentation of the results of a research study. Then, have them work in small groups to draw conclusions about the study and support their conclusions with data. Have each student in the group contribute a sentence to the conclusion. Once the conclusion is complete, read each group's full conclusion (or show it on a screen) and facilitate a class discussion about their appropriateness and completeness. |
| ***Debate*** | Students engage in informal or formal argumentation on an issue. | When learning about developmental psychology, have students take a parenting technique (e.g., giving rewards, timeout to correct behavior) and use evidence to debate which technique is most effective. |
| ***Fishbowl*** | Students form two circles: an inner circle facing outward and an outer circle facing inward. Students in the inner circle begin a discussion with the students across from them in the outer circle, while students in the outer circle listen, respond, and/or evaluate. | Divide students into two groups and ask them to form two concentric circles, with the inner circle facing outward and the outer circle facing inward. Assign each student in the inner circle a particular psychological disorder from Topic 5.4. Each student in the inner circle explains their assigned psychological disorder to the student across from them in the outer circle. Students in the outer circle then explain treatments of the psychological disorders to students in the inner circle. |
| ***Graph and Switch*** | In pairs, students generate graphs to represent data and then switch papers to review each other's representations. | Given an unlabeled graph, have students identify the independent and dependent variables and label all required parts of the graph. |
| ***Graphic Organizer*** | Students represent ideas and information visually (e.g., Venn diagrams, flowcharts, etc.). | Have students draw flowcharts to outline the steps of a research process. Ensure that students not only provide the steps, but also a brief description of each step. As an extension to this activity, consider having students use their flowcharts as a guide to analyzing an actual research study, asking them to pinpoint where each step of the research process occurs. |

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| Strategy | Definition | Example |
|---|---|---|
| ***Index Card Summaries/ Questions*** | Students use index cards as a formative assessment tool, articulating their understandings about a particular course concept on one side of the index card and questions they still have about that concept on the other side. | At the beginning or end of class, show students an image of a normal distribution. On one side of an index card, have students summarize what they know about what the graph is showing and why it is important. On the other side of the card, have them write a question they still have about the normal distribution. Collect the cards and read through them, noticing any trends in student responses. Address all questions that day (if done at the beginning of class) or the next day (if done at the end of class). |
| ***Interleaving*** | Students are provided with opportunities to hone their knowledge of related or complementary topics that arise throughout the course through mixed practice that helps them differentiate among similar or often-confused concepts. | Guide students through an understanding of discrimination as it occurs throughout the course, emphasizing that the concept has different meanings depending on the context. Each time the concept of discrimination appears in the course, have students write in their notes the other definitions and uses of the concept they have learned previously. Encourage them to note or highlight the ways in which the concept is used differently in the context they are learning in the current unit or topic. |
| ***Jigsaw*** | Groups of students take on the role of "specialists" about a particular text or course concept; individual students then form new groups to share their expertise with each other. The activity ends by students returning to their original groups to present the new knowledge they have gained from members of other groups. | Divide students into groups and assign each group a psychological disorder. Have them learn about and discuss their disorder in detail: cause, symptoms, consequences, and treatments. Once students in each group feel confident that they are "specialists" on their disorder, divide them into different groups so that there is one student who is a "specialist" on each disorder in a group. Have each student share their expertise with their new group. This activity could also be used at other points during the course—for example, when the following concepts are studied: brain part functions, sensory systems, theories of cognitive development, or theories of motivation. |
| ***Misconception Check*** | Students are presented with common or predictable misconceptions about a designated perspective, theory, concept, or process and asked whether they agree or disagree, as well as their reasoning for their answer. The misconception check can also be presented in the form of a multiple-choice or true-false quiz. | Provide students with a statement such as, "Culture influences intelligence." Ask them if them if they agree or disagree with the statement and to provide reasoning for their answer. Address any misconceptions that arise in the responses students give. |

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| Strategy | Definition | Example |
|---|---|---|
| ***One-Minute Essay*** | Students are given a question with a specific focus or goal and given exactly one minute to answer it. Questions given should have answers that can realistically be written in one minute. | Give students one minute to respond to a prompt such as, "Describe strategies used to improve memory." Once students have completed their one-minute essay, have them share their answers; then, facilitate a class discussion about the topic to review important concepts. |
| ***Quickwrite*** | Students write for a short, specific amount of time about a designated topic, article, representation of data, or text. | Prior to teaching about motivation, ask students to take three minutes to write down why they think motivation is important. At the conclusion of the lesson, have them revisit their answer and revise it to reflect what they learned. |
| ***Round Table*** | In groups, students begin work individually, practicing recall of previously learned information. Then, they rotate their work to allow other group members to both check it and add to it to ensure accuracy and completion. | Near the end of class, in groups of four, have each student use a different color pen/pencil to write down two things they remember from the day's lesson in one minute. Each student then passes their paper to the person on their right. In the next minute, that student checks the accuracy of the statements written, edits them as needed, and provides any new statements that haven't been included. Have students rotate again and continue the process until each student has had a turn looking at all papers. Once students have reached the end of the cycle, have one student from each group rotate to a new group and share their list with the new group members. Conclude with a whole-class debrief, if time permits. |
| ***Spacing*** | Students experience a "spreading out" of retrieval opportunities or lessons on a topic over a period of time, allowing them to retain information longer in memory by repeated recall of information. | Assign students a quick check for understanding with questions on the content from both that day's lesson and from previous lessons as an exit ticket or homework, so they get an additional opportunity to encode the day's lesson. Consider using the topic questions in AP Classroom to construct these checks for understanding—assigning them digitally will provide instant feedback on areas where students may still need additional study or support. Additionally, encourage students to review information learned from a given unit throughout the course of the unit's instruction. |

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| Strategy | Definition | Example |
|---|---|---|
| ***Think-Pair-Share (or Wait, Turn, and Talk)*** | Students think through a problem alone, pair with a partner to share ideas, and then conclude by sharing results with the class. | When teaching about a specific behavior (e.g., studying for an exam), ask students to reflect on their current learning with the following prompt: "Explain how each behavior can be explained by the different psychological perspectives." Then, have them turn to a neighbor and share their answer. After two to three minutes of sharing, engage the class in a discussion to ensure that students are building the necessary foundational understandings. |
| ***Use Manipulatives*** | Students use objects to examine relationships between the information given, supporting comprehension by providing a visual or hands-on representation of a problem or concept. | Have students use clay to model the brain or the neuron, using different colors to indicate different parts of the organ/cell. |

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AP PSYCHOLOGY

# Exam Information

# Exam Overview

*The AP Psychology Exam assesses student understanding of the skills and learning objectives outlined in the course framework. The exam is 2 hours and 40 minutes long and includes 75 multiple-choice questions and 2 free-response questions, each weighted equally. The details of the exam, including exam weighting and timing, can be found below:*

| Section | Question Type | Number of Questions | Exam Weighting | Timing |
|---|---|---|---|---|
| **I** | **Multiple-Choice Questions** | **75** | **66.7%** | **90 minutes** |
| **II** | **Free-Response Questions** | **2** | **33.3%** | **70 minutes** |
| | Question 1: Article Analysis Question | 1 | 16.65% | |
| | Question 2: Evidence-Based Question | 1 | 16.65% | |

# How Student Learning is Assessed on the AP Exam

## Section 1: Multiple-Choice

The multiple-choice section of the AP Exam includes set-based and discrete questions. All five units of the course are assessed with the following exam weighting:

| Units of Instruction | Exam Weighting |
|---|---|
| **Unit 1:** Biological Bases of Behavior | **15–25%** |
| **Unit 2:** Cognition | **15–25%** |
| **Unit 3:** Development and Learning | **15–25%** |
| **Unit 4:** Social Psychology and Personality | **15–25%** |
| **Unit 5:** Mental and Physical Health | **15–25%** |

Three of the four Practices are assessed in the multiple-choice section of the AP Exam with the following approximate exam weighting:

| Science Practice | Approximate Exam Weighting for Multiple-Choice Section |
|---|---|
| **Practice 1:** Concept Application | **65%** |
| **Practice 2:** Research Methods and Design | **25%** |
| **Practice 3:** Data Interpretation | **10%** |

## Section II: Free-Response

The free-response section will assess all four Practices and feature opportunities for students to engage with summarized peer-reviewed research.

