

Introduction to EarthComm by Activate Learning

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Presentation Agenda

1

Introducing
EarthComm and
Activate
Learning

2

What do
Students Do?

3

Support for
Teachers &
Questions

Active



Grades 9-12 Active Series

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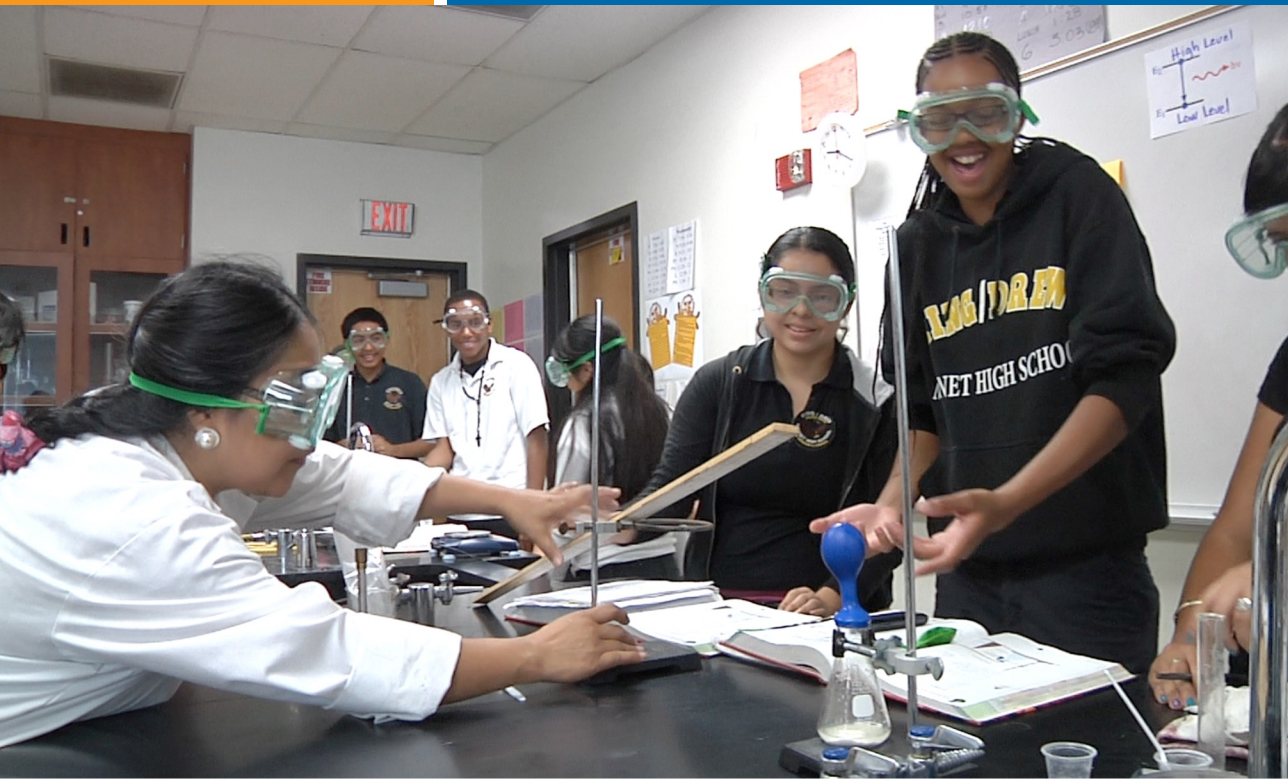
Getting Started

- **Quick Write:**
 - Why do you think it is important for all students to learn science?
 - What are your goals for your students in science?
- Whole Group Sharing

