The Globe We Live On

A Life Science Unit

Based on the NAD SMART Curriculum

By: Sherina Phillips

Introduction

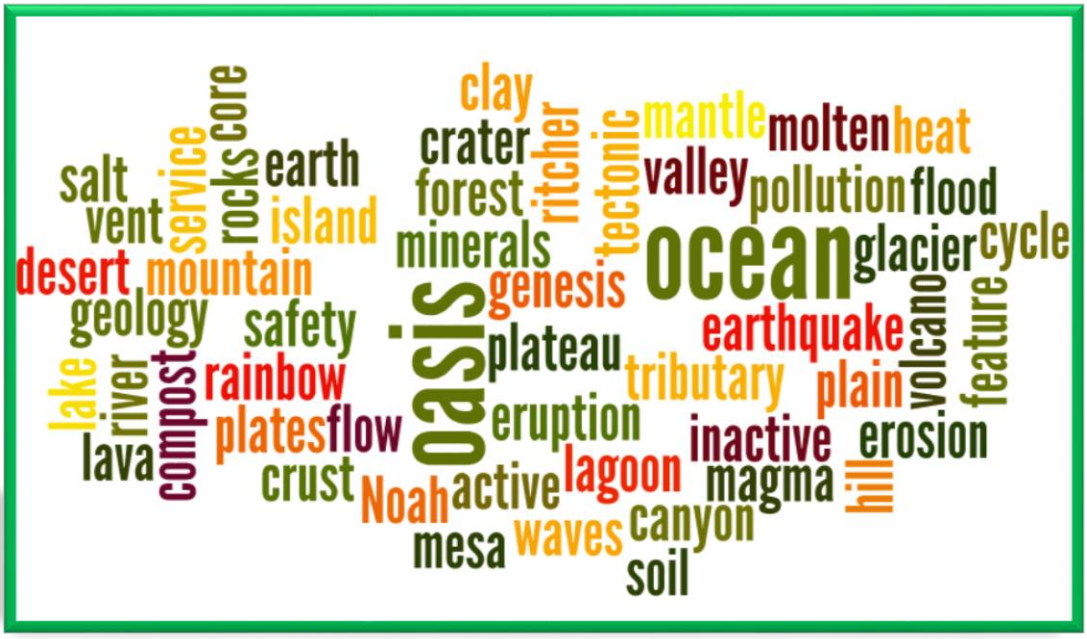
The study of EARTH'S FEATURES encompasses a branch of science called Geology. When some people think of geology and the Earth they start thinking of dinosaurs and other pre-historic animals.

This unit it planned with the students in grades Pre-K to Grade 4 in mind. It is levelled as Easy, Medium, and Advanced in order to meet the different learning needs of all your different students across the different grades. Additionally, there are different techniques built in to meet the needs of those students with differing learning styles.

We are going to take a subterranean adventure into the depths of the Earth to uncover the hidden beauties that many people, especially those living in the city, do not get to be witness to on a daily basis. Welcome to a study on the EARTH'S FEATURES. I hope you will use it to help your students see the presence and beauty of God in and around them.

Strap yourself in for this underground, natural adventure!

Sherina Phillips



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NAD SMART Correlation

Grades 1 to 4

S.M.A.R.T. Cycle Chart

	L = Lower grade Cycle		*U = Upper Grade Cycle*	
One grade classroom – Teach same cycle yearly	Grade 1 – Cycle 1L Grade 2 – Cycle 2L Grade 3 – Cycle 3L Grade 4 – Cycle 4L		Grade 5 – Cycle 1U Grade 6 – Cycle 2U Grade 7 – Cycle 3U Grade 8 – Cycle 4U	
Two grade classroom – Rotate cycle for two years	Grades 1 & 2 Cycles 1L & 2L	Grades 3 & 4 Cycles 3L & 4L	Grades 5 & 6 Cycles 1U & 2U	Grades 7 & 8 Cycles 3U & 4U
Four grade classrooms – Rotate cycles for four years	Grades 1 – 4 Cycles 1L – 4L		Grades 5 – 8 Cycles 1U – 4U	

Yearly Scheduling Chart

Grade	One Grade	2009 – 2016	Two Grades	2009	2010	2011	2012	Four Grades	2009	2010	2011	2012
				2013	2014	2015	2016		2013	2014	2015	2016
1		1L		1L	2L	1L	2L		3L	4L	1L	2L
2		2L		1L	2L	1L	2L		3L	4L	1L	2L
3		3L		3L	4L	3L	4L		3L	4L	1L	2L
4		4L		3L	4L	3L	4L		3L	4L	1L	2L
5		1U		1U	2U	1U	2U		3U	4U	1U	2U
6		2U		1U	2U	1U	2U		3U	4U	1U	2U
7		3U		3U	4U	3U	4U		3U	4U	1U	2U
8		4U		3U	4U	3U	4U		3U	4U	1U	2U

Years listed above indicate the ending year of each school year, e.g., the 2008-2009 school year is listed as 2009. For your convenience, the S.M.A.R.T. 4-year rotation is the same as Bible, 1-4.