- The Article Analysis Question (AAQ) will provide students with 1 summarized peer-reviewed source. Students will be expected to identify research elements (methodology, variables, and ethical guidelines) and interpret basic statistics presented in the article. Students will also be expected to explain whether the study can be generalized and how the article supports or refutes the psychological concept being explored in the study. They will have 25 minutes, including a 10-minute reading period, to complete this question. Practices 2, 3, and 4 are assessed.
- The Evidence-Based Question (EBQ) will provide students with 3 summarized peer-reviewed sources on a common topic. Students will be expected to propose a claim about the topic and use evidence from the sources and topics they have learned in AP Psychology, as well as reasoning about the evidence to support their claim. They will have 45 minutes, including a 15-minute reading period, to complete this question. Practices 1 and 4 are assessed.

# Task Verbs Used in the Free-Response Questions

The following task verbs are commonly used in the free-response questions:

**Describe:** Provide the relevant characteristics of a specified topic.

**Explain:** Provide information about how or why a relationship, process, pattern, position, situation, or outcome occurs, using evidence and/or reasoning to support or qualify a claim.

- Explain "how" typically requires analyzing the relationship, process, pattern, position, situation, or outcome;
- Explain "why" typically requires analysis of motivations or reasons for the relationship, process, pattern, position, situation, or outcome.

**Identify/State:** Indicate or provide information about a specified topic, without elaboration or explanation.

**Propose:** Provide a claim for a specific topic using your own words.

**Support or Refute:** Provide reasoning that explains whether a claim or evidence should be upheld or rejected.

**Use evidence:** Provide information from a study (i.e., data, rationales, conclusions, hypotheses) that is specific and relevant to a given topic.

# Sample Exam Questions

The sample exam questions that follow illustrate the relationship between the course framework and the AP Psychology Exam and serve as examples of the types of questions that appear on the exam. These sample questions do not represent the full range and distribution of items on an official AP Psychology Exam. After the sample questions is a table that shows which skill, learning objective, and essential knowledge statement each question assesses. The table also provides the answers to the multiple-choice questions.

## Section I: Multiple-Choice

1. Oksana experiences pleasurable feelings when she hugs her mother. Recently, her mother started wearing a new perfume, which Oksana can smell when she hugs her mother. When Oksana is shopping, she smells that new perfume near the counter where it is sold. She immediately feels the same pleasurable feelings as she does when she hugs her mother. In terms of classical conditioning, which of the following is the smell of the new perfume?

   (A) Unconditioned stimulus (UCS)

   (B) Conditioned stimulus (CS)

   (C) Positive reinforcement

   (D) Unconditioned response (UCR)

2. Researchers conducted a study with 200 participants who had been diagnosed with schizophrenia and a comparison group of 200 patients who had not been diagnosed with schizophrenia. The researchers found that participants who had been diagnosed with schizophrenia had significantly larger ventricles[1] than a comparison group. Based on this finding, the researchers concluded that enlarged ventricles cause people to develop schizophrenia. Which of the following most accurately describes why this conclusion is flawed?

   (A) The researchers' sample is not large enough to allow researchers to draw any scientific conclusions.

   (B) The researchers' results indicate no correlation between the variables.

   (C) The researchers' conclusion does not adequately account for the role of GABA in developing schizophrenia.

   (D) The researchers' cause-and-effect conclusions cannot be made because no independent variable is manipulated.

[1]Brain cavities filled with fluid.

**Authoritative Parenting Style Assessment Scores**

| |
|---|
| 7 |
| 6 |
| 4 |
| 9 |
| 11 |
| 8 |
| 9 |
| 12 |
| 5 |
| 9 |

3. Ten primary caregivers of children completed an assessment to determine the degree to which they practice authoritative parenting. The table shows the participants' scores on this assessment. The lowest possible score is 1, meaning the degree of authoritative parenting is low. The highest possible score is 15, meaning the degree of authoritative parenting is high. Based on the table, what is the range of the caregivers' scores?

   (A) 4

   (B) 8

   (C) 9

   (D) 12

4. Dr. Trenton conducted a study to determine whether massed practice or distributed practice produced better academic outcomes. He recruited volunteers from a high school Spanish class and randomly assigned students to learn a list of 100 new vocabulary words for which they were later given a word recall test. Students prepared for the word recall test using either distributed practice by studying for 30 minutes a day the week before the test, or massed practice by intensively studying the night before the test. What was the dependent variable in this research project?

   (A) Massed practice

   (B) Distributed practice

   (C) High school students

   (D) Word recall

**Questions 5 through 7 refer to the following.**

Dr. Min conducted a study to investigate creativity. Five volunteers were presented with a series of three objects, one at a time. The volunteers asked to generate as many alternative uses for the objects as possible in five minutes. The data collected on the number of alternative uses each volunteer generated for each object are displayed in the table.

| Volunteer | Tweezers | Eraser | Paper Clip |
|---|---|---|---|
| A | 0 | 3 | 3 |
| B | 7 | 6 | 5 |
| C | 9 | 12 | 8 |
| D | 4 | 3 | 5 |
| E | 7 | 8 | 11 |

5. Which of the following would cognitive psychologists use to describe the response of the volunteer who provided the lowest number of alternative uses for the tweezers?

   (A) Achievement

   (B) Functional fixedness

   (C) Framing

   (D) Sunk-cost fallacy

6. What was the median number of alternative uses generated for the eraser?

   (A) 3

   (B) 5

   (C) 6

   (D) 10

7. Which of the following concepts most directly applies to Dr. Min's research question?
   (A) Schema
   (B) Social loafing
   (C) Divergent thinking
   (D) General intelligence (*g*)

8. A doctor is assessing a patient with a sensory disorder. In the first assessment, she asks the patient to touch his nose with his eyes closed. In the next assessment, she asks the patient to walk a short distance with his eyes closed. Which of the following senses is the doctor most likely evaluating?
   (A) Gustation
   (B) Vision
   (C) Kinesthesis
   (D) Touch

9. In the 1960s, a psychologist placed dogs in a box and then exposed them to five trials in which they received an electric shock that they could not avoid. In the sixth trial, the psychologist placed the dogs in a different box. In this trial, the dogs could avoid the shocks by jumping over a small obstacle. None of the dogs jumped over the obstacle. Which of the following concepts explains why the dogs did not jump over the obstacle to escape the shocks in the sixth trial?
   (A) Retroactive interference
   (B) Learned helplessness
   (C) Superordinate goals
   (D) Diathesis-stress

10. Antonella, a native of the Caribbean, learns that a family member died suddenly. She begins to cry uncontrollably, loses control as she yells aggressively, and faints. Which of the following conditions best describes the symptoms Antonella experienced?
   *(A) Ataque de nervios*
   (B) Agoraphobia
   *(C) Taijin kyofusho*
   (D) Dissociative amnesia

11. Which of the following statements best explains why using an experimental research design is inappropriate in studying human development?

(A) Experiments cannot establish cause-and-effect relationships over time.

