

AP ENVIRONMENTAL SCIENCE

AP Pacing Guide for Flipped Classrooms: Jan.–April 2021

! Overview

Due to the challenges associated with hybrid and remote learning in 2020–21, a significant amount of the content and skills colleges are requiring for credit will likely need to be assigned to students as homework or independent learning. This guide allows students who are currently behind to complete all course topics from the course and exam description by May. This guide assumes students will complete approximately 30 minutes of AP Daily videos (~10 minutes each) and topic questions each day in lieu of, or addition to, assignments the teacher would ordinarily give.

📅 How to Implement




This guide assumes students covered only ~27% of the course content and skills in the fall of 2020. For classes that have been forced off schedule, there may not be time for teacher-led instruction of all remaining topics.

- Teachers should **assign the AP Daily videos and topic questions** listed below as student assignments each week.
- Using the reports generated by the topic questions, teachers should focus their limited, direct class time on the Learning Objectives where students need more help.
- If students are ahead of the pace indicated below, teachers will be able to incorporate additional days or weeks to spend more time on challenging topics, practicing course skills, or reviewing for the exam.






📅 Week 1: Jan. 4–8

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
4.1 Plate Tectonics	AP Daily Video 1 AP Daily Video 2 AP Daily Video 3	ERT-4.A: Describe the geological changes and events that occur at convergent, divergent, and transform plate boundaries.	🔔 Topic Questions
4.2 Soil Formation and Erosion	AP Daily Video 1 AP Daily Video 2	ERT-4.B: Describe the characteristics and formation of soil.	🔔 Topic Questions



*Prioritize the most challenging Learning Objectives for your students for direct, synchronous instruction.

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
4.3 Soil Composition and Properties	AP Daily Video 1 AP Daily Video 2	ERT-4.C: Describe similarities and differences between properties of different soil types.	 Topic Questions
4.4 Earth's Atmosphere	AP Daily Video 1	ERT-4.D: Describe the structure and composition of the Earth's atmosphere.	 Topic Questions
4.5 Global Wind Patterns	AP Daily Video 1	ERT-4.E: Explain how environmental factors can result in atmospheric circulation.	 Topic Questions

 **Week 2: Jan. 11–15**

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
4.6 Watersheds	AP Daily Video 1	ERT-4.F: Describe the characteristics of a watershed.	 Topic Questions
4.7 Solar Radiation and Earth's Seasons	AP Daily Video 1 AP Daily Video 2	ENG-2.A: Explain how the sun's energy affects the Earth's surface.	 Topic Questions
4.8 Earth's Geography and Climate	AP Daily Video 1 AP Daily Video 2	ENG-2.B: Describe how the Earth's geography affects weather and climate.	 Topic Questions
4.9 El Niño and La Niña	AP Daily Video 1 AP Daily Video 2 AP Daily Video 3	ENG-2.C: Describe the environmental changes and effects that result from El Niño or La Niña events (El Niño–Southern Oscillation).	 Topic Questions  Personal Progress Check

 **Week 3: Jan. 18–22**






Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
5.1 The Tragedy of the Commons	AP Daily Video 1	EIN-2.A: Explain the concept of the tragedy of the commons.	 Topic Questions
5.2 Clearcutting	AP Daily Video 1 AP Daily Video 2 AP Daily Video 3	EIN-2.B: Describe the effect of clearcutting on forests.	 Topic Questions

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
5.3 The Green Revolution	AP Daily Video 1 AP Daily Video 2 AP Daily Video 3	EIN-2.C: Describe changes in agricultural practices.	💡 Topic Questions
5.4 Impacts of Agricultural Practices	AP Daily Video 1 AP Daily Video 2	EIN-2.D: Describe agricultural practices that cause environmental damage.	💡 Topic Questions
5.5 Irrigation Methods	AP Daily Video 1 AP Daily Video 2 AP Daily Video 3	EIN-2.E: Describe different methods of irrigation. EIN-2.F: Describe the benefits and drawbacks of different methods of irrigation.	💡 Topic Questions






 **Week 4: Jan. 25–29**

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
5.6 Pest Control Methods	AP Daily Video 1 AP Daily Video 2	EIN-2.G: Describe the benefits and drawbacks of different methods of pest control.	💡 Topic Questions
5.7 Meat Production Methods	AP Daily Video 1 AP Daily Video 2 AP Daily Video 3	EIN-2.H: Identify different methods of meat production. EIN-2.I: Describe the benefits and drawbacks of different methods of meat production.	💡 Topic Questions
5.8 Impacts of Overfishing	AP Daily Video 1 AP Daily Video 2	EIN-2.J: Describe causes of and problems related to overfishing.	💡 Topic Questions
5.9 Impacts of Mining	AP Daily Video 1 AP Daily Video 2 AP Daily Video 3	EIN-2.K: Describe natural resource extraction through mining. EIN-2.L: Describe ecological and economic impacts of natural resource extraction through mining.	💡 Topic Questions
5.10 Impacts of Urbanization	AP Daily Video 1 AP Daily Video 2 AP Daily Video 3	EIN-2.M: Describe the effects of urbanization on the environment.	💡 Topic Questions