1

**Introducing
Activate Learning
EarthComm**

Activate Learning



EarthComm



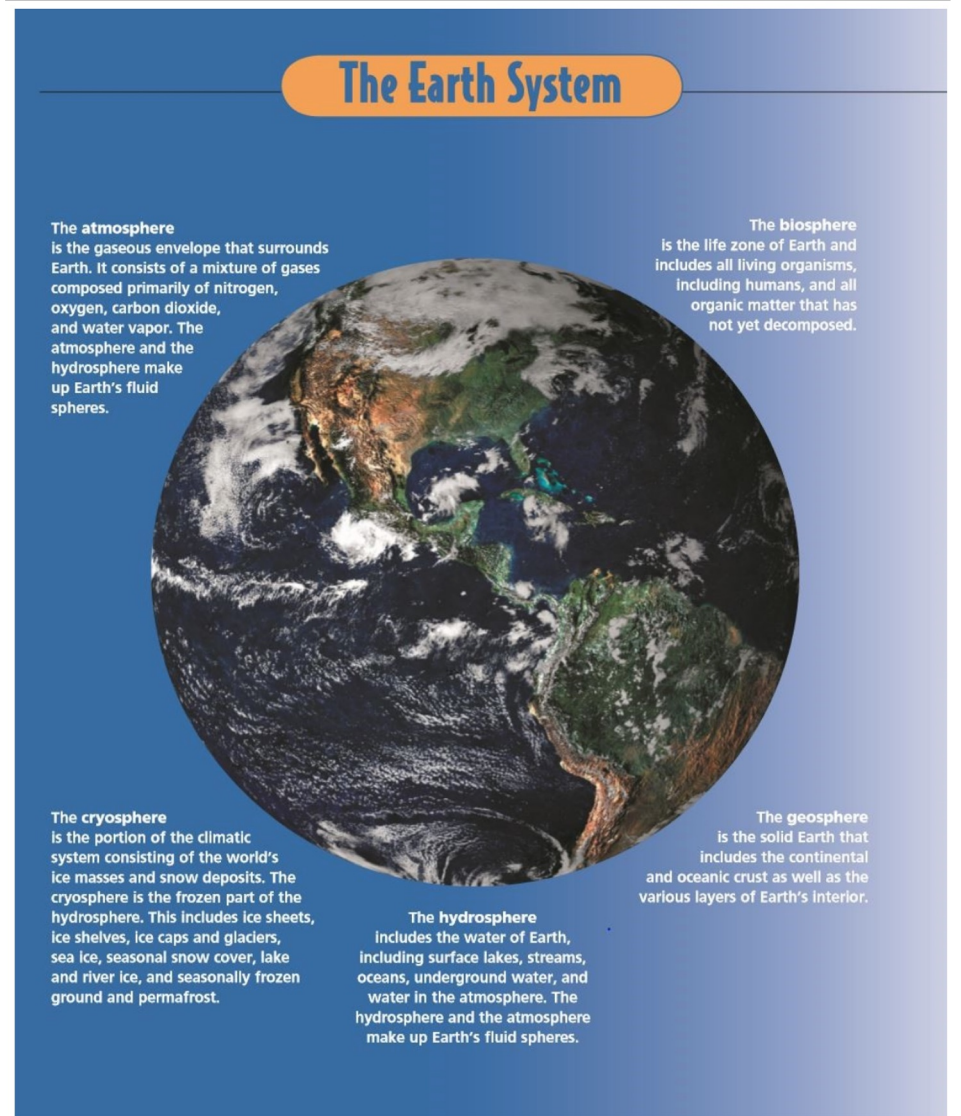
Students are

- at the center of their learning,
- actively engaged in figuring out science concepts through investigations,
- using data analysis, and modeling to make connections and solve problems.

Students apply their learning to a chapter-long chapter challenge and engage in STEM practices throughout the program.

Students learn about the Earth through a systems approach.

- Atmosphere
- Biosphere
- Geosphere
- Hydrosphere
- Cryosphere



2

**What Do Students
Do?**

What Students Do

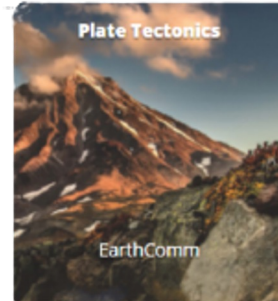


What Students Do



What Students Do

73 Investigations



3. What Students Do

**5E
Model**

Engage

Explore

Explain

Elaborate

Evaluate

**7E
Model**

Elicit

Engage

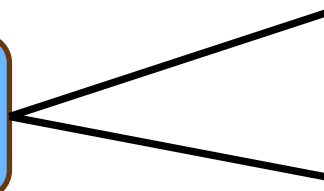
Explore

Explain

Elaborate

Extend

Evaluate



What Students Do

Phases of the 7E Instructional Model		Where is it in the section?
	Elicit	<i>What Do You See?</i> <i>Think About It</i>
	Engage	<i>What Do You See?</i> <i>Think About It</i>
	Explore	<i>Investigate</i>
	Explain	<i>Digging Deeper</i> <i>Geo Words</i>
	Elaborate	<i>Digging Deeper</i> <i>Think About It Again</i> <i>Checking Up</i> <i>Understanding and Applying</i>
	Extend	<i>Reflecting on the Section and the Challenge</i> <i>Preparing for the Chapter Challenge</i> <i>Inquiring Further</i>
	Evaluate	<i>Formative evaluation</i> —You evaluate your own understanding and your teacher can evaluate your understanding during all components of the chapter. <i>Additional evaluations may include:</i> Lab reports, <i>Checking Up</i> , <i>Think About It Again</i> , <i>Understanding and Applying</i> , and <i>Practice Test</i> .

What Students Do

Chapter Challenge

Earthquakes and volcanic eruptions are always in the news. However, many people do not know much about them. To survive these sudden and sometimes catastrophic events, it is important to understand the science behind them. This includes the causes, effects, monitoring, and lessening the impact of these events.

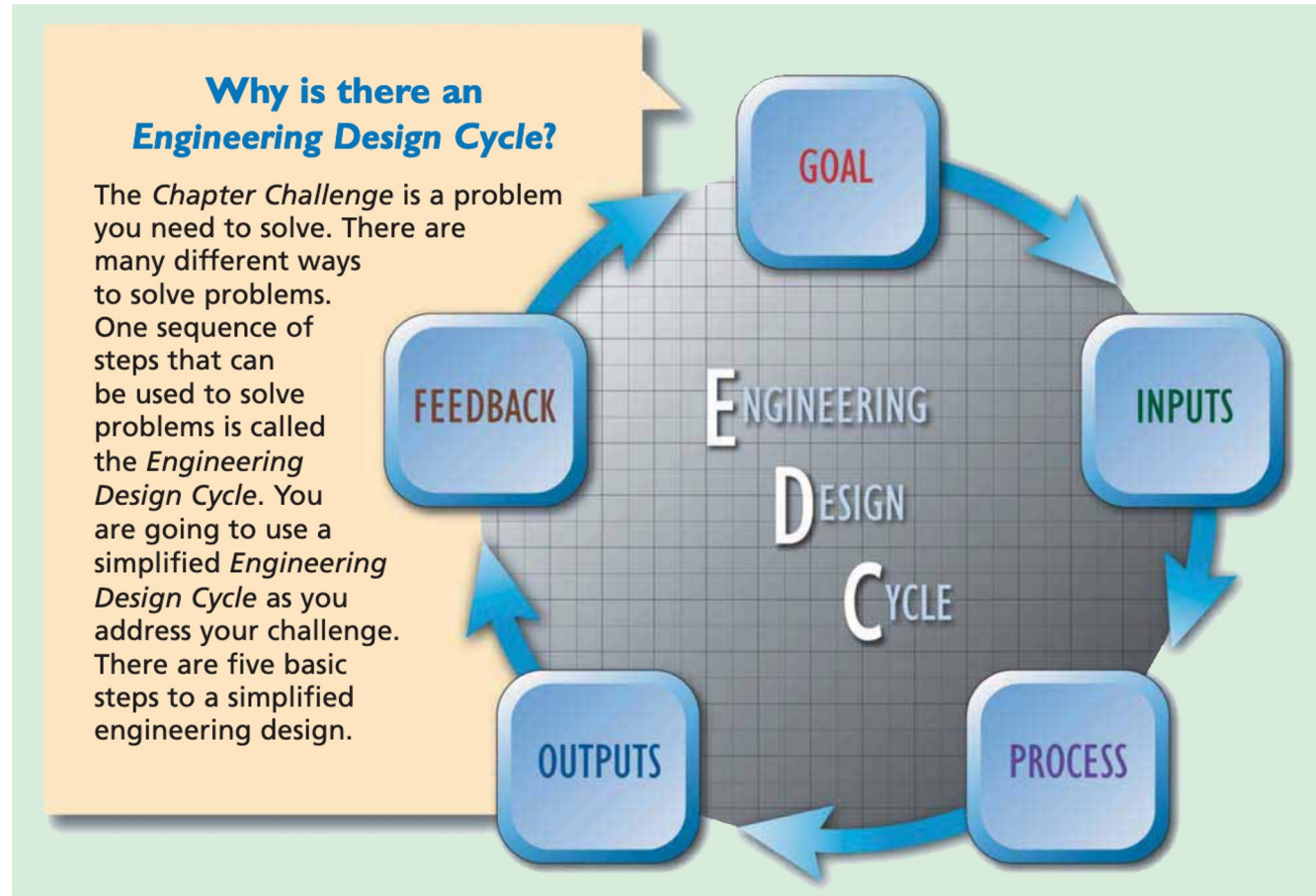
Your task is to work with a group to create a script for a public service documentary film for your local TV network. If possible, you can film the documentary as well. Your audience is the general public and you should assume they do not have a background in science. Your goal is to tell the story of earthquakes, volcanoes, plate tectonics, and people. You will also portray the scientific practices used for developing knowledge related to these topics.