SCIENCE CURRICULUM MAP: GRADES 1 – 4

	Grade 1 Lower	Grade 2 Lower	Grade 3 Lower	Grade 4 Lower
1st Qtr.	*Living Things* • Characteristics • Classification *Animals* • Fish • Birds • Reptiles/ Amphibians • Mammals *Ecology* • Environmental Issues • Natural Resources Careers and Service	*Human Body* • Organization • Sense Organs • Teeth. Skeletal/Muscular System • Respiratory/ Circulatory • Immune System • Digestive/Excretory System *Careers and Service*	*Cells* *Animals* • Growth/Development/ Behavior • Organisms • Invertebrates/Worms • Insects/Arthropods • Arachnids *Careers and Service*	*Plants* • Classification • Structure/Function/ Importance • Growth/Life Cycle • Photosynthesis • Reproduction *Ecology* • General Information/Food Chain • Communities/Population *Careers and Service*
2nd Qtr.	*Mental/Emotional Health* • Decision Making • Self-Concept • Emotions • Stress *Family/Social Health* • Family Structure • Communication *Careers and Service*	*Nutrition* • Nutrients • Food Pyramids • Dietary Guidelines *Education* *Safety/First Aid* *Public Safety* *Recreational Safety* *Careers and Service*	*Drugs* • Decision Making • Effects • Medicines *Health Principles* *Biblical Principles* *Natural Laws* *Careers and Service*	*Consumer Health* • Health Care • Preventative/Curative *Community Health* • Educational Resources *Communicable Diseases/Immune System* *Disease Transmission* *Careers and Service*
3rd Qtr.	*Heat* *Energy/Waves* *Sound* *Light* *Career and Service*	*Magnetism* *Electricity* • General Information • Static Electricity • Current Energy *Career and Service*	*Force* *Friction/Gravity/Mass/ Weight* *Motion* *Career and Service*	*Chemistry* • Matter • Atomic Structure • Mixtures/Compounds *Basic Energy* *Simple & Compound Machines* *Careers and Service*
4th Qtr.	*Meteorology* • General Information • Weather Elements • Seasons • Climate • Atmosphere • Water Cycle *Career and Service*	*Geology* • Earth's Features • Genesis Flood • Earthquakes/Volcanoes • Minerals/Rocks • Erosion • Soil Pollution *Career and Service*	*Origin of the Universe* *Astronomy* • History • Space Exploration *Solar System* • General Information • Sun/Stars • Moon • Asteroids, Meteorites & Comets *The Universe* • Constellations *Careers and Service*	*Creation & Evolution* *Geology* • Fossils • Dinosaurs *Ecology* • Natural Resources • Environmental Issues *Careers and Service*

STRAND 3: LIFE SCIENCE
SCOPE AND SEQUENCE K-8

4A Properties and Structure of Earth's Systems	K	1	2	3	4	5	6	7	8
Earth Minerals									
• Earth's Structure	*	*	*	*	*		*		
• Energy Resources				*	*		*		*
• Minerals and Rocks	*	*	*	*			*		
4B Changes in Earth and Sky									
Changing Surface									
• Earthquakes and Volcanoes			*		*		*		
• Plate Tectonics			*		*		*		
• Weathering and Erosion			*		*		*		
Earth's Air and Water									
• Atmosphere	*	*	*	*		*			
✚ Structure	*	*	*	*		*			
✚ Water Cycle	*	*	*	*		*			
• Climate	*	*	*	*		*			*
• Oceanography	*	*	*			*			
✚ Currents, Tides, and Waves						*			
✚ Marine Environments				*	*	*			
✚ Resources				*	*	*			
• Seasons	*	*	*	*	*	*			
• Weather	*	*	*	*	*	*			
Geologic Time									
• Creation							*		*
• Flood/Ice Age							*		*
• Fossils	*	*	*	*	*		*		*
✚ Dinosaurs	*	*	*	*	*		*		*
• Geologic Column									*

Pre-Kindergarten Standards

Within the year, these are some of the standards that the Pre-Kindergarten student will need to master as covered in this Unit.

