

SAVVAS

PROGRAM
OVERVIEW



Environmental Science

YOUR WORLD, YOUR TURN

Phenomenal experiences for

Anchoring Phenomena

An engaging Anchoring Phenomenon at the start of every unit introduces and unifies the upcoming concepts. Students ask questions and gather evidence about the phenomenon on their sense-making journey.

Humans and the Environment

UNIT 3

ANCHORING PHENOMENON

What is the impact of population size during an environmental hazard, such as a global pandemic?

CHAPTERS

- 8 Human Population
- 9 Environmental Health
- 10 Urbanization

NAME _____ DATE _____ CLASS _____

ANCHORING PHENOMENON PROJECT

Impacts of an Environmental Hazard

Environmental hazards can be physical, chemical, social, and biological. Physical hazards include natural disasters, such as earthquakes, wildfires, tornadoes, and droughts. Chemical hazards occur when chemicals in the environment harm human health. Social hazards result from where we live, our jobs, or our lifestyle choices. Living next to a factory that is illegally releasing harmful chemicals into the air is a social hazard. Biological hazards occur when viruses, bacteria, and other pathogens harm human health. The flu virus and the bacterium that causes strep throat are biological hazards. Pandemics, such as the Zika virus and COVID-19, are also examples of biological hazards. Consider the different types of hazards. How do you think that population variables, such as size and density, affect the magnitude of the impact of the response to the impact?

Students build understanding with an **Anchoring Phenomenon Project**.

NAME _____ DATE _____ CLASS _____

CLAIM-EVIDENCE-REASONING

Impacts of an Environmental Hazard

Think about the Anchoring Phenomenon question. What is the science behind the phenomenon? To help you build an understanding of the phenomenon, you will construct and revise a scientific argument.

Build Your Argument Through Claim, Evidence, and Reasoning

- SEP Ask Questions** Write a question about the phenomenon or event that you would like to discuss with your classmates. (Your teacher may also provide you with one.)

Students track their knowledge in a **Claim-Evidence-Reasoning** investigation or **Modeling Activity** as they learn more about the phenomenon.

Students solidify mastery and **Revisit the Anchoring Phenomenon**.

REVISIT

ANCHORING PHENOMENON

These questions will help you apply what you have learned in this Unit to the Anchoring Phenomenon.

- 1. Develop and Use Models** Choose a natural disaster and model the impact of the disaster in a densely populated area and a sparsely populated area. Your model should include advantages and disadvantages of being in each area during and after the event. How could you use the advantages to reduce the impacts?
- 2. Plan and Carry Out Investigations** Design an investigation to determine how the variable of population size could impact the risk assessment of a chemical hazard. Develop a hypothesis, identify the independent and dependent variables, and write a procedure.

student inquiry

Investigative Phenomena

Inquiry begins with an **Investigative Phenomenon Central Case Study**. The Central Case highlights environmental issues that motivate students to investigate and be part of the solution.

The screenshot shows a digital learning interface for 'Urbanization'. At the top left, it says 'CHAPTER 10 Urbanization'. Below that is an 'INVESTIGATIVE PHENOMENON' section with the question: 'How can we balance the ways we use land with the needs of the environment?'. The main content area is divided into three lessons: Lesson 1 'Land Use and Urbanization', Lesson 2 'Sprawl', and Lesson 3 'Sustainable Cities'. The current view is Lesson 2, titled 'Growing Pains in Portland, Oregon'. It features a large image of a green roof on a city building. Text on the page describes how in 1973, Oregon governor Tom McCall challenged his state's legislature to take action against runaway development. It mentions that the Metropolitan Service District adopted the Portland area boundary in 1979. A 'GO ONLINE' button is visible, along with a map of Oregon and Washington. A small caption at the bottom left of the green roof image reads: 'Green roofs are another way Portland, Oregon has remained an eco-friendly city.'

Chapter content ties back to the **Central Case**, providing a coherent storyline to connect ideas about the phenomenon.

Connect to the Central Case
FIGURE 13 Chlorine and Ozone: A Bad Combination When a chlorine atom collides with ozone in the upper atmosphere, a chain reaction starts that results in the destruction of many—even tens of thousands—ozone molecules. **Interpret Diagrams** Where do the chlorine atoms in the upper atmosphere come from?

Assessment questions repeatedly encourage students to revisit the phenomenon.