Your documentary script should cover:

- the patterns of volcanic eruptions and earthquakes through time
- the connection between plate tectonics and volcanic eruptions and earthquakes
- what happens when volcanic eruptions and earthquakes occur
- how often and where they are likely to occur



What Students Do



What Students Do

Chapter Challenge



Where are volcanoes and Earthquakes?	Earth's moving plates	Plate boundaries	Changing geography	Volcanoes and the atmosphere	Earthquakes	Earthquake waves and magnitude
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What Students Do

What Do You See?



Phases of the 7E Instructional Model	Where is it in the section?
Elicit	What Do You See? Think About It
Engage	What Do You See? Think About It
Explore	Investigate
Explain	Digging Deeper Geo Words
Elaborate	Digging Deeper Think About It Again Checking Up Understanding and Applying
Extend	Reflecting on the Section and the Challenge Preparing for the Chapter Challenge Inquiring Further
Evaluate	Formative evaluation—You evaluate your own understanding and your teacher can evaluate your understanding during all components of the chapter. Additional evaluations may include: Lab reports, Checking Up, Think About It Again, Understanding and Applying, and Practice Test.

What Students Do

Think About It

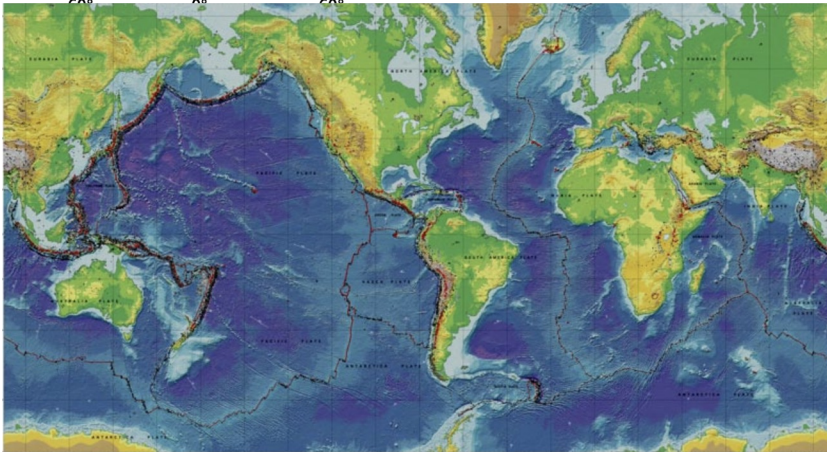
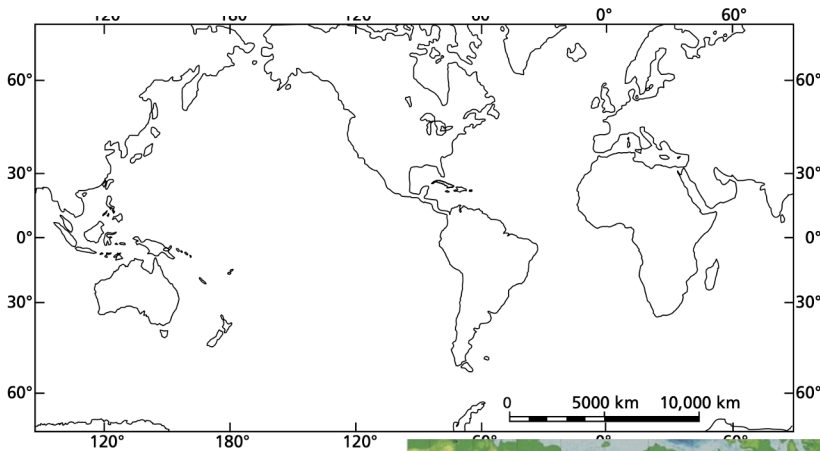
Volcanic eruptions and earthquakes are sudden and often destructive events. When they occur, they grab headlines and our attention.

- Can volcanoes form anywhere on Earth? Why or why not?
- Can earthquakes occur anywhere on Earth? Why or why not?

