



Creation Lens

Exploring the World, Discovering God

Grade Level: Grade 6

Title:

How Earthquakes Change the Earth and People & How Stress Can Bring Us to God

Denomination: Catholic

Lesson ID: ES-G6-03-CA

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Note: Web sites referenced in this lesson were valid at time of publication.

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EARTH SCIENCE - GRADE 6 - CATHOLIC

LESSON TITLE: How Earthquakes Change the Earth and People & How Stress Can Bring Us to God

GENERAL CONCEPT: Stress can cause change.

SCIENCE LESSON CONCEPT

- Seismic activity can cause change
- Human vulnerability to earthquakes

GOAL OF SCIENCE LESSON

- The students will be able explain how stress in the earth's crust changes the earth's surface.
- Students will be able to tell the story of one earthquake in history.

RELIGION LESSON CONCEPT

- Faith in God can help us deal with stress
- Our faith enables us to turn to God in times of stress
- The Cardinal Virtues of Prudence, Justice, Fortitude, and Temperance help strengthen us

GOAL OF RELIGION LESSON

- Students will be able to explain how stress can bring people to God.
- Students will be able to explain how exercising the Cardinal Virtues can strengthen us.

SCIENCE METHODOLOGY

- **BE SURE** that students know that magma in the earth's crust causes the shifting.
- **ASSIGN** the students to groups to research the following points about a past earthquake:
 - ~What were the seismic conditions in the area?
 - ~What caused the earthquake? (explain plate tectonics)
 - ~What was the past history of earthquakes in that area?
 - ~How long did the initial earthquake last?
 - ~How many after-shocks and for what duration?
 - ~What damage was done to the area?
 - ~What was the cost to human life?
 - ~What injuries were suffered?
 - ~What kind of relief efforts were there?
 - ~How did other nations respond to the disaster?
 - ~Are there any personal stories worth mentioning?
- **TELL** each group they are to make their report as though they were journalists and reporters.
- **ALLOW** students sufficient time to research and prepare the PowerPoint presentation.
- **ALLOW** groups to present their reports.
- **DISCUSS** each report with the class: What did we learn from this report?
- **CONSTRUCT** a town scene by using glue to lightly fasten houses, trees, people, etc. to one piece of cardboard.

RELIGION METHODOLOGY

- **ASK** the students to define the term stress.
- **RECORD** definitions on the board.
- **HAVE** the students write a definition of stress in the Religion notebook.
- **ASK:** How can you tell when your parent(s) are experiencing stress? (short-tempered, cranky, argumentative, overly strict, detached, sleep a lot, don't pay attention)
- **SAY:** The story of Job begins with the undeserved suffering of the patriarch Job and reflects on the meaning of suffering and God's relationship to one who suffers unjustly. Job suffers most because he refuses to deny his own integrity or the integrity of God.
- **READ** the selected parts of the story of Job from the bible or watch a video presentation of the Book of Job.
- **READ:** Job Chapters 1 & 2.
- **ASK:** Who is Job? What happens to him?
- **ASK:** Which of the Cardinal Virtues seems to fit best with Job? (Fortitude – courage in the face of struggles)
- **SAY:** The Jews believed that bad things happened to a person because that person had sinned.

- **EXPERIENCE** an earthquake by selecting two students to hold Cardboard A which has the miniature scene lightly glued to it.
- **SELECT** two students to hold Cardboard B – the plate.
- **TELL** the Cardboard A students to hold the cardboard as steady as possible while Cardboard B students slide their cardboard back and forth underneath Cardboard A simulating the sifting of the plates making sure the cardboard pieces are touching.
- **HAVE** the other students observe the experiment and record observations on Science Journal page: Earthquakes.
- **HAVE** Cardboard B continue simulating the sifting of the plates for about 10 seconds and then gradually increase the speed for another 20 seconds.
- **ASK:** What happened?
- **DISCUSS** the results of the experiment.
- **COMPARE** these results with the results from their research or from the 2010 Haiti Earthquake.
- **HAVE** the students write a paragraph and illustrate the effects an earthquake can have on the human occupants of an area.
- **POSIT:** The entire culture of a people is affected by an earthquake: homes, economy, safety, family structure.
- **ASK:** How would Job's friends and neighbors account for his misfortunes? (he sinned)
- **SAY:** Since Job's friends and neighbors blamed his misfortunes on his sins, they were being judgmental.
- **ASK:** What does judgmental mean? (deciding something without clearly seeing the situation)
- **ASK:** How would Job or any other sinner get back into a good relationship with God? (repent, offer sacrifices)
- **DIVIDE** the class into groups and assign each group one of the following passages to read and give a brief report:
 - Job 4: 1-21 – What does Eliphaz the Temanite say?
 - Job 6 and 7 – How does Job reply?
 - Job 8 – What does Bildad the Shuhite say?
 - Job 11 – What does Zophar the Naamathite say?
 - Job 12 - What does Job say?
 - Job 17 – What does Job pray for?
 - Job 27 & 28 – What is Job's defense?
 - Job 38 – What is God's answer to Job?
 - Job 39 – What else does God say?
 - Job 40 – What is the conversation between God and Job all about?
 - Job 42:10-17 - What is the outcome of Job's experience?
- **PREPARE** a mural with a title section: STRESS AND THE PATRIARCH JOB and 11 other sections. At the bottom or top of each section, print the Chapter of the Book of Job.