LESSON 3 Assessment

1. **Describe** Briefly describe how city planners use zoning, UGBs, smart growth, and new urbanism.
2. **Explain** How is a successful mass transit system important to improving the quality of life in a city?
3. **Infer** Give two reasons why open space is important to people who live in cities.
4. **Review** What are four possible features of a green building?

5. **Infer** Give two reasons why the progress toward sustainability in New York City and Curitiba is important to the rest of the world.
6. **REVISIT INVESTIGATIVE PHENOMENON** Explain how sprawl can contribute to the economic development of a city.

Urbanization

Next-generation e-learning

Award-Winning Digital Platform

Access all of your content and student data in ONE location. The Savvas Realize® digital platform includes offline capabilities, easy integration with all top learning management systems, and editable documents and assessments.

Editable Hands-On Inquiry

Students learn science when they DO science. They explore concepts and gather evidence to explain the phenomenon under study with activities such as **In Your Neighborhood** labs, **Modeling** labs, and **Claim-Evidence-Reasoning** documents.

The **Online Lab Manual** is an eco-friendly resource that allows teachers to access and edit all of the student lab activities.

Learn About Local Issues

Take It Local and **3D-Geo** activities on Realize encourage students to find a similar situation in their local environment. This extension personalizes the Central Case and helps student sense-making and designing of solutions.

Editable Lesson Plans

Rich, editable lesson plans make it easy to customize based on students' needs, with strategies for differentiation and real-world inquiry activities.

 **GO ONLINE**

INQUIRY LABS AND ACTIVITIES

- **Local Land Cover**
Use maps with satellite imagery on the USGS Web site to find the types of land cover in your area.
- **Patterns of Sprawl**
Compare maps of the Atlanta area from different years to analyze density and development.

Procedure

Step 1 Locate the Galápagos Islands and the Galápagos hotspot on your map. Mark the hotspot location on your map and label it.

Step 2 Measure the distance of Santiago Island from the Galápagos hotspot. Using the map's scale bar, convert your measurement to an actual distance in kilometers. Record this distance in the data table.

Step 3 Repeat Step 2 for the other islands.

Step 4 Compare the height and area of the islands, and the number of active volcanoes on each. Then, using this information, along with the relative distance of each island from the hotspot, rank the islands from oldest to youngest.

1 Matter and the Environment

EVERYDAY PHENOMENON What properties of matter are most important to environmental systems?

Knowledge and Skills

- Differentiate among an atom, an element, a molecule, and a compound.
- Discuss how various macromolecules are essential to life.
- Identify some unusual properties of water.

Reading Strategy and Vocabulary

Reading Strategy Before you read, create an outline using the dark blue, green, and light blue headings in this lesson. As you read, fill in key phrases or sentences about each heading.

Vocabulary matter, atom, element, nucleus, molecule, compound, hydrocarbon, solution, macromolecule, protein, nucleic acid, carbohydrate, lipid, pH

GO ONLINE

3.1 LESSON PLAN PREVIEW

Differentiated Instruction Struggling students fill in a two-column table of section vocabulary as they read.

Real World Students explore macromolecules as "the building blocks of life."

Inquiry Students learn about the cohesion of water through a hands-on activity.

3.1 RESOURCES
Lesson 3.1 Worksheets • Lesson 3.1 Assessment • Chapter 3 Overview Presentation

EVERYDAY PHENOMENON

US Show students a glass of water. Ask them to describe ways that water is important to living things. Then, ask students to identify other types of matter in the environment that living things rely on. Have students watch for information in the lesson about properties that make these types of matter tant to environmental systems.