(B) Direct, long-term manipulation of a child's environment during an experiment is unethical.

(C) Experiments with young children are always unethical.

(D) Identifying which genetic traits are interacting with the environment is impossible using an experiment.

**Questions 12 through 14 refer to the following.**

In a study, researchers recruited 10 graduate students at their university to complete a series of tasks in a lab. Participants were asked to rate how desirable they found each item, both a toaster and a microwave, on a scale of 1 to 10, with 1 being not desirable and 10 being very desirable. After completing several complex math problems, participants were told that they could choose either a toaster or a microwave as a prize for participating in the study. After selecting their prize, participants were asked to rate the desirability of both items again. The researchers then compared the participants' ratings of the items at the beginning of the study and the rating that the participants provided after choosing their prize. The results are given in the tables.

**Table 1: Participants Who Chose a Toaster as Their Prize**

| Mean Rating of Toaster | | Mean Rating of Microwave | |
|---|---|---|---|
| Before choosing toaster | After choosing toaster | Before choosing toaster | After choosing toaster |
| 3.4 | 8.8 | 2.6 | 1.4 |

**Table 2: Participants Who Chose a Microwave as Their Prize**

| Mean Rating of Toaster | | Mean Rating of Microwave | |
|---|---|---|---|
| Before choosing microwave | After choosing microwave | Before choosing microwave | After choosing microwave |
| 3.4 | 2 | 3.8 | 8.8 |

12. Which of the following implicit attitudes may have influenced how the participants rated each item?

(A) A participant being aware that they need one item more than the other

(B) A participant seeing the cost of each item and knowing that one is more expensive than the other

(C) A participant attributing a greater value to one item over the other without knowing why

(D) A participant seeing that the toaster is their favorite color

13. Which of the following changes to the research design will expand the generalizability of the study's findings to a larger population?
    (A) Including participants who are not graduate students
    (B) Using a correlational design to determine causality
    (C) Including a debriefing session after the study to inform participants
    (D) Increasing the prize value so that the participants are more motivated

14. Which of the following concepts is demonstrated by the results of the study?
    (A) The testing effect
    (B) Social desirability
    (C) Cognitive dissonance
    (D) Fundamental attribution error

15. When 90-year-old Mrs. Glass socializes at her senior activity center, she gravitates toward activities that she can still perform well, which also demonstrates that her crystallized intelligence is functioning. Which of the following activities will most likely appeal to Mrs. Glass?
    (A) A "name that song" game featuring songs from her childhood
    (B) A trivia game featuring current movies
    (C) A new video game in which aliens fly a spaceship
    (D) A class teaching her how to use the latest computer technology

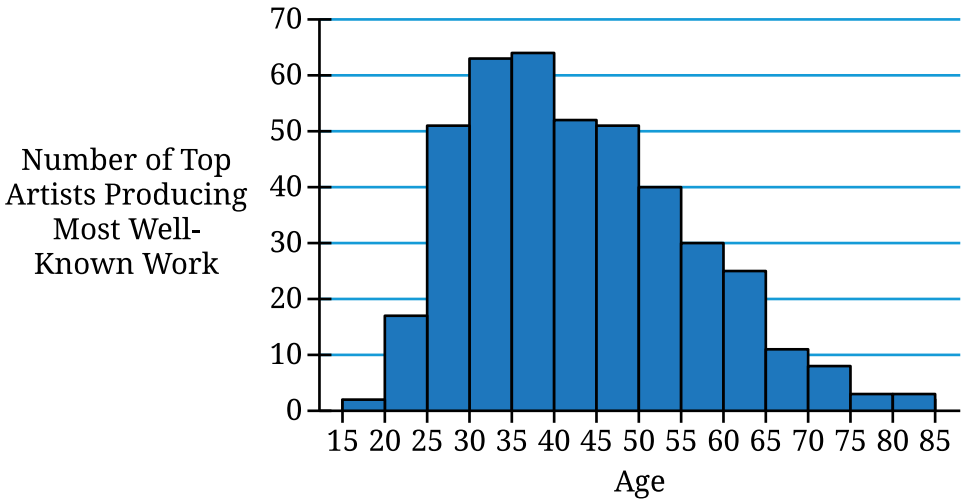
16. Dr. Faley conducted a study of 100 patients diagnosed with adult attention-deficit/hyperactivity disorder (ADHD). The first 50 patients identified for the study were given a new ADHD medication, while the rest were given a placebo. Patients received EEG scans before and after the treatment. The scans showed more typical brain activity in the participants who were given the medication than the participants who were given the placebo. What should Dr. Faley have done to avoid potential confounding variables in the study?

(A) Operationally defined the meaning of adult ADHD

(B) Chosen people who had not been diagnosed with adult ADHD to take the medication as well

(C) Randomly assigned which patients got the medication and which patients got the placebo

(D) Using qualitative measures to collect data




17. The data in the graph display the ages at which top artists, including painters, writers, and composers, produce what is generally agreed upon to be their most well-known work. Based on the data in the graph, which of the following statements is true?

(A) More than half of the artists do their most well-known work before age 30.

(B) There is a positive correlation between artists' ages and the production of their most well-known work.

(C) The number of top artists producing their well-known work peaks at an age in the late thirties and then gradually declines.

(D) Artists are more likely to generate their most well-known work after the age of 65.

18. A researcher noticed that Ryan, a young child, learned to write his name better when he was given the opportunity to respond to people around him. Ryan appeared to learn the most when more experienced people assisted him. Which of the following concepts best describes this pattern of development?
    (A) Zone of proximal development
    (B) Egocentrism
    (C) Autonomy
    (D) Object permanence

**Questions 19 through 21 refer to the following.**

Researchers investigated the extent to which 30 pairs of identical and fraternal female twins shared with their twin a diagnosis for the eating disorder anorexia nervosa. Identical twins are genetically identical, and share the same DNA pattern. Fraternal twins are only as genetically similar as any sibling pair. Researchers found that 9 out of 16 pairs of the identical twins were diagnosed with anorexia nervosa, while 1 out of 14 pairs of the fraternal twins were diagnosed with anorexia nervosa.

**Source for research study:**

Holland, A.J., Hall, A., Murray, R., Russell, G.F., & Crisp, A.H. (1984). Anorexia nervosa: a study of 34 twin pairs and one set of triplets. British Journal of Psychiatry, 145, 414-419.

19. Which of the following explains why researchers could not implement an experimental design in this study?
    (A) The twins could not be given a placebo.
    (B) The twins could not be randomly assigned to groups.
    (C) The twins could not be studied in an in-depth way individually.
    (D) Multiple studies of the twins could not be conducted over a long period and combined.

20. Which of the following conclusions can be made based on the data collected in this study?
    (A) Identical twins both developing anorexia nervosa is no more likely than fraternal twins.
    (B) Heredity appears to be correlated with the development of anorexia nervosa.
    (C) One twin developing anorexia nervosa will cause the other twin to develop the disorder.
    (D) Environment appears to be more strongly correlated with the development of anorexia nervosa than heredity.

21. Which of the following psychological perspectives would best help researchers answer questions about the relationship between heredity and the environment regarding the development of disorders such as anorexia nervosa?

(A) Cognitive

(B) Psychodynamic

(C) Humanistic

(D) Biological

## Section II: Free-Response

The following are examples of the free-response question types found on the exam. Scoring rubrics for each question follow the sample question.

### QUESTION 1: ARTICLE ANALYSIS QUESTION (AAQ)

Your response to the question should be provided in six parts: A, B, C, D, E, and F. Write the response to each part of the question in complete sentences. Use appropriate psychological terminology in your response.

Using the source provided, respond to all parts of the question.

(A) Identify the research method used in the study.