Phases of the 7E Instructional Model	Where is it in the section?
Elicit	<i>What Do You See?</i> <i>Think About It</i>
Engage	<i>What Do You See?</i> <i>Think About It</i>
Explore	<i>Investigate</i>
Explain	<i>Digging Deeper</i> <i>Geo Words</i>
Elaborate	<i>Digging Deeper</i> <i>Think About It Again</i> <i>Checking Up</i> <i>Understanding and Applying</i>
Extend	<i>Reflecting on the Section and the Challenge</i> <i>Preparing for the Chapter Challenge</i> <i>Inquiring Further</i>
Evaluate	<i>Formative evaluation</i> —You evaluate your own understanding and your teacher can evaluate your understanding during all components of the chapter. <i>Additional evaluations may include:</i> Lab reports, <i>Checking Up</i> , <i>Think About It Again</i> , <i>Understanding and Applying</i> , and <i>Practice Test</i> .

What Students Do

Investigate



Phases of the 7E Instructional Model		Where is it in the section?
	Elicit	<i>What Do You See?</i> <i>Think About It</i>
	Engage	<i>What Do You See?</i> <i>Think About It</i>
	Explore	<i>Investigate</i>
	Explain	<i>Digging Deeper</i> <i>Geo Words</i>
	Elaborate	<i>Digging Deeper</i> <i>Think About It Again</i> <i>Checking Up</i> <i>Understanding and Applying</i>
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What Students Do

Digging Deeper

MEASURING THE MOTION OF LITHOSPHERIC PLATES

Types of Crust

In the *Investigate*, you gathered scientific information about the North American Plate from the *This Dynamic Planet* map. You collected evidence that Earth's moving plates can carry parts of continents as well as parts of oceans. You then analyzed GPS data and used this as evidence to explain the movement of the lithospheric plate on which the United States is located.

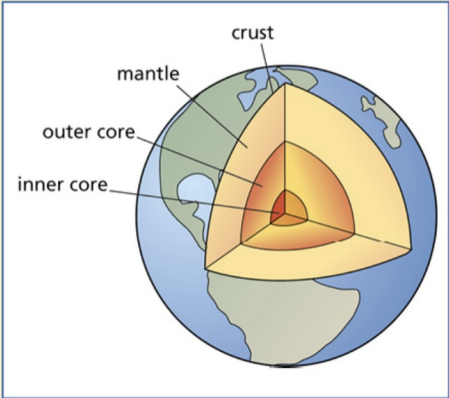


Figure 1 Diagram showing the layered structure of Earth's interior.

Phases of the 7E Instructional Model	Where is it in the section?
Elicit	<i>What Do You See?</i> <i>Think About It</i>
Engage	<i>What Do You See?</i> <i>Think About It</i>
Explore	<i>Investigate</i>
Explain	<i>Digging Deeper</i> <i>Geo Words</i>
Elaborate	<i>Digging Deeper</i> <i>Think About It Again</i> <i>Checking Up</i> <i>Understanding and Applying</i>
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What Students Do

What Do You See Now?



Phases of the 7E Instructional Model	Where is it in the section?
Elicit	<i>What Do You See?</i> <i>Think About It</i>
Engage	<i>What Do You See?</i> <i>Think About It</i>
Explore	<i>Investigate</i>
Explain	<i>Digging Deeper</i> <i>Geo Words</i>
Elaborate	<i>Digging Deeper</i> <i>Think About It Again</i> <i>Checking Up</i> <i>Understanding and Applying</i>
Extend	<i>Reflecting on the Section and the Challenge</i> <i>Preparing for the Chapter Challenge</i> <i>Inquiring Further</i>
Evaluate	<i>Formative evaluation</i> —You evaluate your own understanding and your teacher can evaluate your understanding during all components of the chapter. <i>Additional evaluations may include:</i> Lab reports, <i>Checking Up</i> , <i>Think About It Again</i> , <i>Understanding and Applying</i> , and <i>Practice Test</i> .

What Students Do

Inquiring Further

1. Study animations of plate motions

Visit [the EarthComm resources at AGI](#) for the address of animated images of the motions of lithospheric plates. Describe how the motions shown in the animations match your analysis from this section.

Tindall_HS

[View Student Work](#)



B



x²

x₂



Symbols

Play Student recording

2. Movement of the North American Plate

In [Section 2](#), you looked at measurements of plate movement recorded by GPS transmitters on the North American Plate. Visit [NASA's GPS Time Series](#) again. Locate the Sierra Nevada Mountains. Compare the general direction of plate movement to the east of the Sierra Nevada Mountains with that of Southern California. Explain what you think is causing this pattern.

Tindall_HS

[View Student Work](#)



B



x²

x₂



Symbols

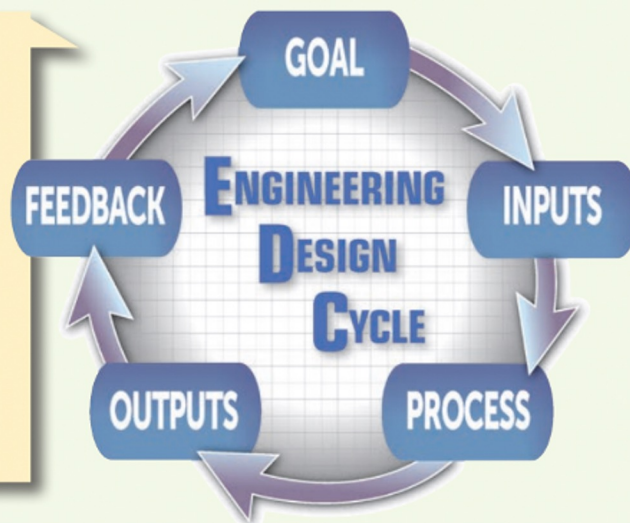
Play Student recording

Phases of the 7E Instructional Model		Where is it in the section?
	Elicit	<i>What Do You See?</i> <i>Think About It</i>
	Engage	<i>What Do You See?</i> <i>Think About It</i>
	Explore	<i>Investigate</i>
	Explain	<i>Digging Deeper</i> <i>Geo Words</i>
	Elaborate	<i>Digging Deeper</i> <i>Think About It Again</i> <i>Checking Up</i> ~~<i>Understanding and Applying</i>~~
	Extend	<i>Reflecting on the Section and the Challenge</i> <i>Preparing for the Chapter Challenge</i> <i>Inquiring Further</i>
Evaluate		<i>Formative evaluation</i> —You evaluate your own understanding and your teacher can evaluate your understanding during all components of the chapter. <i>Additional evaluations may include:</i> Lab reports, <i>Checking Up</i> , <i>Think About It Again</i> , <i>Understanding and Applying</i> , and <i>Practice Test</i> .