Language and Literacy Development

Performance Standard: Begin to recognize print-sound connections

a.	Begin to understand and share opinions about artistic products and experiences.

Performance Standard: Develop phonemic awareness.

a.	Manipulates language in a playful manner.
b.	Shows increasing ability to discriminate and identify sounds in spoken language.
c.	Begins to recognize rhyming words in context such as in fingerplays, songs, and literature.
d.	Orally experiments with rhyming words.

Performance Standard: begin to recognize print-sound connection.

a.	Begins to experiment with shapes and sounds of letters.
b.	Matches, names and identifies personally significant letters of the alphabet.
c.	Spontaneously makes some letter sound matches that are important to him/her.

Performance Standard: demonstrate the behaviors of a beginning writer.

a.	Experiments with a growing variety of writing tools and materials such as crayons, markers, paint, pencils.
b.	Uses drawings to represent experience.
c.	Uses drawings, paintings, scribbles, symbols and/or letter-like approximations to express thoughts, feelings or ideas.
d.	Begins to use functional writing approximations such as making lists, labels, signs and names of individuals.
e.	Begins to represent stories and experiences through pictures, dictation and experimental print.

Scientific Thinking

Performance Standard: Pose questions, seek answers and develop solutions.

a.	Observes, investigates and asks questions about the world around him/her.
b.	Collects, describes and records data.
c.	Compares, contrasts and classifies objects and events.
d.	Uses equipment for investigation.
e.	Makes and verifies predictions.

The Globe We Live On: *Earth's Features*

NAD Strand 4: Earth and Space Science

Essential Learning Elements

1. Recognize that the Earth is made up of land, water, and the air.
2. Describe the surface features of Earth.

Learning Points

- Define mountain.
- Define ocean.
- Define plain.
- Define desert.
- Define oasis.
- Define island.

The Globe We Live On: *Genesis Flood*

NAD Strand 4: Earth and Space Science

Essential Learning Elements

1. Explain why the story of a flood is important to man's Creation.

Learning Points

- Identify evidences of the flood.
- Describe how the flood affected the earth.

The Globe We Live On: *Earthquakes/Volcanoes*

NAD Strand 4: Earth and Space Science

Essential Learning Elements

1. Explain how earthquakes are caused.
2. Explain how volcanoes are formed.
3. Explain how processes such as plate tectonics, earthquakes, volcanoes, erosion, and weathering affect the Earth.

Learning Points:

- Compare and contract types of earthquake waves.
- Describe how earthquakes are measured.
- Describe features of volcanoes.

The Globe We Live On: *Minerals/Rocks*

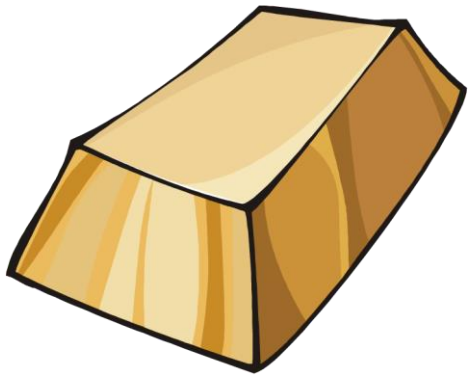
NAD Strand 4: Earth and Space Science

Essential Learning Elements

1. Distinguish between minerals and rocks.
2. Describe the rock cycle.

Learning Points

- Define mineral.
- Identify example of minerals and their uses.
- Describe the three types of rocks.



The Globe We Live On: *Erosion*

NAD Strand 4: Earth and Space Science

Essential Learning Elements

1. Define erosion.

Learning Points

- Explain how erosion occurs.

The Globe We Live On: *Soil Pollution*

NAD Strand 4: Earth and Space Science

Essential Learning Elements

1. Describe soil pollution.

Learning Points

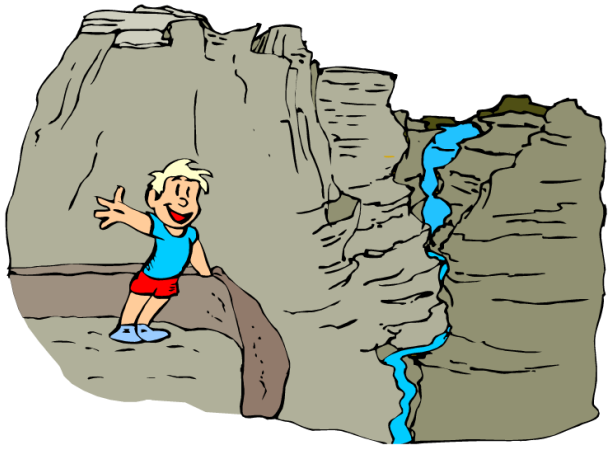
- Describe the compost of soil.
- Explain why good soil is important.
- Describe soil pollution.