(B) State the operational definition of executive functioning.

(C) Describe the meaning of the differences in the means for the immediate recall task between the multivitamin group and the placebo group.

(D) Identify at least one ethical guideline applied by the researchers.

(E) Explain the extent to which the research findings may or may not be generalizable using specific and relevant evidence from the study.

(F) Explain how at least one of the research findings supports or refutes the researchers' hypothesis that taking a multivitamin slows cognitive decline in later life.

**Source**

**Introduction**

Few large-scale, long-term studies have been conducted to test whether taking a multivitamin makes a difference in improving memory ability as one ages. In this study, researchers examined whether taking a multivitamin slows cognitive decline in later life.

**Participants**

An earlier study, which was conducted in 2017 and included over 21,000 people, examined the effects of taking a multivitamin on health outcomes. From that study's sample, over 7,000 people received a mailed invitation to participate in this study. Of those who received the invitation, almost 4,000 participants agreed to participate and were accepted. To be accepted, participants had to be over 65 year of age if women and over 60 years of age if men. In addition, they could not participate if they had ever had a stroke, if they had received a cancer diagnosis in the two years before the study, or if they had a history of any other serious illnesses. Participants had to be able to communicate in English and have access to an Internet-connected computer.

A computer randomly assigned participants to two groups. Participants in Group 1 received a pack of multivitamins each month by mail to take one pill twice a day. Participants in Group 2 received a pack of placebo pills in the same type of packaging as Group 1 and with the same instructions. The sample size of Group 1 was 1,758 people, and the sample size of Group 2 was 1,804 people. The demographics of each group are listed in the table:

| Demographic | Group 1 – Multivitamin | Group 2 – Placebo |
|---|---|---|
| | Percent or Mean (Standard Deviation in parenthesis when reported) | Percent or Mean (Standard Deviation in parenthesis when reported) |
| Age | 70.9 (4.5) | 71.0 (4.6) |
| Gender | | |
| Men | 32.9% | 33.4% |
| Women | 67.1% | 66.6% |
| Race/Ethnicity | | |
| White | 93.1% | 93.5% |
| African American | 2.3% | 2.6% |
| Hispanic | 1.5% | 1.4% |
| Other race or Multiple races | 1.8% | 1.2% |
| Asian or Native Hawaiian | 0.2% | 0.1% |
| American Indian or Alaska Native | 1.1% | 1.2% |

**Method**

Once a year for 3 years, participants were asked to complete an online test to evaluate episodic memory and executive functioning. Instructions on how to access the test materials were emailed to participants, and participants who responded to the email indicated their consent. The participants received a $15 gift card for each annual assessment, regardless of completion.

The multivitamin used is widely available in the United States. Side effects of taking the multivitamin include low rates of stomach pain, diarrhea, skin rash, bruising, and an increased rate of gastrointestinal bleeding, which are considered normal side effects for those taking a multivitamin in the general population.

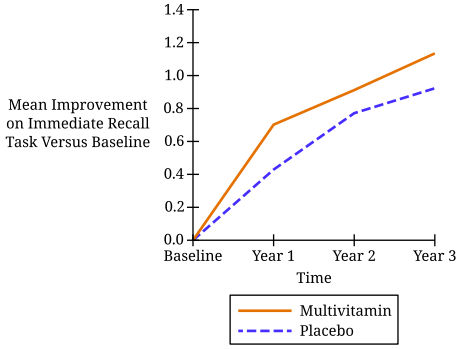
Two different tasks were used to measure episodic memory and executive functioning in this study:

- To measure episodic memory, participants completed a recall task in which they were first shown a set of words, presented one at a time for three seconds each. They were then asked to recall the set of words, once immediately after the word list was presented and again after 15 minutes had passed. Participants who recalled more words correctly earned higher scores on this test.
- To measure executive functioning, participants were first shown one set of items and were then shown a second set of items. They were asked to identify whether items in the second set of items were the same as or different from the first set of items they were shown. Participants earned higher scores the more quickly they correctly identified whether the items from the second set of items were the same as or different from those in the original set.

**Results and Discussion**

Compared with participants taking a placebo, participants receiving the multivitamin had significantly greater improvement in the recall task at the end of the first year. Performance on the immediate recall memory task in Group 1 improved from a mean of 7.10 words at baseline to 7.81 words after 1 year of taking the multivitamin, an improvement mean of 0.71. In Group 2, which received the placebo pills, performance on the immediate recall memory task improved from a mean of 7.21 words at baseline to 7.65 words after 1 year, an improvement mean of 0.44. When comparing the multivitamin group with the placebo group, averaged across all 3 years of intervention, findings suggest that the memory improvement is sustained over time, as shown in the graph.

Comparison of Memory Improvement Between 2 Groups




Researchers estimate that the effect of the multivitamin intervention improved memory performance in participants in the multivitamin group by the equivalent of 3.1 years of age-related memory change as compared to participants in the placebo group. Researchers also found that executive functioning was not significantly impacted by taking a multivitamin.

The findings suggest that the greatest benefit to taking a multivitamin is found in immediate memory recall, something especially vulnerable in aging adults.

Adapted from *The American Journal of Clinical Nutrition*.

## QUESTION 2: EVIDENCE-BASED QUESTION (EBQ)

This question has three parts: Part A, Part B, and Part C. Use the three sources provided to answer all parts of the question.

For Part B and Part C, you must cite the source that you used to answer the question. You can do this in two different ways:

- Parenthetical Citation:

  For example: "...(Source A)"
- Embedded Citation:

  For example: "According to Source A,..."

Write the response to each part of the question in complete sentences. Use appropriate psychological terminology.

Using the sources provided, develop and justify an argument about the best time for school to start for students in grades 6 to 12.

A. Propose a specific and defensible claim based in psychological science that responds to the question.

B. (i) Support your claim using at least one piece of specific and relevant evidence from one of the sources.

(ii) Explain how the evidence from Part B (i) supports your claim using a psychological perspective, theory, concept, or research finding learned in AP Psychology.

C. (i) Support your claim using an additional piece of specific and relevant evidence from a different source than the one that was used in Part B (i).

(ii) Explain how the evidence from Part C (i) supports your claim using a different psychological perspective, theory, concept, or research finding learned in AP Psychology than the one that was used in Part B (ii).

**Source A**

| Introduction |
| --- |
| Researchers investigated the effects of changes in school start times on students in elementary, middle, and high school. They were particularly interested in how school start times related to factors such as academic performance and sleep. |
| **Participants** |
| Eight school districts in Minnesota, and a total of 38,019 students, were involved in this study. Most of the students were white (54.7%), with 12.4% Hispanic, 8.8% Black, 8.6% Asian, 4.9% multiracial, 3.6% Somali, 3.1% American Indian, and 2.1% Hmong[2]. The sample consisted of 49.2% women and 50.8% men. The grade levels of students were evenly divided (i.e., 25.6% grade 5, 27.3% grade 8, 26.1% grade 9, and 20.9% grade 11). |
| **Method** |
| Four of the school districts observed shifted to a later school start time, and the four other districts kept an earlier school start time. Two variables were measured in this study. The first was the grade point average (GPA) of the students. Students reported the course grades they generally received during their current school year (e.g., Mostly As, Mostly Bs, etc.). The responses were converted to values on a 4.0 scale (mean = 3.2, standard deviation = 0.9). The second measured variable was the amount of sleep students generally got on a school night and whether they met the recommended hours of sleep for their grade level. |
| **Results and Discussion** |
| Results showed that students in school districts that moved to a later start time reported higher GPAs and that higher proportions of those students reported obtaining the recommended hours of sleep as compared with students in districts with the earlier school start time. The increase in GPA for each grade in the districts with a later school start time (that is, comparing grade 5, grade 8, grade 9, and grade 11) over the districts with the earlier school start time ranged from 0.07 to 0.13 GPA points.<br><br>The probability of meeting the recommended hours of sleep increased by 16% for students in districts with a later school start time, a statistically significant finding. However, for students in districts with a later school start time, the likelihood of students obtaining the recommended hours of sleep increased by 35% in grade 5, 11% in grade 8, 8% in grade 9, and 5% in grade 11. Only the grade 8 increase was statistically significant. The likelihood of obtaining the recommended hours of sleep for students in districts with an early school start time did not change at statistically significant levels. |

Adapted from *American Educational Research Association*.