What Students Do

Why is there an Engineering Design Cycle?

The *Chapter Challenge* is a problem that you need to solve. There are many different ways to solve problems. One sequence of steps that can be used to solve problems is called the *Engineering Design Cycle*. You are going to use a simplified *Engineering Design Cycle* as you address your challenge. There are five basic steps to a simplified engineering design.



Simplified Engineering Design Cycle

GOAL	- define the problem - identify available resources	- draft potential solutions - list constraints to possible actions
INPUTS	complete the investigations in each section	learn new concepts and vocabulary
PROCESS	- evaluate work to date - compare and contrast methods and ideas - examine possible trade-offs to help reach goals and maximize efforts	- create a model from your information - design experiments to test ideas and the suitability of the model
OUTPUTS	present <i>Mini-Challenge</i> and intermediary steps or products	present <i>Chapter Challenge</i> based on feedback to <i>Mini-Challenge</i>
FEEDBACK	obtain response from target audience leading to modification of the goal	identify additional constraints, requiring restarting the input and process stages

Phases of the 7E Instructional Model	Where is it in the section?
Elicit	<i>What Do You See?</i> <i>What Do You Think?</i>
Engage	<i>What Do You See?</i> <i>What Do You Think?</i>
Explore	<i>Investigate</i>
Explain	<i>Physics Talk</i> <i>Physics Words</i>
Elaborate	<i>Physics Talk</i> <i>What Do You Think Now?</i> <i>Checking Up</i> <i>Physics Essential Questions</i> <i>Physics to Go</i>
Extend	<i>Reflecting on the Section and the Challenge</i> <i>Preparing for the Chapter Challenge</i> <i>Inquiring Further</i> <i>Connections to Other Sciences</i> <i>Physics at Work</i>
Evaluate	<i>Formative evaluation — You evaluate your own understanding and the teacher can evaluate your understanding during all components of the chapter. Additional evaluations may include: Lab reports, Checking Up, Quizzes, What Do You Think Now?, Physics Essential Questions, Physics to Go, Physics Practice Test.</i>



3

Support for Teachers

Activate Learning

EarthComm 3rd Edition

[Back to all Chapters](#)

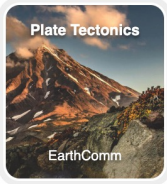


Plate Tectonics

EarthComm

Multimedia Files

Quick Look

Chapter Reference

Chapter Overview

Pacing Guide

Materials

Standards

Chapter Challenge Review

Notes

EARTHCOMM Chapter 1

Plate Tectonics

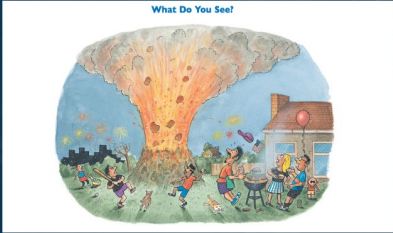
Students complete the chapter challenge by creating a script for a public service documentary film for a local TV network. Filming the documentary is optional. Investigative Phenomena includes students investigating how and why portions of the lithosphere move and examine that motion's speed. Students investigate how and why volcanoes and earthquakes are part of Earth systems and the results of the motion of plates and processes. Students begin to recognize the hazards associated with volcanic eruptions and earthquake activity.



0:00 / 0:23

water corn syrup vegetable oil

Preview Video - Chapter



What Do You See?

Where are the Volcanoes and Earthquakes?

Sections in This Chapter

1. Where Are the Volcanoes and Earthquakes?
2. Earth's Moving Lithospheric Plates
3. What Drives the Plates?
4. Plate Motions and Plate Interactions
5. Plate Boundary Environments
6. The Changing Geography of Your Community
7. Volcanic Landforms
8. Volcanic Hazards: Flows
9. Volcanoes and the Atmosphere
10. Earthquakes
11. Detecting Earthquake Waves
12. Earthquake Magnitude

Teacher Support

Integrations with Clever and Google Classroom



Google Classroom



CANVAS



schoolology



Teacher Support

Section Overview

Students consider the ideas of conservation of energy and reduction of force on passengers in designing and testing a crumple zone. Using probes, they measure the force and velocity over time during a collision involving a cart fitted with different types of cushions. By analyzing the data, students find the relationship between the force exerted, the time the force acts on the object, and the change in momentum. A class discussion follows on the relationship between impulse and changes in momentum, and how work and energy or impulse and momentum can be used to analyze a collision.

Background Information

A change in momentum only occurs if a net external force acts on an object. During a collision, each object involved in the collision experiences a force from the other object. The amount of force acting on the object at any instant is given by

$$F = \frac{dp}{dt}.$$

The average force acting on the object is given by

$$F = \frac{\Delta p}{\Delta t} = m \frac{\Delta v}{\Delta t},$$

for constant mass. From this equation, one can see that the force needed to change an object's

Learning Outcomes	Location in the Section	Evidence of Understanding
Design a device that is able to absorb the energy of a collision and reduce the net force on an object in an automobile.	Investigate Part A: Steps 1-5	Students construct "crumple zones," a design feature that reduces the amount of energy and force acting on a cart so that an object in the cart does not fall out during a collision. Students measure the force and velocity of the cart over time during the collision.
Describe collisions and crumple zones in terms of momentum, impulse, and force.	Investigate Part A: Step 5, Part B: Step 7 Physics Talk Physics Essential Questions Physics to Go Questions 1-3, 11	Students analyze data from the cart collisions and find a relationship between impulse and change in momentum. Students read about and participate in a class discussion on crumple zones in terms of change in momentum and impulse, and are able to distinguish this approach from the work-energy approach.
Apply the concept of impulse in the analysis of collisions.	Physics to Go Questions 8-9, 11	Students should apply the concepts discussed in the <i>Physics Talk</i> to analyze automobile collisions.
Use a computer's motion probe (sonic ranger) to determine the velocity of moving vehicles.	Investigate Part B: Steps 2-5	Students use a sonic ranger and a computer to measure and graph the velocity of a cart during a collision.
Use a computer's force probe to determine the force exerted during a collision.	Investigate Part B: Steps 2-5	Students use a force probe and a computer to measure and graph the force of a cart during a collision.
Compare the change of momentum of a model vehicle before a collision with the impulse applied during a collision.	Investigate Part B: Step 7	Students analyze data and find the relationship between impulse and momentum.
Explore ways of using cushions to increase the time that a force acts during a primary collision.	Investigate Part B: Steps 5-7	Students measure how using different cushions attached to the outside of a cart affect the force and velocity of a cart during a collision.