Lesson 1: Earth's Features

Key Learning Elements Covered:

- *Easy:*
  Students will identify and recognize the shape of the Earth.

- Medium/Advanced:
  Describe the surface features of Earth.



Materials Needed

- *Earth's Features* Prezi
- *Find the Feature* Game
- *Salt Clay Recipe* Sheet
- Water Paint
- *Earth's Features Vocabulary Words* Worksheet
- *Complete the Feature* Student Worksheet
- *Complete the Feature* Teacher Answer Worksheet

Introduction

Genesis 1:9,10, *NIV Bible*, says ". . . Let the water under the sky be gathered to one place, and let dry ground appear. . .God called the dry ground land, and the gathered waters he called seas. . ." From the beginning of time there has been the formation of different features in the Earth. Genesis 1:11, *NIV Bible*, goes on to say ". . . Let the land produce vegetation: seed-bearing plants and trees on the land that bear fruit with seed in it. . . " showing us that God then added vegetation. Thousands of years later, we stand on this globe called Earth and marvel at the different types of landforms and features that we see – some of which have been term "wonders of the world." What a marvelous God we serve that many years ago he created structures that today would be a point of fascination for us.

Procedure

- Discuss the fact that the Earth is made up of land, water, and air.
- Discuss the different features found on earth.
- Easy:
  - Show students a globe depiction of the Earth.
  - Have students identify the shape (circle).
  - Ask students what objects in their classroom are the same as a globe.
- Allow students to view the Prezi *Earth's Features*. Discuss the different types of landforms listed on the Prezi.
- Distribute *Earth's Features Vocabulary Words* Worksheet to reinforce the different landforms viewed.

- Play the game *Find the Feature.* See insert.
- Distribute Salt Clay to the students and have students build some of the features on their desks. Play Doh can be used in place of Salt Clay but it will not be a permanent structure as it will not harden like the salt clay. Salt Clay needs to be made ahead of time in preparation for this lesson.

Evaluation

Easy

Observe hand/eye coordination of each student as he/she works with their clay to create the item. Note if the student follows instructions accurately for what needs to be done. Have students draw the shape that is the same as the Earth (circle).

Medium

Observe hand/eye coordination of each student as he/she works with their clay to create the item. Note if the student follows instructions accurately for what needs to be done. Students need to correctly label the feature they have created.

Advanced

Observe hand/eye coordination of each student as he/she works with their clay to create the item. Note if the student follows instructions accurately for what needs to be done. Students need to correctly label the feature they have created. Students must write a paragraph about the feature they have created.

Homework

Easy:
With the help of a parent, student needs to find pictures of five of the features discussed and carefully glue them onto a poster board. Each picture should have the name.

Medium:
Students must draw pictures of the features listed on the *Vocabulary Sheet.* Pictures must be labelled and have the definition of each feature in addition to the name. This must be put together to make a small booklet.

Advanced:
Distribute the *Complete the Feature* Student Worksheet. Students need to match the syllables of the words to form the name of a feature. Some of the word are new – not covered in class – and they must extend themselves to find the answers for these. Students must then draw pictures of the features listed on this sheet. Pictures must be labelled and have the definition of each feature in addition to the name. This must be put together to make a small booklet.

Cross-Curricular Links

Art
Students will create a feature of Earth using a molding medium (in this case the clay).

Bible
Isaiah 64:8 *NIV Bible*: "Yet, O Lord, You are our Father; we are the clay and you our Potter, and we all are the work of your hand."
As you are focusing on sculpting the clay into various forms, make the parallel with how the Lord is the ultimate Potter and he forms us into what He needs us to be. Also show the care God took to actually create man. Students must compare and contrast how their creation is similar to and different from God's creation.

Languages Arts
Have students read Genesis 1 and 2 and then compare and contrast the similarities and differences between how God created the animals and how God created humans. Have them say why they think there was a difference in creation methods.
-Modification: For classes where students are not yet able to read, have them gather together and read the story for them.