 **Week 5: Feb. 1–5**

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
5.11 Ecological Footprints	AP Daily Video 1	EIN-2.N: Explain the variables measured in an ecological footprint.	 Topic Questions
5.12 Introduction to Sustainability	AP Daily Video 1 AP Daily Video 2	STB-1.A: Explain the concept of sustainability.	 Topic Questions
5.13 Methods to Reduce Urban Runoff	AP Daily Video 1	STB-1.B: Describe methods for mitigating problems related to urban runoff.	 Topic Questions
5.14 Integrated Pest Management	AP Daily Video 1 AP Daily Video 2	STB-1.C: Describe integrated pest management. STB-1.D: Describe the benefits and drawbacks of integrated pest management (IPM).	 Topic Questions
5.15 Sustainable Agriculture	AP Daily Video 1 AP Daily Video 2	STB-1.E: Describe sustainable agricultural and food production practices.	 Topic Questions

 **Week 6: Feb. 8–12**




Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
5.16 Aquaculture	AP Daily Video 1 AP Daily Video 2	STB-1.F: Describe the benefits and drawbacks of aquaculture.	 Topic Questions
5.17 Sustainable Forestry	AP Daily Video 1 AP Daily Video 2	STB-1.G: Describe methods for mitigating human impact on forests.	 Topic Questions  Personal Progress Check
6.1 Renewable and Nonrenewable Resources	AP Daily Video 1	ENG-3.A: Identify differences between nonrenewable and renewable energy sources.	 Topic Questions
6.2 Global Energy Consumption	AP Daily Video 1 AP Daily Video 2	ENG-3.B: Describe trends in energy consumption.	 Topic Questions

📅 Week 7: Feb. 15–19

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
6.3 Fuel Types and Uses	AP Daily Video 1 AP Daily Video 2	ENG-3.C: Identify types of fuels and their uses.	💡 Topic Questions
6.4 Distribution of Natural Energy Resources	AP Daily Video 1	ENG-3.D: Identify where natural energy resources occur.	💡 Topic Questions
6.5 Fossil Fuels	AP Daily Video 1 AP Daily Video 2 AP Daily Video 3	ENG-3.E: Describe the use and methods of fossil fuels in power generation. ENG-3.F: Describe the effects of fossil fuels on the environment.	💡 Topic Questions
6.6 Nuclear Power	AP Daily Video 1 AP Daily Video 2 AP Daily Video 3	ENG-3.G: Describe the use of nuclear energy in power generation. ENG-3.H: Describe the effects of the use of nuclear energy on the environment.	💡 Topic Questions
6.7 Energy from Biomass	AP Daily Video 1 AP Daily Video 2	ENG-3.I: Describe the effects of the use of biomass in power generation on the environment.	💡 Topic Questions





📅 Week 8: Feb. 22–26

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
6.8 Solar Energy	AP Daily Video 1 AP Daily Video 2	ENG-3.J: Describe the use of solar energy in power generation. ENG-3.K: Describe the effects of the use of solar energy in power generation on the environment.	💡 Topic Questions
6.9 Hydroelectric Power	AP Daily Video 1 AP Daily Video 2	ENG-3.L: Describe the use of hydroelectricity in power generation. ENG-3.M: Describe the effects of the use of hydroelectricity in power generation on the environment.	

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
6.10 Geothermal Energy	AP Daily Video 1	ENG-3.N: Describe the use of geothermal energy in power generation. ENG-3.O: Describe the effects of the use of geothermal energy in power generation on the environment.	 Topic Questions
6.11 Hydrogen Fuel Cell	AP Daily Video 1 AP Daily Video 2	ENG-3.P: Describe the use of hydrogen fuel cells in power generation. ENG-3.Q: Describe the effects of the use of hydrogen fuel cells in power generation on the environment.	 Topic Questions
6.12 Wind Energy	AP Daily Video 1	ENG-3.R: Describe the use of wind energy in power generation. ENG-3.S: Describe the effects of the use of wind energy in power generation on the environment.	 Topic Questions



Week 9: Mar. 1–5

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
6.13 Energy Conservation	AP Daily Video 1 AP Daily Video 2	ENG-3.T: Describe methods for conserving energy.	 Topic Questions  Personal Progress Check
7.1 Introduction to Air Pollution	AP Daily Video TBD	STB-2.A: Identify the sources and effects of air pollutants.	 Topic Questions
7.2 Photochemical Smog	AP Daily Video TBD	STB-2.B: Explain the causes and effects of photochemical smog and methods to reduce it.	 Topic Questions

**Week 10: Mar. 8–12**

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
7.3 Thermal Inversion	AP Daily Video TBD	STB-2.C: Describe thermal inversion and its relationship with pollution.	Topic Questions
7.4 Atmospheric CO ₂ and Particulates	AP Daily Video TBD	STB-2.D: Describe natural sources of CO ₂ and particulates.	Topic Questions
7.5 Indoor Air Pollutants	AP Daily Video TBD	STB-2.E: Identify indoor air pollutants. STB-2.F: Describe the effects of indoor air pollutants.	Topic Questions
7.6 Reduction of Air Pollutants	AP Daily Video TBD	STB-2.G: Explain how air pollutants can be reduced at the source.	Topic Questions