Teacher Preparation

- Consider having students bring in materials to use as cushions for the second part of *Investigate*. Make sure cushion materials that you have tested to compare results are also supplied. Conduct the investigation before class to determine where your students may have difficulties. Decide if you wish to stop students at any step to have a class discussion on the procedure.

Teacher Planning Support

Performance Expectations

HS. Forces and Interactions Expectations

Active Physics Chapter 3 Location

HS-PS2-1. Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

pgs. 292-301

SECTION 7

Teaching Suggestions and Sample Answers

What Do You See?

Have students describe the illustration in the student text. Discuss how students think the illustration connects to the title of the section and the *Learning Outcomes*. Ask them what in the illustration might be a device capable of absorbing the energy of a collision or reducing the net force of the collision, or where such a device could be. Consider using an overhead of the illustration as a focal point for the discussion.

What Do You Think?

Describe to the class what a crumple zone is using the information in the student text. Ask what part of the vehicle in the image they think is the crumple zone and why. Ask students to

record in their logs their responses to the *What Do You Think?* question. Have a class discussion on students' ideas. Record misconceptions and make sure they are addressed at appropriate times during the section. Focus on the responses that provide a chance for you to get the class engaged in a discussion of reducing the energy transferred to the passengers, and reducing the force acting on the passengers.

Investigate

If you decide to guide students through some of the steps during the *Investigate*, let them know at which step they should stop. Otherwise, have a discussion on the *Investigate* steps, and let them begin and complete the *Investigate*. Let them know what guidelines they should follow for time, space, and materials. Demonstrate how to use the force and velocity probes before Part B.

What Do You Think?

A Physicist's Response

Crumple zones are very important because they reduce the amount of energy transferred to passengers in a vehicle during a collision, and the amount of force acting on the passengers during the collision. It is important to realize that crumple zones must follow conservation of momentum and conservation of energy. The momentum change of the vehicle for a given speed is the same, as is the change in kinetic energy. By increasing the time of the collision and the distance over which the collision occurs, one can reduce the amount of force needed to stop the vehicle. This also reduces the amount of force that acts on the passenger. From the energy approach, energy is needed to deform an object, and if the object is permanently deformed, that energy cannot be retrieved and transferred to the passenger. Energy is also transformed into heat energy when deformation occurs. Because of this, it is important to design crumple zones that will permanently deform and will absorb the energy of the collision. Very rigid objects and very elastic objects do not do this well.
Crumple zones are built not only on vehicles but also around areas where collisions are likely to occur or where collisions could cause other danger. Examples include canisters of sand near roadwork or bridge supports, and railings along bridges.

Teacher Support

Meeting the Needs of All Students

Differentiated Instruction: Augmentation and Accommodations

Learning Issue	Reference	Augmentation and Accommodations
Reading Strategy Developing concept maps	<i>Think About It</i>	Augmentation Students may not comprehend the difference in scales between Earth, the Sun, the galaxy, and the universe. Create a diagram on the board. Label the largest circle as the universe, and then place the Milky Way Galaxy as a circle within it, and create other circles for other galaxies. Then draw the Sun within the Milky Way Galaxy, and place Earth in orbit around it. Then discuss the relationship between the four terms.
Creating tables	<i>Investigate</i> Part A, Questions 1 and 2	Augmentation - Suggest that students copy the table into their Geo logs and add columns to record the answers to <i>Questions 1.a), 1.b), 2.a), and 2.b)</i>. This will allow them to keep their calculations organized. Accommodations - Divide students into pairs to answer the questions. One student can operate a calculator while the other student reads the numbers to divide and records the answer. - If students have difficulties with visual motor coordination, allow for more time to complete division with calculators.
Conversion	<i>Investigate</i> Part B, Question 2	Augmentation Give students practice converting between parsecs and light-years. Set up a table for parsec values of 1, 2, 3, 4, and 5. Assign students a partner and have them compute the number of light-years that correspond to 1, 2, 3, 4, and 5 parsecs. Then have each pair compare their answers with another pair. Calculators may help with the conversions.
Reading Strategy Note-taking/ graphic organizers	<i>Investigate</i> Part B, Question 3	Augmentation - Placing large numbers along a number line may help students organize the meaning of the numeric information in the bullet points. Be sure to write both the number and the significance of the number on the number line. - Have students use the information in <i>Question 3</i> to make a sketch of the Local