Earth's Features
Vocabulary Words

Solid Features

- **Mountains/Hills:** the natural slope of the surface of the Earth. Mountains rise higher and steeper than hills.
- **Valleys:** these are the depressions found between mountains and hills. Streams of water tend to flow through valleys.
- **Deserts:** this is an area where there is little to no rain and almost nothing grows. It is mainly covered in sand.
- **Oasis:** this is an area in a desert that has a spring of water and plants can easily grow there.
- **Plains:** these are flat grassy areas of land on which animals can graze.
- **Forests:** this is a large piece of land covered by many trees and lots of underbrush.
- **Glacier:** this is a large sheet of ice formed from snow falling over many years.

Liquid Features

- **Oceans:** these are large salt water bodies that cover about 75% of the Earth.
- **Rivers:** these are large fresh water streams of water flowing along a certain course into which other bodies of fresh water flow.
- **Tributary:** this is a stream that flows into another stream or larger body of water.
- **Lake:** this is a large fresh water body of water surrounded by land on all sides.

Find the Feature Game

Find the Feature Game

Aim of Game:

- Students must accurately identify a feature of Earth before the other team does.

Instructions:

1. Attach the eleven (11) pictures below to the board at student reach level.
2. Split the class into two teams – Team A &B.
3. Call out the name of a feature.
4. One person from each team will run at the same time to the board to identify the feature correctly.
5. The person who identifies the features first gets the point for their team.
6. The team with the most points wins the games.

Note:

Use the pictures on the next six (6) pages for the game. These images correspond with the Prezi the students just viewed but you can choose other images if you want to.

Salt Clay Recipe

Ingredients:

- 2 cups flour
- 1 cup salt
- 1 cup water

Directions:

1. Mix ingredients together in a bowl.
2. Knead dough until smooth.
3. Cut dough into pieces for each student.
4. Distribute to students.

Drying

Air Dry

1. Place student work in a dry area away from contact with others and leave to dry.
2. Allow two to three days to dry and harden.

Oven Dry

1. Pre-heat oven to 350^{o}.
2. Place student work on a baking sheet and place in the oven.
3. Leave dough in the oven until hardened.
4. Remove from the oven and place in a cool place away from others so that it can cool.

Note:

If you want to make colored Salt Clay, add a drop of food coloring to the water prior to mixing to give it a tint of any desired color.

Student Worksheet

Name: _____ **Date: _____**

Complete the Feature

Draw a line from one syllable to the other to complete the word. Write the completed word on the line. Some of these are new words not covered in class. Use the Internet to search the answers.

plat	goon	→	**lagoon**
La	eau	→	_____
Glac	a	→	_____
Mes	cean	→	_____
O	er	→	_____
Riv	ier	→	_____
Moun	land	→	_____
Can	ley	→	_____
Is	tain	→	_____
Val	yon	→	_____

Teacher Answer Sheet

Name: _____ **Date: _____**

Complete the Feature

Draw a line from one syllable to the other to complete the word. Write the completed word on the line. Some of these are new words not covered in class. Use the Internet to search the answers.

plat	goon	→	**lagoon**
La	eau	→	**plateau**
glac	a	→	**mesa**
mes	cean	→	**ocean**
o	er	→	**river**
Riv	ier	→	**glacier**
moun	land	→	**island**
can	ley	→	**valley**
Is	tain	→	**mountain**
Val	yon	→	**canyon**

Lesson 2: The Flood

This lesson is completed entirely via WebQuest. Access the WebQuest file associated with this lesson entitled *The Genesis Flood* and follow the instructions on screen.

This topic is covered at the Advanced level. Students will work in pairs for this assignment. By the end of the WebQuest, the student would have covered the information listed in the objectives below.

Key Learning Elements Covered:

- Easy/Medium:
  - Discuss why God sent the Flood in Bible times.
- Advanced:
  - Identify evidence of the Flood.
  - Describe how the Flood affected Earth.