**Week 11: Mar. 15–19**

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
7.7 Acid Rain	AP Daily Video TBD	STB-2.H: Describe acid deposition. STB-2.I: Describe the effects of acid deposition on the environment.	Topic Questions
7.8 Noise Pollution	AP Daily Video TBD	STB-2.J: Describe human activities that result in noise pollution and its effects.	Topic Questions Personal Progress Check
8.1 Sources of Pollution	AP Daily Video TBD	STB-3.A: Identify differences between point and nonpoint sources of pollution.	Topic Questions
8.2 Human Impacts on Ecosystems	AP Daily Video TBD	STB-3.B: Describe the impacts of human activities on aquatic ecosystems.	Topic Questions
8.3 Endocrine Disruptors	AP Daily Video TBD	STB-3.C: Describe endocrine disruptors. STB-3.D: Describe the effects of endocrine disruptors on ecosystems.	Topic Questions






**Week 12: Mar. 22–26**

Topic		Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
8.4	Human Impacts on Wetlands and Mangroves	AP Daily Video TBD	STB-3.E: Describe the impacts of human activity on wetlands and mangroves.	Topic Questions
8.5	Eutrophication	AP Daily Video TBD	STB-3.F: Explain the environmental effects of excessive use of fertilizers and detergents on aquatic ecosystems.	Topic Questions
8.6	Thermal Pollution	AP Daily Video TBD	STB-3.G: Describe the effects of thermal pollution on aquatic ecosystems.	Topic Questions
8.7	Persistent Organic Pollutants (POPs)	AP Daily Video TBD	STB-3.H: Describe the effect of persistent organic pollutants (POPs) on ecosystems.	Topic Questions
8.8	Bioaccumulation and Biomagnification	AP Daily Video TBD	STB-3.I: Describe bioaccumulation and biomagnification. STB-3.J: Describe the effects of bioaccumulation and biomagnification.	Topic Questions
8.9	Solid Waste Disposal	AP Daily Video TBD	STB-3.K: Describe solid waste disposal methods. STB-3.L: Describe the effects of solid waste disposal methods.	Topic Questions

 **Week 13: Mar. 29–Apr. 2**

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
8.10 Waste Reduction Methods	AP Daily Video TBD	STB-3.M: Describe changes to current practices that could reduce the amount of generated waste and their associated benefits and drawbacks.	 Topic Questions
8.11 Sewage Treatment	AP Daily Video TBD	STB-3.N: Describe best practices in sewage treatment.	 Topic Questions
8.12 Lethal Dose 50% (LD_{50})	AP Daily Video TBD	EIN-3.A: Define lethal dose 50% (LD_{50}).	 Topic Questions
8.13 Dose Response Curve	AP Daily Video TBD	EIN-3.B: Evaluate dose response curves.	 Topic Questions
8.14 Pollution and Human Health	AP Daily Video TBD	EIN-3.C: Identify sources of human health issues that are linked to pollution.	 Topic Questions
8.15 Pathogens and Infectious Diseases	AP Daily Video TBD	EIN-3.D: Explain human pathogens and their cycling through the environment.	 Topic Questions  Personal Progress Check

 **Week 14: Apr. 5–9**

Topic	Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
9.1 Stratospheric Ozone Depletion	AP Daily Video TBD	STB-4.A: Explain the importance of stratospheric ozone to life on Earth.	 Topic Questions
9.2 Reducing Ozone Depletion	AP Daily Video TBD	STB-4.B: Describe chemicals used to substitute for chlorofluorocarbons (CFCs).	 Topic Questions
9.3 The Greenhouse Effect	AP Daily Video TBD	STB-4.C: Identify the greenhouse gases. STB-4.D: Identify the sources and potency of the greenhouse gases.	 Topic Questions
9.4 Increases in The Greenhouse Gases	AP Daily Video TBD	STB-4.E: Identify the threats to human health and the environment posed by an increase in greenhouse gases.	 Topic Questions
9.5 Global Climate Change	AP Daily Video TBD	STB-4.F: Explain how changes in climate, both short- and long-term, impact ecosystems.	 Topic Questions

**Week 15: Apr. 12–16**

Topic		Recommended Asynchronous Student Assignments	Options for Synchronous Instructional Focus*	Check for Understanding
9.6	Ocean Warming	AP Daily Video TBD	STB-4.G: Explain the causes and effects of ocean warming.	Topic Questions
9.7	Ocean Acidification	AP Daily Video TBD	STB-4.H: Explain the causes and effects of ocean acidification.	Topic Questions
9.8	Invasive Species	AP Daily Video TBD	EIN-4.A: Explain the environmental problems associated with invasive species and strategies to control them.	
9.9	Endangered Species	AP Daily Video TBD	EIN-4.B: Explain how species become endangered and strategies to combat the problem.	Topic Questions
9.10	Human Impacts on Biodiversity	AP Daily Video TBD	EIN-4.C: Explain how human activities affect biodiversity and strategies to combat the problem.	Topic Questions Personal Progress Check