Caesar, J., Lamm, R., Rodriguez, M.C., & Heistad, D.J. (2021, April 10). Changes in school start time have a significant effect in the amount of sleep and reported grade point average of students [Paper presentation]. *American Educational Research Association* Annual Meeting. https://conservancy.umn.edu/handle/11299/194887

[2]an ethnic group that lives primarily in Southwest China and in countries in Southeast Asia such as Thailand, Laos, Myanmar, and Vietnam

**Source B**

| Introduction |
| --- |
| Most adolescents in the United States do not obtain sufficient sleep. Early school start times play a significant role in adolescent sleep deprivation. Most primary and secondary schools begin classes earlier than 8:30 am. Perceived barriers to implementing a delayed school start time have been suggested in the literature but have not been measured. This study explored both the potential barriers to implementing later high school start times, and other, facilitating factors that may encourage adoption of this practice. |
| **Participants** |
| A convenience sample of 116 respondents participated in the survey, with a response rate of 7.2%. The participants' job titles included superintendents (7.8%; 9 participants), assistant superintendents (16.4%; 19 participants), principals (20.7%; 24 participants), assistant principals (42.2%; 40 participants), counselors (11.2%, 13 participants), and school board members (1.7%; 2 participants). At the time of this study (2017), all worked in a high school that was identified as having implemented a delayed school start time. |
| **Method** |
| School administrators who had delayed their school start times were invited to complete an online questionnaire ranking the perceived barriers and facilitating factors for implementing the delayed start times.<br><br>Participants were asked if they considered each barrier question as "significant," "moderate," "minor barrier," or "not a barrier" to interfere with implementing a delayed school start time. These statements referred to transportation issues, extracurricular considerations, stakeholder groups who were resistant to change, and additional factors such as time for homework and amount of time waiting for the bus. Participants were also asked if each facilitating factor statement was "significant," "moderate," "minor," or "not a facilitating factor" to support implementing a delayed school start time. These statements addressed stakeholder involvement and education, scheduling alternatives, transportation, and other factors, such as spending less unsupervised time at home.<br><br>The questionnaire contained the following open-response questions:<br><br>• "Do you offer classes that students can elect to take before the delayed school start time (sometimes called "zero-hour classes)?"<br>• "Did your district 'flip' elementary and high school start times?"<br>• "Would you recommend that other districts pursue delaying a school start time?" |

**Results and Discussion**

Each statement received a "Barrier Percentage" or "Facilitating Factor Percentage" score, which was the percent of adults in each category that perceived the statement as a significant, moderate, or minor factor in discouraging or encouraging implementing the delayed start times.

Among the most cited perceived barriers were a tiered bus system (in which one bus serves several schools), school athletes missing more afternoon classes, and less time after school for athletics. The most cited facilitating factors were school administrator involvement in the decision-making process and sleep education for family members and school administrators.

Results from this analysis are in the tables:

Distribution of Top 10 Perceived Barriers for School Start Time Delay

| Barrier | Barrier Percentage |
|---|---|
| Athletes missing more afternoon classes to attend or travel to games | 84.2 |
| Less time after school for athletic activities | 80.7 |
| Family members resistant to change schedule | 78.9 |
| Unavailability of adolescents to provide after-school care for siblings | 75.6 |
| Teachers resistant to change schedule | 74.8 |
| Use of a tiered school bus transportation system | 71.1 |
| Elementary students having to wait for bus pickup in the early morning | 69.6 |
| Less time for adolescents to work | 65.8 |
| Student resistant to changing their schedule | 63.5 |
| Increased school transportation costs | 58.4 |

Distribution of Top 10 Facilitating Factors for School Start Time Change

| Facilitating Factor | Facilitating Factor Percentage |
|---|---|
| Involvement of the teachers in the decision-making process | 84.5 |
| Involvement of the school administrators in the decision-making process | 84.4 |
| Providing education on adolescent sleep patterns—for students | 83.5 |
| Providing education on adolescent sleep patterns—for family members | 82.5 |
| Providing education on adolescent sleep patterns—for teachers | 81.5 |
| Involvement of the family members in the decision-making process | 80.9 |
| Involvement of students in the decision-making process | 79.1 |
| Providing education on adolescent sleep patterns—for school administrators | 77.1 |
| Ability to schedule elementary start times to maintain bus tier system | 74.5 |
| Involvement of support staff in the decision-making process | 70.4 |

Participants found that providing sleep education to fellow administrators, teachers, school staff members, families, and students, and including them in the decision-making process positively facilitated the implementation of delayed school start times. Perceived barriers to implementation may be overcome with support from stakeholders and planning committees.

When the 116 participants were asked if they would recommend a delayed school start time, 69% (80 participants) said they would recommend that other districts pursue a delayed start time; 19.8% (23 participants) said they would not recommend a delayed start time; and 11.2% (13 participants) provided no answer.

Adapted from *Journal of School Health*.

Fitzpatrick, J.M., Silva, G.E., Vana, K.D. (2020). Perceived barriers and facilitating factors in implementing delayed school start times to improve adolescent sleep patterns. *Journal of School Health, 91*(2). 94-101. https://doi.org/10.1111/josh.12983.

**Source C**

| Introduction |
| --- |
| The American Academy of Pediatrics developed the following statement on school start times. A committee of scientists and practitioners who specialize in pediatric health issues intended the statement to offer advice on best practices for school start times. |
| **Statement** |
| The American Academy of Pediatrics recognizes that insufficient sleep is an important issue for adolescents. While several factors may influence students' ability to get enough sleep, evidence strongly suggests that earlier school start times contribute to sleep deprivation. The American Academy of Pediatrics strongly supports efforts to set school start times for middle and high school students in a way that helps them get 8.5 to 9.5 hours of sleep a night to improve physical and mental health, safety, academic performance, and quality of life.<br><br>Biologically, most adolescents experience a "phase delay" in their sleep-wake cycle when they start going through puberty. As compared to their middle childhood sleep-wake cycle, adolescents experience a shift of up to 2 hours in their sleep-wake cycle, which means they fall asleep later.<br><br>Insufficient sleep hurts academic performance. One study found that 28% of students reported falling asleep in school at least once a week, and more than 1 in 5 students fell asleep doing homework at least once a week. Many studies show an association between decreased sleep duration and lower academic achievement, as well as higher rates of absenteeism and tardiness and decreased readiness to learn.<br><br>An increase in anxiety and mood disorders in adolescents has also been linked to poor quality and deprivation of sleep. Other specific health-related effects of sleep loss include increased use of stimulants (e.g., caffeine, prescription medications) to counter the effects of chronic sleepiness on academic performance. Adolescents are also at greater risk of drowsy driving–related crashes because of sleep deprivation.<br><br>According to the US Department of Education statistics for 2011–2012, approximately 43% of the over 18,000 public high schools in the United States currently have a start time before 8:00 AM.<br><br>The ongoing debate among school districts in the United States regarding later start times for middle and high schools continues to spark controversy. Perceived barriers to changing school schedules include shorter time for athletic practices and interference with scheduling of games, reduced after-school employment hours for students, challenges in providing child care for younger siblings, adjustments in parent and family schedules, potential safety issues, effects on sleep duration in younger children if elementary school schedules are "flipped" with those of middle/high school students, and the need to make alternative transportation arrangements. |

Adapted from American Academy of *Pediatrics*.

