



# Creation Lens

*Exploring the World, Discovering God*

*Grade Level: Grade 4*

*Title:*

## **Earthquakes and Volcanoes & Conscience**

*Denomination: Catholic*

*Lesson ID: ES-G4-06-CA*

**Contact Info:**

Exploring the World, Discovering God (EWDG)  
Institute for Theological Encounter with Science & Technology (ITEST)  
20 Archbishop May Drive, Suite 3400A  
St. Louis, MO 63119

EWDG email: [EWDG-Info@creationlens.org](mailto:EWDG-Info@creationlens.org)

EWDG web site: [www.creationlens.org](http://www.creationlens.org)

ITEST web site: [www.faithscience.org](http://www.faithscience.org)

Ph: 314.792.7220

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

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## EARTH SCIENCE MODULE – GRADE FOUR - CATHOLIC LESSON 6: EARTHQUAKES AND VOLCANOES: FORCES THAT CHANGE THE EARTH'S SURFACE AND OUR CONSCIENCE CHANGES OUR LIFE

**GENERAL CONCEPT:** Forces can change the earth's surface and our conscience can change our hearts.

### SCIENCE LESSON CONCEPT

Earthquakes and Volcanoes are two forces that can reshape the earth's surface.

### GOAL OF SCIENCE LESSON

Student will know how volcanoes and earthquakes shape the earth's surface.

### OUTCOME EXPECTED

Student can identify the changes made in the earth's surface by volcanoes.

### MATERIALS NEEDED

- Puffed rice cereal

### RELIGION LESSON CONCEPT

Our conscience is the internal voice that directs our actions and is shaped by family experience and the living Word of God.

### GOAL OF RELIGION LESSON

Student will know what a conscience is and how it works.

### OUTCOME EXPECTED

Student will begin to develop their conscience and listen to it carefully.

### MATERIALS NEEDED

- Children's Lives of the Saints Books

- Air pump – bicycle pump
- 2 liter bottle
- Clay
- Pie plate
- Funnel
- Pictures of volcanoes
- Pictures of earthquake damage
- Pen/pencil
- Science Journal Page: VOLCANOES AND EARTHQUAKES
- Plastic sheeting to cover the table
- Scissors
- Duct Tape
- A small piece of saran wrap to fit on top of the 2 liter bottle

#### SCIENCE METHODOLOGY

- **SHOW** pictures of volcanoes. (The textbook may have some.)
- **ASK:** Does a volcanic eruption change the earth's

- Pen/Pencil
- Saint Report Form
- Handout on the life of St. Francis of Assisi, St. John Bosco, St. Maximilian Kolbe, St. Therese of Lisieux, St. Elizabeth Ann Seton, St. Frances Cabrini -- Select 3 or 4 from this list or make your own selections.
- Religion notebook
- See Links for saint hand-out information

#### RELIGION METHODOLOGY

- **ASK:** What is your conscience? Record answers.
- **SAY:** Since we continue to grow and develop, our

Surface? How?

~destroys vegetation

~ lava flows and cover the soil

~ the surface is higher and harder

~ rivers and streams are re-directed or dry up

~ Lava flows out into the ocean to make new land

- **SHOW** the student the volcanic eruption experiment equipment.
- **ASK** the student to predict what will happen and to record the prediction on the Science Journal Page.
- **DO** the experiment.  
Cover the experiment area with plastic sheeting.  
Place a pie plate in the middle of the area.  
Cut a small hole in the side of a 2 liter bottle near the bottom.  
Insert the air pump hosing in the hole and tape tightly with duct tape.  
Fill the two liter bottle about 1.2 full with puffed rice cereal.  
Cover the bottle top opening loosely with Saran Wrap.  
Use the clay to make the mountain around the two liter bottle.  
Explain that the 2 liter bottle is the funnel and the magma chamber for the liquid rocks deep in the earth's surface.  
When the force of the magma gets too high, the lava begins to rise to the top of the funnel. Because there is a lot of force (pressure) pushing the lava upward and opening in the mountain is small, the lava will burst out. When the mountain is complete, have a student begin pumping air into the volcano.

Conscience should continue to grow and develop too.

- **ASK:** How would we develop our conscience? We need to pray, listen at Mass and religion class, read about people who good consciences- had made good choices – listen to wise people with experience: parents, teachers, relatives. Saints are people who loved God so much that they wanted to be with Him more than anything else. So they made good choices and rejected bad choices.
- **READ** the 3 or 4 short saint hand-outs together. After each one,
- **ASK:** What good choices did this saint make?
- **PUT** the students into groups to write a skit and perform the skit about making a good choice or making a bad choice. Balance the number of good/bad groups.
- **ASSIGN** each student a saint to read about and fill in the brief Saint Report Form: Name of saint, when they lived, 3 things that they did that were important, 3 ways you can be like this saint. Give the due date.
- **ON THE DUE DATE** have each student illustrate with a drawing and make your own classroom Book of Saints. Keep it from year to year.
- **POSIT:** We need to develop our conscience through prayer and example.