Materials Needed

- Computer with internet access
- Noah's Ark Coloring Sheet
- After the Flood Coloring Sheet
- *The Genesis Flood* WebQuest
- *WebQuesting in Lesson 2* (Teacher Video)
- *WebQuesting in Lesson 2* (Student Video)

Introduction

The Lord was not pleased with the level of sin that He saw on the Earth in the time of Noah and He figured it was time to hit the reset button and start things over. Genesis 6: 5-7, *KJV Bible* says "And God saw the wickedness of man was great in the earth, and that every imagination of the thoughts of his heart was only evil continually. And it repented the Lord that he had made man on the earth, and it grieved him at his heart. And the Lord said, I will destroy man whom I have created from the face of the earth; both man, and beast, and the creeping thing, and the fowls of the air; for it repenteth me that I have made them." He tasked Noah with job of building an Ark and preaching to those he came in contact with. Today, many people try to discredit the actuality of there being a worldwide Flood mainly on the basis that it is an incredible notion.

In spite of what people say, more and more evidence is being found to support the concept of a worldwide flood. Fossils are being found in strange places wherein they are normally nonexistent such as at the bottom of oceans and lakes. These show that there had to have been a major catastrophic event in the past.

Procedure

- Watch the *WebQuesting in Lesson 2* video to familiarize yourself with this WebQuest.
- Have students watch *WebQuesting in Lesson 2* to familiarize themselves with this WebQuest.

Easy/Medium

- Read the story of the Noah's Ark and the Flood preferably from a children friendly Bible.
- Discuss why God sent a flood to destroy the Earth.
- Discuss how we know that there will never be another Flood again.
- Easy: Distribute *Noah's Ark Coloring Sheet* and have students color the picture depicting Noah in the Ark during the flood.
- Medium: Distribute *After the Flood Coloring Sheet* and have students color the picture. They also must add the symbol (Rainbow) that God gave that there would never be a flood again.

Advanced

- Take students to the computer lab or cluster them around classroom computers. If there are not enough computers in the room, project images onto a screen so that everyone can view it.
- Have students load the WebQuest on to the computer and guide them through the different sections of the site.
- Ensure that students understand what is being required of them in the WebQuest.

Evaluation

Students will present their findings from the WebQuest using a poster board sized paper. All the instructions and rubrics for scoring are outlined online for clarity.

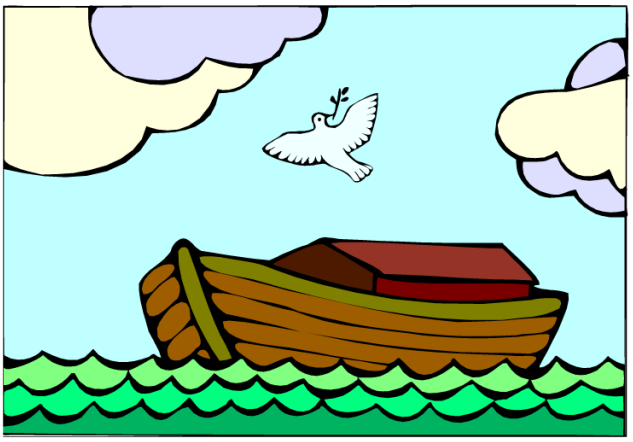
Homework

Homework for this lesson is ongoing during the time the WebQuest is being done as the project will take more than one day for research and presentation preparation.