Au, R., Carskadon, M., Millman, R., Wolfson, A., Braverman, P.K., Adelman, W.P., Breuner, C.C., Levine, D.A., Marcell, A.V., Murray, P.J., O'Brien, R.F., Devore, C.D., Allison, M., Ancona, R., Barnett, S.E., Gunther, R., Holmes, B., Lamont, J.H., Minier, M., Okamoto, J.K., Wheeler, L.S.M., & Young, T. (Adolescent Sleep Working Group, Committee on Adolescence, Council on School Health) (2014). School start times for adolescents. *Pediatrics*, 134(3), 642–649. https://doi.org/10.1542/peds.2014-1697

# Answer Key and Question Alignment to Course Framework

| Multiple-Choice Question | Answer | Skill | Learning Objective | Essential Knowledge |
|---|---|---|---|---|
| 1 | B | 1.A | 3.7.A | 3.7.A.2 |
| 2 | D | 2.C | 5.4.B* | 5.4.B.2* |
| 3 | B | 3.B | 3.6.A* | 3.6.A.2* |
| 4 | D | 2.B | 2.4.A* | 2.4.A.4* |
| 5 | B | 3.A | 2.2.A | 2.2.A.8 |
| 6 | C | 3.B | 2.2.A* | 2.2.A.8* |
| 7 | C | 1.A | 2.2.A | 2.2.A.8 |
| 8 | C | 1.A | 1.6.G | 1.6.G.2 |
| 9 | B | 1.A | 3.8.A | 3.8.A.4 |
| 10 | A | 1.B | 5.4.E | 5.4.E.1 |
| 11 | B | 2.D | 3.1.B | N/A |
| 12 | C | 1.A | 4.2.A | 4.2.A.1 |
| 13 | A | 2.B | 4.2.A* | 4.2.A.1* |
| 14 | C | 3.A | 4.2.B | 4.2.B.2 |
| 15 | A | 1.A | 3.4.A | 3.4.A.3 |
| 16 | C | 2.B | 5.5.A* | 5.5.A.1* |
| 17 | C | 3.C | 2.2.A* | 2.2.A.8* |
| 18 | A | 1.A | 3.4.A | 3.4.A.2 |
| 19 | B | 2.A | 1.1.A | 1.1.A.3 |
| 20 | B | 2.C | 1.1.A | 1.1.A.3 |
| 21 | D | 1.A | 1.1.A | 1.1.A.3 |

| Free-Response Question | Question Type | Practices | Primary Unit |
|---|---|---|---|
| 1 | Article Analysis Question (AAQ) | 2, 3, 4 | 2 |
| 2 | Evidence-Based Question (EBQ) | 1, 4 | 1 |

Further exam resources can be found on the AP Psychology Exam Page on AP Central.

*Skills-focused question. The Learning Objective and Essential Knowledge correspond to the stimulus.

# Scoring Rubric for Article Analysis Question (AAQ)

## FRQ 1: Article Analysis Question (AAQ) — 7 Points

| Reporting Category | Scoring Criteria | |
|---|---|---|
| **Part A**<br>**Research Method**<br>**(0-1 points)** | **0 points**<br>Does not accurately identify the research method used in the study | **1 point**<br>Accurately identifies the research method used in the study |
| | **Decision Rules and Scoring Notes** | |
| | **Responses that earn 0 points:**<br>▪ The response does not accurately identify the research method used in the study.<br>▪ The response includes no identification of the research method used in the study. | **Responses that earn 1 point:**<br>▪ The response accurately identifies the research method used in the study as an experiment. |
| | **Examples that earn 0 points:**<br>▪ *"The research is a correlational study."*<br>▪ *"The researchers conducted a case study."* | **Examples that earn 1 point:**<br>▪ *"The research method is an experiment."*<br>▪ *"The researchers used an experiment to study the impact of taking a multivitamin on memory recall."* |
| **Reporting Category** | **Scoring Criteria** | |
| **Part B**<br>**Research Variable**<br>**(0-1 points)** | **0 points**<br>Does not state a measurable or quantifiable definition of the identified variable used in the study | **1 point**<br>States a measurable or quantifiable definition of the identified variable as used in the study |
| | **Decision Rules and Scoring Notes** | |
| | **Responses that earn 0 points:**<br>▪ The response states a definition of the identified variable in the study that is not measurable or quantifiable.<br>▪ The response does not state a measurable or quantifiable definition of the identified variable as used in the study. | **Responses that earn 1 point:**<br>▪ The response states that the operational definition of executive functioning is whether the participant correctly identified the second set of objects shown as being the same or different more quickly.<br>▪ The response states that the operational definition of executive functioning is the scores on the test. |
| | **Examples that earn 0 points:**<br>▪ *"Executive functioning is not helped by multivitamins."*<br>▪ *"Executive functioning is how many words they recall."* | **Examples that earn 1 point:**<br>▪ *"The operational definition of 'executive functioning' is if the person was able to identify correctly the second set of objects shown as being different or the same quickly."*<br>▪ *"The operational definition is the scores on the executive functioning test."* |

| Reporting Category | Scoring Criteria | |
|---|---|---|
| **Part C**<br>**Statistic Interpretation**<br>**(0-1 points)** | **0 points**<br>Does not accurately describe the identified statistic in relation to the study | **1 point**<br>Accurately describes the identified statistic in relation to the study |
| | **Decision Rules and Scoring Notes** | |
| | **Responses that earn 0 points:**<br>▪ The response restates the differences in the means for the immediate recall task between the multivitamin group and the placebo group without directly relating it to the study.<br>▪ The response does not accurately describe what is meant by the differences in the means for the immediate recall task between the multivitamin group and the placebo group in relation to the study.<br>▪ The response provides a definition of the differences in the means for the immediate recall task between the multivitamin group and the placebo group but does not accurately describe its meaning in relation to the study. | **Responses that earn 1 point:**<br>▪ The response accurately describes the meaning of the differences in the means for the immediate recall task between the multivitamin group and the placebo group in relation to the study.<br>▪ The response accurately describes that the means show that the multivitamin group recalled more than the placebo group. |
| | **Examples that earn 0 points:**<br>▪ *"The difference in the means says that they are different."* [The response does not describe what this difference means.]<br>▪ *"The mean for the multivitamin group in Year 3 is 1.1, and the mean for the placebo group was 0.9."* [The response does not describe what this difference means.]<br>▪ *"The mean is the average of a group of data."* | **Examples that earn 1 point:**<br>▪ *"The means show that the multivitamin group had better recall than the placebo group."*<br>▪ *"The means show that the placebo group had worse recall than the multivitamin group."*<br>▪ *"The mean for the multivitamin group in Year 3 is 1.1, and the mean for the placebo group was 0.9. This means that the multivitamin group remembered more over time than the placebo group."* |

| Reporting Category | Scoring Criteria | |
|---|---|---|
| **Part D**<br>**Ethical Guidelines**<br>**(0-1 points)** | **0 points**<br>Does not accurately identify at least one ethical guideline applied by researchers in the study | **1 point**<br>Accurately identifies at least one ethical guideline applied by researchers in the study |
| | **Decision Rules and Scoring Notes** | |
| | **Responses that earn 0 points:**<br>▪ The response does not identify an ethical guideline applied by researchers in the study.<br>▪ The response identifies an ethical guideline that researchers should have applied but was not mentioned in the study.<br>▪ The response identifies an ethical guideline not applied by the researchers in the study.<br>▪ The response identifies other features of the study that are not ethical guidelines. | **Responses that earn 1 point:**<br>▪ The response identifies that the researchers used informed consent.<br>▪ The response identifies that the researchers considered that the side effects of taking multivitamins did not constitute undue harm to the participants. |
| | **Examples that earn 0 points:**<br>▪ *"The researchers debriefed the participants."*<br>▪ *"The researchers gave participants a $15 gift card."* | **Examples that earn 1 point:**<br>▪ *"The researcher used informed consent with his participants."*<br>▪ *"Even though there are side effects for taking multivitamins, they were considered normal for most people and not harmful."* |