The pressure should blow off the saran wrap covering and it should rain puffed rice lava up and over the surface of the mountain.

- **DISCUSS** what happened or didn't happen. It always pays to be prepared for experiment failure. If it didn't work, check all the connections and try again.
- **HAVE** the student sketch the experiment on the Science Journal Page and write about the mountain and land after the volcanic eruption.
- **SAY:** Another force is earthquakes.
- **ASK:** What happen when we have an earthquake? (earth shakes, trembles, quakes). The plates of the earth's surface over-lap and rub against each other.
- **ASK:** What effects does an earthquake cause? (splits in the earth's surface, highways are demolished, houses break apart, landslides occur, etc.)
- **SHOW** the pictures of earthquake damage.
- **HAVE** the students examine the classroom.
- **ASK:** Is everything fastened to the wall securely? If we had a small earthquake, what damage would you predict?
- **RECORD** predictions on the Science Journal Page. Compare and discuss. Take steps to secure the room.
- **POSIT:** Volcanoes and earthquakes exert great force

and can change the earth's surface.

## **RESOURCES, LINKS AND COMPUTER LESSONS**

### **Science Links**

(Teacher) Information and resource on earthquakes  
<http://www.earthquake.usgs.gov/learning/index/php>

(Teacher) Information and resources on volcanoes  
<http://www.fema.gov/kids/volcano.htm>

(Teacher) Free pictures of volcanoes to download and print; click on "science" then click on "volcanoes"  
<http://classroomclipart.com>

(Teacher) Many slide pictures of earthquake destruction  
<http://tlc.discovery.com/convergence/quakes/photos/slide.htm>  
!

(Teacher) Many links to earthquake pictures  
<http://earthquake.usgs.gov/learning.photos.php>

### **Religious Links**

(Teacher) Examination of Conscience for kids  
<http://www.ainglkiss.com/xam4kids>

(Teacher or Parent) Teaching your child to form a conscience; click on "articles" then on "Teaching Your Child for Form A Conscience by Anne Leedom"  
<http://www.parentingbookmark.com>

(Teacher and Parent) Source for purchasing a family Board Game on Conscience and other topics  
<http://www.beliefnet.com/features/boardgames.html>

(Teacher) Nearly every saint is listed. Follow copyright instructions. Students could go to web site and read about their saint. Large searchable database of information on **Catholic saints. Saints, Catholic Saints. ...**  
[www.catholic.org/saints](http://www.catholic.org/saints)

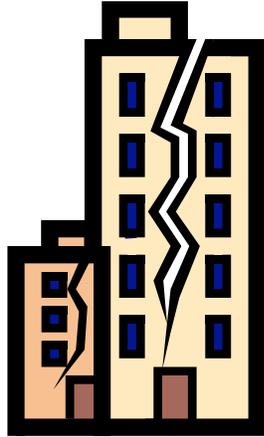
### **Computer Lesson**

Using Kid Pix or a similar graphics program draw: 1) a dormant volcano or 2) a park just before an earthquake. On a second slide draw: 1) the erupting volcano or 2) the park scene after the earthquake. Let one slide morph into the next.

Additional component: insert a slide between the 2 that lists a few activities or incidents that would disrupt a clear conscience. Now the table scene morphs to a list of those occurrences that result in an unstable scene. Now morph to a list of wonderful choices and let it morph into a stable scene.

## **KEY WORDS**

### **EARTH SCIENCE – GRADE FOUR - LESSON 6 – CA**

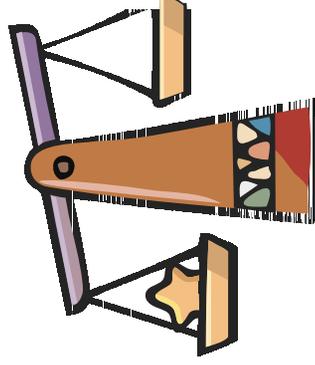
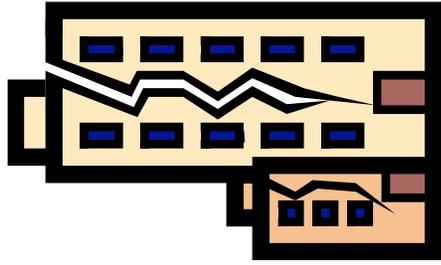


**FORCES  
EARTHQUAKE  
VOLCANO  
SURFACE  
ERUPTION  
MAGMA  
EARTH'S CORE**



**CONSCIENCE  
INTERNAL  
EXPERIENCE  
WORD OF GOD  
ST. FRANCIS  
ST. JOHN BOSCO  
ST. MAXIMILIAN KOLBE  
ST. THERESE – LISIEUX  
ST. ELIZABETH SETON**

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