Cross-Curricular Links

Language Arts

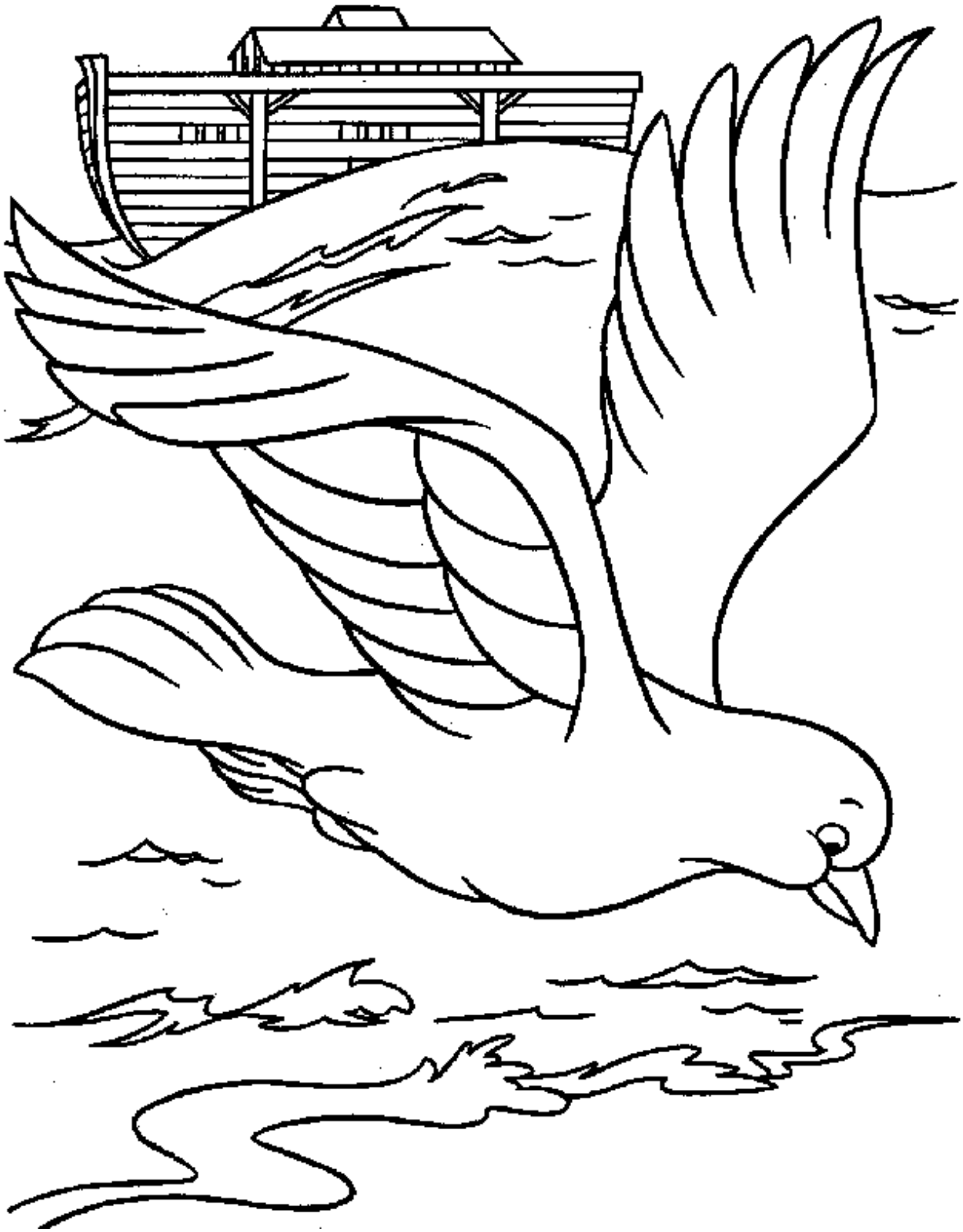
Students will read, analyze, and synthesize data online in order to put together a comprehensive report on information found.



Noah's Ark Coloring Sheet

Noah's Ark

After the Flood



Lesson 3: Earthquakes

Key Learning Elements Covered:

- *Easy:*
  - Students will be able to explain how the earth looks when affected by an earthquake.
  - Discuss earthquake safety procedures.
- *Medium:*
  - Students will identify the causes and effects of earthquakes.
- *Advanced:*
  - Compare and contrast types of earthquake waves.
  - Describe how earthquakes are measured.

Materials Needed

- *Earthquake* Video
- *Earthquake Safety* Sheet
- *Earthquake Formation* Sheet

Introduction

An earthquake occurs when rocks are broken due to high levels of stress underground. Where the rock actually breaks is known as the focus of the earthquake. When the focus area reaches the surface it is called the earthquake epicenter and it is here that most damage occurs. The great vibrations in the earth cause waves, both above and below ground, to form. We tend to see these waves as tidal waves and tsunamis. Other surface waves cause buildings to sway and roads to crack and break. Once an earthquake has passed, we also have what are known as aftershocks. Aftershocks can occur up to a day later and actually cause more damage than the original earthquake. Both aftershocks and tsunamis cause great damage and are very hard to clean up.

The Bible says that in the end times, "there will be mighty and violent earthquakes, and in various places famines and pestilences; and there will be sights of terror and great sights from heaven" Luke 21:11, *Amplified Bible*. We shall see earthquakes that are like none other as the end of time comes – earthquakes that make the one in Haiti look small.

Similar to how an orange has an outer peel, the Earth also has an outer peel known as the crust. Unlike the orange, though, the Earth's crust moves slowly. Most of this movement occurs along faults – cracks in the Earth's crust. The largest part of the plates are called tectonic plates. If a fault is under stress, it

ruptures and we feel a shake. Ruptures occur when two plates slip quickly by each other. Faults are weak spots and it is because of these weak spots that earthquakes occur at these points.