<table>
<tr><th>Reporting Category</th><th colspan="2">Scoring Criteria</th></tr>
<tr><td rowspan="5">Part E<br>Generalizability<br>(0-1 points)</td><td>0 points<br>Does not propose a claim regarding the generalizability of the study to a population (general or specific).<br>OR<br>Does not use specific and relevant evidence that references participant variables which would impact the generalizability of the study.</td><td>1 point<br>Explains the extent to which the study is generalizable using specific and relevant evidence referencing participant variables from the study</td></tr>
<tr><td colspan="2">Decision Rules and Scoring Notes</td></tr>
<tr><td>Responses that earn 0 points:<ul><li>The response proposes no claim regarding the generalizability of the conclusion of the study.</li><li>The response proposes a claim regarding the generalizability of the conclusion of the study but makes no reference to a population (general or specific).</li><li>The response uses evidence that does not apply to the generalizability of the conclusion of the study (e.g., reliability, validity, sample size).</li></ul></td><td>Responses that earn 1 point:<ul><li>The response proposes a claim about generalizability that references a population (the "larger population" or a population relevant to the study's participants) to explain the extent of the generalizability of the study.</li><li>The response proposes that the study is or is not generalizable to the population relevant to the study because of specific and relevant evidence derived from the participant information from the study.</li></ul></td></tr>
<tr><td>Examples that earn 0 points:<ul><li>"The study is generalizable."</li><li>"The study is generalizable to the larger population."</li><li>"The study used both men and women."</li><li>"The study is generalizable because everyone takes vitamins."</li></ul></td><td>Examples that earn 1 point:<ul><li>"The study is generalizable to both men and women because both were used in the study."</li><li>"The study is generalizable to older adults only because that is the only group the researchers used."</li></ul></td></tr>
<tr><td colspan="2">Additional Note:<ul><li>If the response asserts the study is "partly" generalizable or asserts the study is both generalizable and not generalizable, their evidence must support their assertion by showing ways the study is both generalizable and not generalizable to earn 1 point.</li></ul></td></tr>
</table>

| Reporting Category | Scoring criteria | | |
|---|---|---|---|
| **Part F**<br>**Argumentation**<br>**(0-2 points)** | **0 points**<br>Does not accurately explain how the results of the study support or refute the psychological concept or hypothesis presented in the question. | **1 point**<br>Uses the results of the study but does not explain how the psychological concept or hypothesis is supported or refuted<br>**OR**<br>Explains that the psychological concept or hypothesis is supported or refuted but does not use any results from the study | **2 points**<br>Uses a specific result from the study to explain how the results support or refute the psychological concept or hypothesis presented in the question. The results are accurately interpreted. |
| | **Decision Rules and Scoring Notes** | | |
| | **Responses that earn 0 points:**<br>▪ The response does not explain how at least one of the research findings support or refute that taking a multivitamin slows cognitive decline in later in life.<br>▪ The response does not accurately explain how at least one of the research findings support or refute that taking a multivitamin slows cognitive decline in later in life. | **Responses that earn 1 point:**<br>▪ The response proposes that the evidence alone is sufficient to demonstrate that taking a multivitamin slows cognitive decline in later in life without additional explanation.<br>▪ The response uses at least one of the research findings to explain how taking a multivitamin slows cognitive decline later in life. However, the interpretation of the results of the study includes some inaccuracies. | **Responses that earn 2 points:**<br>▪ The response uses at least one of the research findings to accurately explain how taking a multivitamin slows cognitive decline later in life. The results of the study are accurately interpreted. |
| | **Examples that earn 0 points**<br>▪ *"The study shows that executive functioning is not affected by taking a multivitamin, so it's not worth it to take them."*<br>▪ *"The study shows that people should take a multivitamin."*<br>▪ *"Older adults should not take a multivitamin because of the side effects."* | **Examples that earn 1 point:**<br>▪ *"Older adults should take a multivitamin because it improves their memory and thinking."* [The response provides an explanation without using results.]<br>▪ *"Older adults gain 3.1 years of memory change because of taking a multivitamin."* [The response uses results from the study without further explanation.]<br>▪ *"Older adults should take a multivitamin because it improves their memory and executive functioning."* [The response uses evidence but includes an inaccurate interpretation.] | **Examples that earn 2 points:**<br>▪ *"This study shows that older adults can delay some cognitive decline if they take a multivitamin because it seems to improve episodic memory, but not executive functioning."*<br>▪ *"The study shows that taking a multivitamin does not totally prevent cognitive decline in old age because executive functioning is not significantly improved by taking one."* |