GO ONLINE

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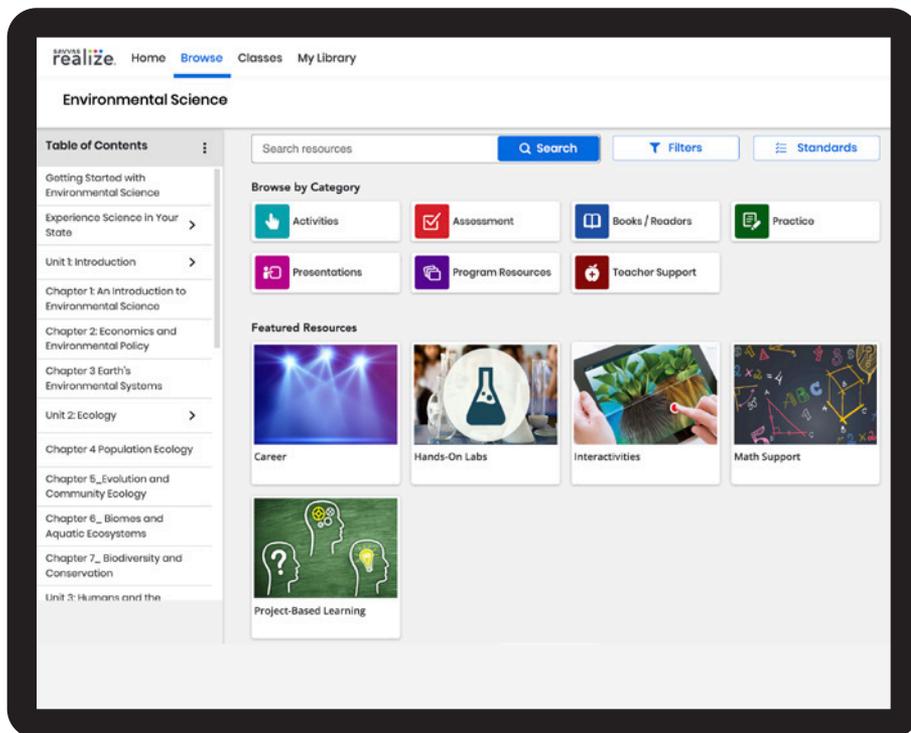
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for class or home

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Google Partnership

Realize seamlessly integrates Google Classroom™, so you can hit the ground running. Share content, assessments, and Google Classroom rosters. Log in once, access everything.

LMS Integration

Savvas Realize® is a Thin Common Cartridge (TCC) certified provider, so content runs on all compliant LMS platforms. Access all your digital content, labs, assessments, and student data in ONE location. Use our LTI-Advantage (LTI-A) integration to make sharing content, assessments, and data easier between certified LMS systems.

LOG IN AND EXPLORE!

1. Go to **SavvasRealize.com**.
2. Select **"Try a free demo today."**
3. Follow the prompts to create a free demo account.
4. Explore the engaging digital content.

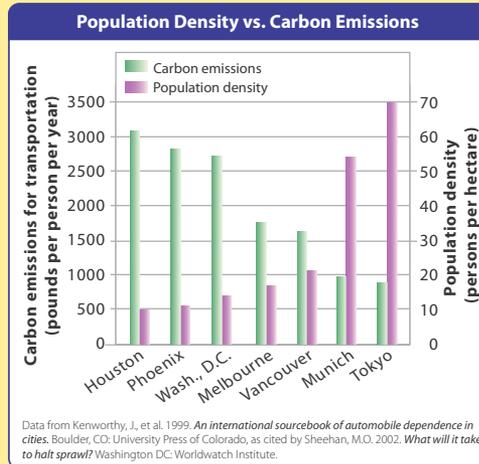
Accessible science for student

Real Data

Population Density and Carbon Emissions

In the accompanying graph, urban population density is used as an indicator of sprawl (lower density = more sprawl). Carbon emissions per person per year for transportation represents the environmental impact of the transportation system or preferences for each of the cities represented.

1. **Describe** What relationship between population density and carbon emissions for transportation does the graph show?
2. **Form a Hypothesis** Assuming that the rate of car ownership is similar in these cities, how would you explain the relationship in **Question 1**?
3. **Predict** If Houston were to pass laws limiting sprawl, resulting in a doubling of its population density, how would you predict its data would change?



Math Practice Opportunities Strengthen Comprehension

Real data in activities and graphs make the math problems relevant. The Skills Handbook and Graphing Tutorials are easy-to-use refreshers for “must-know” math concepts and applications.