Differentiation

Strategies for Students With Limited English-Language Proficiency

Learning Issue	Reference	Augmentation
Background knowledge	<i>Investigate</i>	Students will benefit from activating their prior knowledge about space and objects in space. Ask them to brainstorm as a class about objects and locations in space and then to list the objects and locations that they identify on the board. If they demonstrate misconceptions about the names of locations in space, record the misconceptions, and return to them in the <i>Investigate</i> . Tell students that they will explore more about the distances in space in the next section.
Vocabulary comprehension	<i>Investigate</i>	Students may need help understanding “scale model” in context. It may help to remind students about different meanings of both scale and model. Emphasize that in this context a “scale model” is a representation that uses proportional distances.
Mathematical reasoning	<i>Investigate</i> Part A, Question 1.a)	Create a place value chart for students that goes from the ones place to the trillions. Because millions, billions, and trillions sound alike, they may be confusing for students.
Comprehension	<i>Investigate</i> Part A, Question 3.a)	Make sure students understand that an astronomical unit is abbreviated as AU and that the plural is AUs. Pronounce the long version and the abbreviation for both AU and AUs for students as you write them on the board.
Vocabulary comprehension	<i>Investigate</i> Part B, Question 2	The relationship between a light-year and a parsec may be unclear to some students and the vocabulary may be new and confusing. Often students have the misconception that a light-year is a unit of time instead of distance. Emphasize that both of these terms are distances used in astronomy and that a conversion, such as one parsec equals 3.26 light-years, only relates units of the same type.
Interpreting graphics	<i>Digging Deeper</i>	The figures can reinforce what ELL students have learned about scale and distance. Study <i>Figure 1</i> as a class. Ask students to find the distances to the closest and farthest planets from the Sun according to the figure. Then ask students to tell you how far the planets are from the Sun by reading from the figure correctly.
Speaking competency	<i>Digging Deeper</i>	ELL students may struggle with the vocabulary for galaxy shape, including elliptical, spiral, or irregular. It may help to draw an elliptical shape on the board, and give Centaurus A as an example, and then draw a spiral shape on the board, and give M81 as an example. You may need to compare the words

Teacher Support

Assessment Guidance

Name _____

Date _____

Class _____

1b Sample Assessment Rubric

Meets the standard of excellence. 5	<i>Significant</i> information is presented about <i>all</i> of the following: • Distribution of volcanoes and earthquakes on local, state, regional, and global scales. • Patterns in the timing of volcanic eruptions and earthquakes at the local, state, regional, and global scales. • How volcanic eruptions and earthquakes are linked to plate tectonic processes. • How volcanoes and earthquakes change other Earth systems. • The threats posed by volcanoes and earthquakes to humans, and ways to reducing their risk. <i>All</i> the information is accurate and appropriate. The writing is clear and interesting.
Approaches the standard of excellence. 4	<i>Significant</i> information is presented about <i>most</i> of the following: • Distribution of volcanoes and earthquakes on local, state, regional, and global scales. • Patterns in the timing of volcanic eruptions and earthquakes at the local, state, regional, and global scales. • How volcanic eruptions and earthquakes are linked to plate tectonic processes. • How volcanoes and earthquakes change other Earth systems. • The threats posed by volcanoes and earthquakes to humans, and ways to reducing their risk. <i>All</i> the information is accurate and appropriate. The writing is clear and interesting.
Meets an acceptable standard. 3	<i>Significant</i> information is presented about <i>most</i> of the following: • Distribution of volcanoes and earthquakes on local, state, regional, and global scales. • Patterns in the timing of volcanic eruptions and earthquakes at the local, state, regional, and global scales. • How volcanic eruptions and earthquakes are linked to plate tectonic processes. • How volcanoes and earthquakes change other Earth systems. • The threats posed by volcanoes and earthquakes to humans, and ways to reducing their risk. <i>Most</i> of the information is accurate and appropriate. The writing is clear and interesting.

Teaching Suggestions and Sample Answers

What Do You See?

The main emphasis of the *What Do You See?* illustration is to engage students' curiosity and get them involved in thinking about the topic they will be investigating. Students should examine the illustration in their textbooks. You may also consider making a transparency of the illustration and projecting it on an overhead projector. Engage students in interpreting the illustration and sharing their ideas with the class. See if students recognize that the image is depicting a volcanic eruption. Consider asking them whether or not the people pictured were anticipating the event occurring in the image. Gauge students' ideas about the predictability of volcanic eruptions. Ask students how the title of this section is related to the illustration. Record the students' initial ideas about the illustration. You may want to display them so that students can monitor changes in their understanding of Earth science concepts investigated in this section. Students' responses will also give you an insight into what they know about the occurrence of volcanic eruptions.

Think About It

If you live in an area where volcanoes and earthquakes are not common, students may not have a strong sense of where they occur. Students who think that the entire interior of Earth is molten may think that volcanoes can form anywhere on Earth (so long as there is a conduit for magma to rise through). Some students will know that most volcanoes and earthquakes occur at plate boundaries or the "Ring of Fire." Students are less likely to know or understand how a volcano can form in the middle of a plate (hot-spot volcanism). Some students will think that earthquakes occur only on land.

Think About It

An Earth/Space Scientist's Response

Volcanoes form only in places where mantle material is rising. Since mantle material is not rising everywhere on Earth, volcanoes cannot form anywhere on Earth. Volcanoes form in one of two settings—over a region of upwelling mantle rock (hot spot) and at plate boundaries where lithospheric plates converge or diverge.

Earthquakes tend to occur along well-defined belts, most prominently in ocean basins and along the edges of continents around the Pacific basin.

Teacher Support

Digital Resources for Students

Section 1

Plan

Teach

Student Edition

Where Are the Volcanoes and Earthquakes?

What Do You See? Think About it

What Do You See? Think About it

Investigate

Investigate

Digging Deeper

Digging Deeper

What Do You See Now?

What Do You See Now?