- **RECORD** answers on board and in Religion notebook.
- **ASK:** How can you stay true to yourself?
- **RECORD** answers on board and in Religion notebook.
- **ASK:** How can the four Cardinal Virtues help relieve stress in our life? (give us more realistic out-look and expectations)
- **SAY:** Prudence helps us set wise goals and expectations for ourselves. For example: A wise expectation is that if I study regularly before a test, I will do better on the test than if I didn't study.

Justice helps us treat everyone fairly and helps us to take our turn and not expect to be first at everything. For example; I can see that someone else is a better first baseman than I am and so I expect to be second string.

Temperance helps us limit our expectations to realistic things we can achieve. For example, if you are short and come from a family of short people, it is improbable that you will ever get to be a professional basketball player. That doesn't mean you can't enjoy playing and watching basketball. It is more temperate and less stressful to focus your dreams on things you have a chance of achieving.

Fortitude helps us to be courageous in facing difficulties. For example, if your pet dies, you feel sad and that's OK. Fortitude helps you to continue living a full life. If you break your leg, fortitude helps you to keep a smile during

SCIENCE LINKS

www.ms-nucleus.org/membership/html/k-6/pt/earthquakes/1/pte1

Simulating How an Earthquake Shakes an Area

Simulating how an **earthquake** shakes an area. VOCABULARY: ... **Earthquakes** are **caused** by stresses from plate ... The movement of these **waves** within the Earth's crust can **cause**

<http://www.seplessons.org/node/110>

[Slinky Lab- Simulating the Motion of Earthquake Waves.](#)
[SEP ...](#) **Earthquake waves** Big ideas(s): Motion of **earthquake waves** ... In order to properly **simulate** the **waves** the activity needs ... **S-waves** and **P-waves** **cause** high-frequency vibrations

<http://cse.ssl.berkeley.edu/lessons/indiv/coe/details.html>

[Surfing for Earthquakes and Volcanoes Lesson Plan Content](#)
 ... Worksheet 1b, and Worksheet 1c to research **six seismic**
 and four volcanic occurrences throughout the world ... Super
Science Activities. Beattie, Bredt, Graeber, Lyford, Martinez,
 ... Good computer research tools in the worksheets.

<http://www.pbs.org/wgbh/aso/tryit/tectonics/>

Take a hard-boiled egg and crack its shell. Does the egg remind you of anything? The Earth, perhaps?
Even though the theory of continental drift was proposed in 1912 by Alfred Wegener, the idea of moving continents wasn't generally accepted until the early 1960s.

RELIGION LINKS

www.biblewise.com/teaching/swap_shop/job/job.htm

Job - Activities, Projects, Puzzles, Stories - BibleWise **Job's** life shows the power of trust, faith and perseverance through times of great trial. **Job** struggles with his health, family, and finances. ... Good activities, especially the activity on Job's conversation with his friends. activity.

<http://www.homeschools.org/theChristianEducator/vol4Issue5/teachingTips.html>

[Teaching the Cardinal Virtues - The Christian Educator Vol 4 ...](#) Teaching the **Cardinal Virtues** The task of raising **virtuous children** in a fallen world has never been easy. Thankfully, however, God has given mankind the gift of eternal ...

COMPUTER LESSON

SAMPLE PowerPoint Assignment:

Name _____

Create a PowerPoint to answer the following questions:

1. Name and describe Earth's layers.
 - a. What are they made of?
 - b. How are they different from each other?
 - c. Include a picture of earth's layers and compare each layer to an egg.
2. Explain the theories of continental drift and plate tectonics.
 - a. What makes the plates move?
 - b. What are the 4 types of plate boundaries?
 - c. What is a fault?
 - d. How are the plate boundaries changing Earth's landforms?
3. What causes earthquakes and volcanoes?
 - a. What are the different types of volcanoes? Why are there different types?
 - b. Why do Japan and California have so many earthquakes?
 - c. Include a picture of a map showing why they have more than Missouri.

4. How are volcanoes and earthquakes predicted?

How can we prepare for earthquakes?

- Why do some buildings get destroyed by earthquakes but others do not?
- What tools are used to measure earthquakes?
- What scale is used to describe an earthquake?

KEY WORDS

- SEISMIC
- EARTHQUAKE
- EARTH'S CRUST
- MAGMA
- STRESS
- SEISMIC ACTIVITY
- MANTLE
- CORE
- LITHOSPHERE
- CONTINENTAL DRIFT
- PLATE TECTONICS
- PLATE BOUNDARY
- FAULT

KEY WORDS

- JOB
- STRESS
- UNDESERVED
- INTEGRITY
- ELIPHAZ
- BILDAD THE SHUHITE
- ZOPHAR THE NAAMATHITE
- DEFENSE
- PATRIARCH
- UNREALISTIC EXPECTATIONS
- CARDINAL VIRTUES
- PRUDENCE
- JUSTICE
- TEMPERANCE
- FORTITUDE