

Course at a Glance

Plan

The course at a glance provides a useful visual organization of the AP Biology 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.
- Spiraling of the big ideas and science practices across units.

Teach

SCIENCE PRACTICES

Science practices spiral throughout the course.

- | | |
|---------------------------------|--|
| 1 Concept Explanation | 4 Representing and Describing Data |
| 2 Visual Representations | 5 Statistical Tests and Data Analysis |
| 3 Questions and Methods | 6 Argumentation |

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

Chemistry of Life

~9-11 Class Periods

8-11% AP Exam Weighting

- | | |
|----------|--|
| 2 | 1.1 Structure of Water and Hydrogen Bonding |
| 2 | 1.2 Elements of Life |
| 2 | 1.3 Introduction to Macromolecules |
| 1 | 1.4 Carbohydrates |
| 6 | 1.5 Lipids |
| 2 | 1.6 Nucleic Acids |
| 6 | 1.7 Proteins |

UNIT 2

Cells

~14-16 Class Periods

10-13% AP Exam Weighting

- | | |
|----------------------|--|
| 1
6 | 2.1 Cell Structure and Function |
| 2
5 | 2.2 Cell Size |
| 2 | 2.3 Plasma Membrane |
| 5 | 2.4 Membrane Permeability |
| 3 | 2.5 Membrane Transport |
| 6 | 2.6 Facilitated Diffusion |
| 4 | 2.7 Tonicity and Osmoregulation |
| 1 | 2.8 Mechanisms of Transport |
| 6 | 2.9 Cell Compartmentalization |
| 6 | 2.10 Origins of Cell Compartmentalization |

Progress Check 1

Multiple-Choice: ~24 questions

Free-Response: 2 questions

- Conceptual Analysis (partial)
- Analyze Model or Visual Representation of a Biological Concept or Process (partial)

Progress Check 2

Multiple-Choice: ~33 questions (2 parts)

Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results (partial)
- Analyze Model or Visual Representation of a Biological Concept or Process (partial)

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

Cellular Energetics

~12-14

Class Periods

12-16% AP Exam Weighting

1
3

3.1 Enzymes

6

3.2 Environmental Impacts on Enzyme Function

6

3.3 Cellular Energy

6

3.4 Photosynthesis

4

3.5 Cellular Respiration

UNIT 4

Cell Communication and Cell Cycle

~12-14

Class Periods

10-15% AP Exam Weighting

1

4.1 Cell Communication

1

4.2 Introduction to Signal Transduction

6

4.3 Signal Transduction Pathways

6

4.4 Feedback

4

4.5 Cell Cycle

5

4.6 Regulation of Cell Cycle

UNIT 5

Heredity

~8-10

Class Periods

8-11% AP Exam Weighting

1

5.1 Meiosis

3

5.2 Meiosis and Genetic Diversity

5

5.3 Mendelian Genetics

5

5.4 Non-Mendelian Genetics

1

5.5 Environmental Effects on Phenotype

Progress Check 3

Multiple-Choice: ~19 questions

Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results with Graphing (partial)
- Scientific Investigation (partial)

Progress Check 4

Multiple-Choice: ~24 questions

Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results (partial)
- Analyze Data

Progress Check 5

Multiple-Choice: ~23 questions

Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results with Graphing
- Conceptual Analysis

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 6

Gene Expression and Regulation

~18-20

Class Periods

12-16%

AP Exam Weighting

- 1** 6.1 DNA and RNA Structure
- 2** 6.2 DNA Replication
- 2** 6.3 Transcription and RNA Processing
- 2** **6** 6.4 Translation
- 6** 6.5 Regulation of Gene Expression
- 6** 6.6 Gene Expression and Cell Specialization
- 2** 6.7 Mutations
- 6** 6.8 Biotechnology

Progress Check 6

Multiple-Choice: ~25 questions

Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results
- Analyze Model or Visual Representation of a Biological Concept or Process

UNIT 7

Natural Selection

~19-21

Class Periods

13-20%

AP Exam Weighting

- 2** 7.1 Introduction to Natural Selection
- 1** 7.2 Natural Selection
- 4** 7.3 Artificial Selection
- 3** 7.4 Population Genetics
- 1** **5** 7.5 Hardy-Weinberg Equilibrium
- 4** 7.6 Evidence of Evolution
- 6** 7.7 Common Ancestry
- 3** 7.8 Continuing Evolution
- 2** 7.9 Phylogeny
- 2** **6** 7.10 Speciation
- 6** 7.11 Variations in Populations
- 3** 7.12 Origins of Life on Earth

Progress Check 7

Multiple-Choice: ~48 questions (2 parts)

Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results with Graphing
- Analyze Data

UNIT 8

Ecology

~19-21

Class Periods

10-15%

AP Exam Weighting

- 3** 8.1 Responses to the Environment
- 6** 8.2 Energy Flow Through Ecosystems
- 4** 8.3 Population Ecology
- 5** 8.4 Effect of Density on Populations
- 5** 8.5 Community Ecology
- 6** 8.6 Biodiversity
- 5** 8.7 Disruptions in Ecosystems

Progress Check 8

Multiple-Choice: ~24 questions

Free-Response: 2 questions

- Interpreting and Evaluating Experimental Results with Graphing
- Scientific Investigation