Think About It Again

Think About It Again

Reflecting on the Science

Reflecting on the Science

Understanding and Applying

Understanding and Applying

Inquiring Further

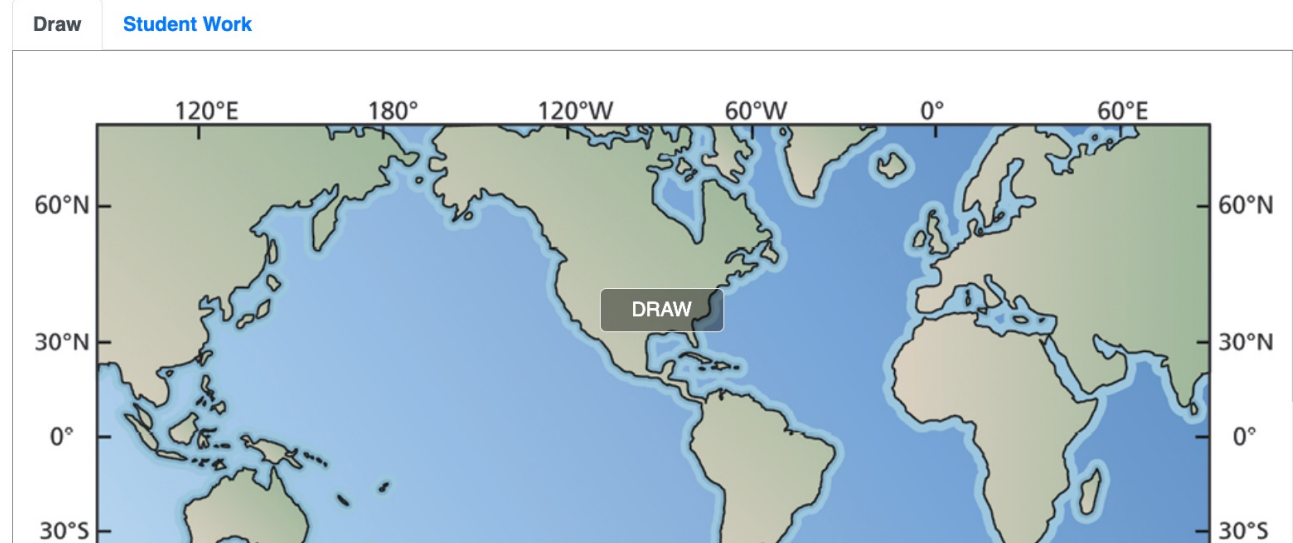
Inquiring Further

Section 1 Quiz

Where Are the Volcanoes and Earthquakes?

Assign/Assess

a) In the box below, plot the locations of the volcanoes shown in *Table 1* (above). Select a color and draw small triangles that mark their locations.
(Remember that the lines of latitude run from east to west and the lines of longitude run from north to south.)



OR paste in a link to an image or video

2. Using the same world map within the Draw box from *Step 1.a*):

- a) In the Draw box above for *Step 1.a*), make a key to show the color that you used for the volcano triangles.
- b) What patterns do you see in the distribution of volcanoes on Earth?

Tindall_HS

[View Student Work](#)

Navigation icons: back, forward, bold, italic, list, x², x₂, text color, symbols, and a button to play student recording.

Teacher Support

Student Feedback



Multimedia Files

Quick Look

Chapter Reference >

Section 1 ▾

Plan >

Teach >

Assign/Assess ▾

Manage Assessments

Manage Resources

Grade by Student



OR paste in a link to an image or video

Teacher Comment



Score / 10

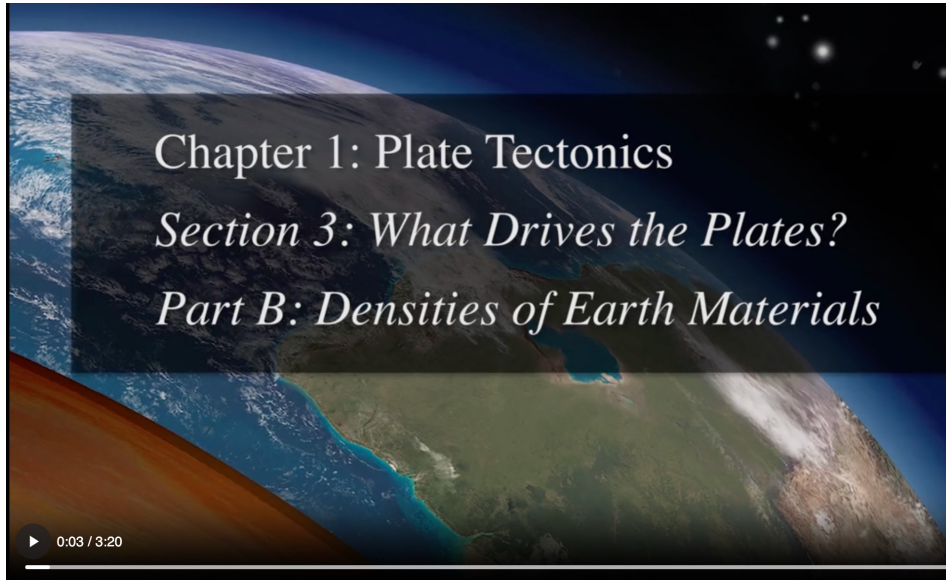


Teacher Support

Virtual Labs and Simulations



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[Chapter 1: Plate Tectonics](#)

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[Section 1: Volcanoes and Earthquakes](#)

[Section 2: Lithospheric Plates](#)

[Section 3: What Drives the Plates](#)

[Section 4: Motions and Interactions](#)

[Section 5: Boundary Environments](#)

Chapter 1: Section 2 - Earth's Moving Lithospheric Plates

Overview

In this section you will find materials that support the implementation of *EarthComm, Section 2: Earth's Moving Lithospheric Plates*.

Learning Outcomes

- **Analyze Global Positioning System data** on a map of the North American Plate to describe lithospheric plate movement.
- **Interpret Global Positioning System data** on a graph to identify the directions and rates of lithospheric plate movement.
- **Apply evidence** from the patterns of plate movements to support the theory of plate tectonics.

Using Technology

To learn more about the relative motions of the plates, complete the following:



Teacher Support

Lesson Materials



Implementation Information



Professional Learning Support:

- Two, one-day professional learning sessions to launch the program
- Four, three-hour webinar sessions throughout the first year
- Provided gratis

Implementation Information



Interactive Digital Edition:

Provided free for the first year with 7-year license purchase (\$42,424)

- Includes teacher and student editions, resources, and assessments

Implementation Information



Print Resources and Equipment:

Quotes will also be sent via email

- Student (\$77,350, \$13,000 lower than previously quoted price)
- Teacher print materials (gratis)
- Equipment kits (\$36,825)
- Equipment refill kits for 7 years (\$38,150)
- Total equipment cost \$73,395

Implementation Information

Questions