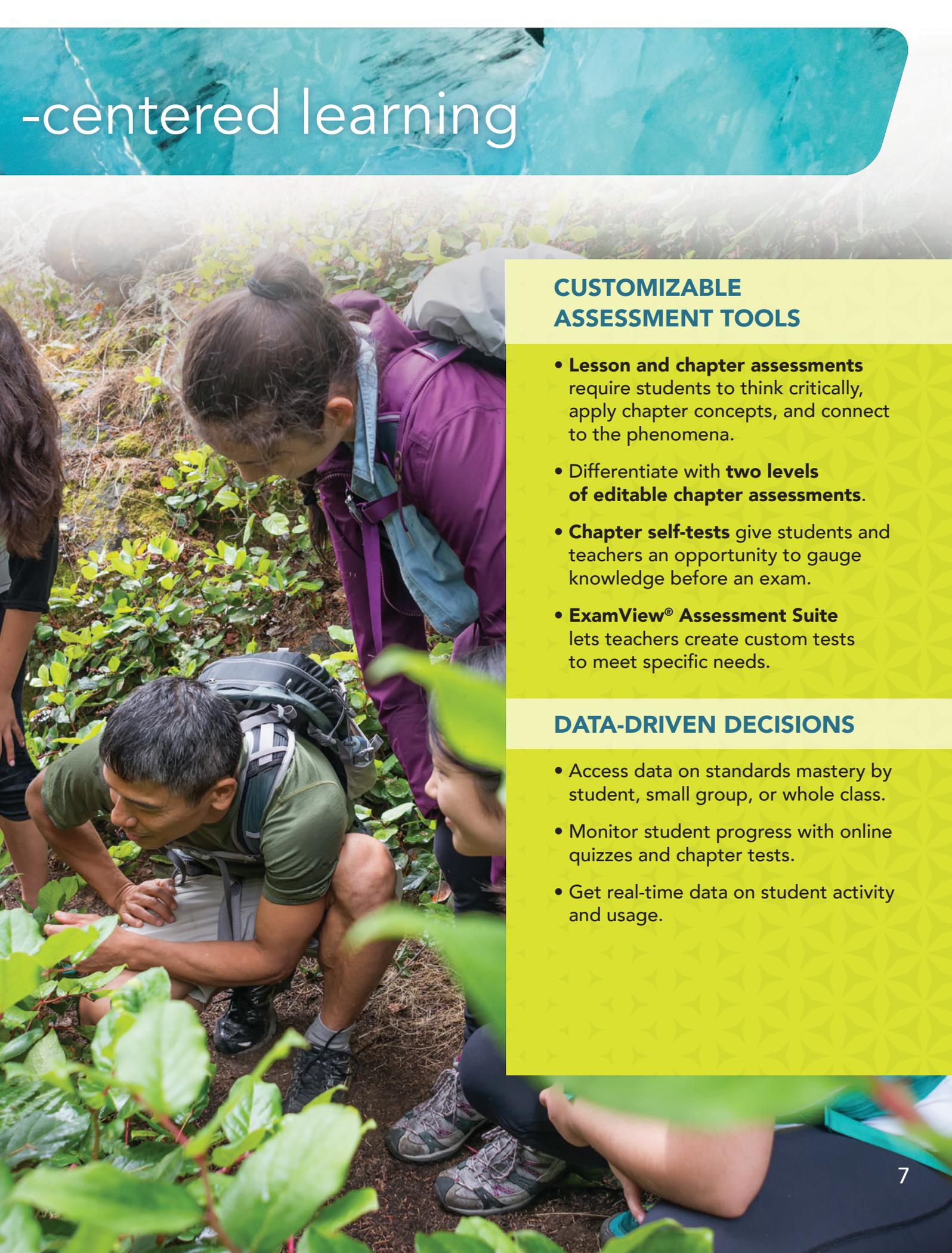
Reinforce Learning with the Study Workbook

Reinforce knowledge with lesson-level vocabulary and activities such as **Skill Builder**, **Think Visually**, and **21st Century Skills**. The workbook applies environmental concepts to students’ experiences and lifestyles.

Teacher’s Guide to Fieldwork

Explore environmental science concepts at your own outdoor field site. Five field projects allow your students to practice field techniques, learn ecological science skills, and connect with their local environment.

-centered learning



CUSTOMIZABLE ASSESSMENT TOOLS

- **Lesson and chapter assessments** require students to think critically, apply chapter concepts, and connect to the phenomena.
- Differentiate with **two levels of editable chapter assessments**.
- **Chapter self-tests** give students and teachers an opportunity to gauge knowledge before an exam.
- **ExamView® Assessment Suite** lets teachers create custom tests to meet specific needs.

DATA-DRIVEN DECISIONS

- Access data on standards mastery by student, small group, or whole class.
- Monitor student progress with online quizzes and chapter tests.
- Get real-time data on student activity and usage.



Environmental Science

YOUR WORLD, YOUR TURN

Real-world inquiry where students are part of the solution

Environmental issues such as climate change, clean energy, and food and water availability create public and sometimes controversial debate. *Environmental Science: Your World, Your Turn* immerses students in phenomena-based learning experiences to help them better understand the issues and be part of the solution.

Try It Online!

Experience the award-winning digital platform. Home to all of your *Environmental Science* content, assessments, and student data. Savvas Realize® is fully integrated with Google for Education™.

Request a demo or samples at:

Savvas.com/EnvironmentalScience

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