# Scoring Rubric for Evidence-Based Question (EBQ)

<table>
<tr><th colspan="3">FRQ 2: Evidence-Based Question (EBQ) — 7 Points</th></tr>
<tr><th>Reporting Category</th><th colspan="2">Scoring Criteria</th></tr>
<tr><td rowspan="5">Part A<br>Claim<br>(0-1 points)</td><td>0 points<br>Does not propose a claim that is relevant to the question</td><td>1 point<br>Proposes a claim that is relevant to the question</td></tr>
<tr><td colspan="2">Decision Rules and Scoring Notes</td></tr>
<tr><td>Responses that earn 0 points:<ul><li>The response describes the question without making a claim.</li><li>The response proposes a claim unrelated to the question.</li><li>The response proposes an oversimplified conclusion or evidence from a provided source.</li></ul></td><td>Responses that earn 1 point:<ul><li>The response proposes a claim that suggests a positive or negative effect on the question.</li><li>The response proposes a recommendation for the application of the question.</li><li>The response proposes a specific effect on the question.</li></ul></td></tr>
<tr><td>Examples that earn 0 points:<ul><li>“Determining a school start time for secondary students is difficult.”</li><li>“Sleep is important for teenagers.”</li><li>“Students should get more sleep.”</li></ul></td><td>Examples that earn 1 point:<ul><li>“School for secondary students should start later in the day.”</li><li>“School for secondary students should start some time before 8:00 a.m.”</li><li>“Secondary school students should start school at 9 a.m.”</li><li>“Secondary school students should start school two hours later than elementary students.”</li></ul></td></tr>
<tr><td colspan="2">Additional Notes:<ul><li>A claim that meets the criteria can be awarded the point regardless of whether the responses in Parts B and C successfully support the claim.</li></ul></td></tr>
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<tr><th>Reporting Category</th><th colspan="2">Scoring Criteria</th></tr>
<tr><td rowspan="5">Part B (i)<br>Evidence<br>(0-1 points)</td><td>0 point<br>Does not identify nor correctly cite one piece of specific evidence from one of the provided sources to support the claim. Any evidence provided is not relevant to the question.</td><td>1 point<br>Uses one piece of correctly cited, specific, and relevant evidence from one of the provided sources to support the claim</td></tr>
<tr><td colspan="2">Decision Rules and Scoring Notes</td></tr>
<tr><td>Responses that earn 0 points:<ul><li>The response identifies no evidence.</li><li>The evidence is not correctly cited.</li><li>The evidence is nonspecific.</li><li>The response provides evidence not relevant to the claim.</li></ul></td><td>Responses that earn 1 point:<ul><li>The evidence is correctly cited and provides specific evidence relevant to the claim.</li></ul></td></tr>
<tr><td>Examples that earn 0 points:<ul><li>“Sources say secondary school start time should be 9:00 a.m.” [no citation]</li><li>“Secondary school start time should be 9 a.m. because people say taking tests before 9 a.m. is very difficult for teenagers.” [The response has not provided a citation.]</li></ul></td><td>Examples that earn 1 point:<ul><li>“Secondary school start time should be 9:00 a.m. 28% of students reported falling asleep in school at least once a week (Source A).”</li></ul></td></tr>
<tr><td colspan="2">Additional Notes:<ul><li>Responses that use a correct citation style other than the methods prescribed by the question can earn this point for citing the source.</li></ul></td></tr>
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| Reporting Category | Scoring Criteria | | |
|---|---|---|---|
| **Part B (ii)**<br>**Explanation and Application**<br>**(0-2 points)** | **0 points**<br>Does not explain the relationship between the evidence and the claim | **1 point**<br>Explains the relationship between the evidence and the claim | **2 points**<br>Applies a psychological perspective, theory, concept, or research finding to explain how the evidence supports the claim |
| | **Decision Rules and Scoring Notes** | | |
| | **Responses that earn 0 points:**<br>▪ The response does not accurately interpret the evidence.<br>▪ The response identifies evidence without explanation of how it relates to the claim.<br>▪ The response provides opinions with no reference to the sources provided. | **Responses that earn 1 point:**<br>▪ The response correctly interprets the evidence in supporting the claim, but does not apply a psychological perspective, theory, concept, or research finding. | **Responses that earn 2 points:**<br>▪ The response correctly interprets the evidence and applies a psychological perspective, theory, concept, or research finding correctly. |
| | **Examples that earn 0 points:**<br>▪ *"Secondary school start time should be 9:00 a.m. 28% of students reported falling asleep in school at least once a week."*<br>▪ *"Secondary school start time should be 9:00 a.m. because I believe this is the best for teenagers."* | **Examples that earn 1 point:**<br>▪ *"This evidence supports the claim of starting school later (9 a.m. instead of 8 a.m.) because some high school students have to take care of their younger siblings after school."*<br>▪ *"This evidence supports the claim of starting school later (9 a.m. instead of 8 a.m.) because it will allow students to have one more hour of sleep."* | **Examples that earn 2 points:**<br>▪ *"This evidence supports the claim of starting school later (9 a.m. instead of 8 a.m.) because it will allow students to have one more hour of sleep and potentially reducing the number of times they fall asleep in school. When students have an adequate amount of sleep their ability to consolidate and retrieve memory is better, thus positively affecting their learning."* |
| | **Additional Notes:**<br>▪ The explanation and application points can be earned even if the response did not earn the point in B (i) due to incorrectly cited and/or non-specific evidence.<br>▪ The psychological perspective, theory, concept, or research finding must be explicitly identified in the *AP Psychology Course and Exam Description* (2024).<br>▪ The presence of a citation indicates the sentence or phrase is intended to be evidence. All text prior to the citation will be considered evidence. Text after a citation will be considered reasoning, unless accompanied by another citation. | | |

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<tr><th>Reporting Category</th><th colspan="2">Scoring Criteria</th></tr>
<tr><td rowspan="5">Part C (i)<br>Evidence<br>(0-1 points)</td><td>0 point<br>Does not identify nor correctly cite a different piece of specific evidence from either of the other two provided sources to support the claim</td><td>1 point<br>Uses a different piece of correctly cited, specific, and relevant evidence from either of the other two provided sources to support the claim</td></tr>
<tr><td colspan="2">Decision Rules and Scoring Notes</td></tr>
<tr><td>Responses that earn 0 points:<ul><li>The response identifies no evidence.</li><li>The evidence is not correctly cited.</li><li>The evidence is nonspecific.</li><li>The evidence is from the same source as the one used in Part B.</li><li>The response provides evidence not relevant to the claim.</li></ul></td><td>Responses that earn 1 point:<ul><li>The response provides specific and correctly cited evidence relevant to the claim that is from a different source than the one used in Part B.</li></ul></td></tr>
<tr><td>Examples that earn 0 points:<ul><li>“Sources say secondary school start time should be 9:00 a.m.” [The response has not provided a citation.]</li><li>“Secondary school start time should be 9 a.m. because people say taking tests before 9 a.m. is very difficult for teenagers.” [Test-taking is not a variable discussed in any of the provided sources]</li><li>“According to Source A, students should get an additional hour of sleep to avoid sleep debt.” [The response uses the same source as used in Part B.]</li></ul></td><td>Examples that earn 1 point:<ul><li>“According to Source B, students earn higher GPAs when they started school one hour later.”</li></ul></td></tr>
<tr><td colspan="2">Additional Notes:<ul><li>Responses that use a correct citation style other than the methods prescribed by the question can earn this point for citing the source.</li></ul></td></tr>
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| Reporting Category | Scoring Criteria | | |
|---|---|---|---|
| **Part C (ii)**<br>**Explanation and Application**<br><br>**(0-2 points)** | **0 points**<br>Does not explain the relationship between the evidence and the claim | **1 point**<br>Explains the relationship between the evidence and the claim | **2 points**<br>Applies a different psychological perspective, theory, concept, or research finding to explain how the evidence supports the claim. The psychological perspective, theory, concept, or research finding is different from the one used in Part B (ii). |
| | **Decision Rules and Scoring Notes** | | |
| | **Responses that earn 0 points:**<br>▪ The response does not accurately interpret the evidence.<br>▪ The response identifies evidence without explanation of how it relates to the claim.<br>▪ The response provides opinions with no reference to the sources provided. | **Responses that earn 1 point:**<br>▪ The response correctly interprets the evidence, but does not apply a psychological perspective, theory, concept, or research finding.<br>▪ The response applies the same psychological perspective, theory, concept, or research finding that was used in Part B; however, the response explains the relationship between the evidence and the claim that does not rely on the application. | **Responses that earn 2 points:**<br>▪ The response correctly interprets the evidence and applies a psychological perspective, theory, concept, or research finding that is different from the one used in Part B. |
| | **Examples that earn 0 points:**<br>▪ *"Students should get more sleep because it is good for them."*<br>▪ *"The evidence clearly supports my claim."*<br>▪ *"This evidence supports my claim because getting an additional hour of sleep can improve memory consolidation."* [The response uses a concept from Part B.] | **Examples that earn 1 point:**<br>▪ *"This evidence supports my claim because getting an additional hour of sleep can improve academic performance, which is a benefit for students."* | **Examples that earn 2 points:**<br>▪ *"This evidence supports my claim because a student's circadian rhythm would fall more naturally in the different start times."* |
| | **Additional Notes:**<br>▪ The explanation and application points can be earned even if the response did not earn the point in C (i) due to incorrectly cited and/or non-specific evidence.<br>▪ The explanation and application points can be earned if the response uses the same source in both Parts B and C, provided that the evidence used in Part B and Part C is different.<br>▪ The psychological perspective, theory, concept, or research finding must be explicitly identified in the *AP Psychology Course and Exam Description* (2024) and is different from the perspective, theory, concept, or research finding used in Part B.<br>▪ The presence of a citation indicates the sentence or phrase is intended to be evidence. All text prior to the citation will be considered evidence. Text after a citation will be considered reasoning, unless accompanied by another citation. | | |