Procedure

- Compare the Earth's crust to an orange peel that moves while still on the orange.
- Discuss and explain the fact that faults are the weak points in Earth's crust. Have students think of a glass that has a crack it. Ask them which type of glass is better – one with the crack or a new one? Explain to them that the cracked glass is easier to break and so it is with the faults in the earth – as they move together, it is easier for damage to occur as the ground is weaker
- Discuss that the plates that meet at the fault lines are known as tectonic plates.
- Compare an earthquake to throwing a stick into water and watching the ripples and how when a fault breaks, it snaps and causes ripples in the ground that we feel as an earthquake.
- Show the *Earthquake* video.
- Distribute the *Earthquake Safety* Sheet.
- Advanced: Discuss the different type of waves that cause earthquakes.
    - Primary (P) Waves: These are push and pull waves that resemble sound waves. With these type of waves, each particle vibrates in the same direction of the wave. P waves pass through gases, liquids, and solids. These are the fastest type of waves.
    - Secondary (S) Waves: The particles in these waves vibrate at right angles to wave. S waves can only pass through solids.
    - Surface (L) Waves: These are the last set of waves to reach the earth's surface. L waves are very destructive.
    - Introduce the concept of the Richter Scale and explain how it is used to measure the intensity of the different types of earthquake waves.

Evaluation

Easy

Have students say and demonstrate what to do in the event an earthquake occurred while they were in the classroom. Ask them where they could hide if they were at home.

Medium

Students will need to correctly answer age appropriate questions on:

1. How earthquakes are formed.
2. How to stay safe in the event of an earthquake.

Once questions are answered correctly, have students work in groups to create either a song or poem to explain the answers to the questions above.

Advanced

Distribute *Earthquake Formation* Sheet. Students will color the pictures on the sheet and then cut them out. They will paste them onto construction paper and use them to create a paragraph of how earthquakes are formed.

Homework

Easy:
Take home the Earthquake Safety sheet and stick it on a visible wall in your house. With the help of your parents, practice the different ways to stay safe during an earthquake.

Medium:
Write a letter to a friend in which you explain the different things you should do in order to stay safe during an earthquake.

Advanced:
Use the Internet to find more information on P, S, and L waves. Write two paragraphs in which you say how these waves are similar and in which you say how they are different.

Cross-Curricular Links

Language Arts
Go through the part of a letter in order for students to create a friendly letter about earthquake safety. Students will also have to make poetry and use proper writing techniques in order to write a paragraph.

Music
Students will be given the opportunity to create a song to explain their work.

Earthquake Safety

Avoid being near these objects if you feel an earthquake!

- Tall and skinny objects – tall objects fall over, short objects slide from side to side.
- Stone chimneys.
- Big grandfather clocks in your house or in a building. They are tall and skinny.
- Cupboards that have items inside that can fall out and hit you on the head.
- The higher in a house you go the greater the shaking will be felt, so objects are more dangerous on the 3rd floor than the 1st floor.
- Cupboards that have chemicals in them than can fall, burst, and harm you.
- Any object that can fall off of shelves and hit you.
- Glass windows.



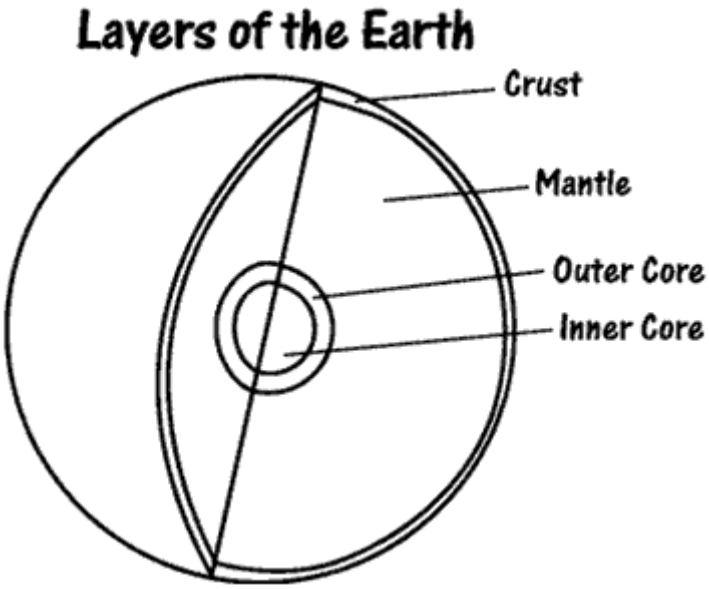


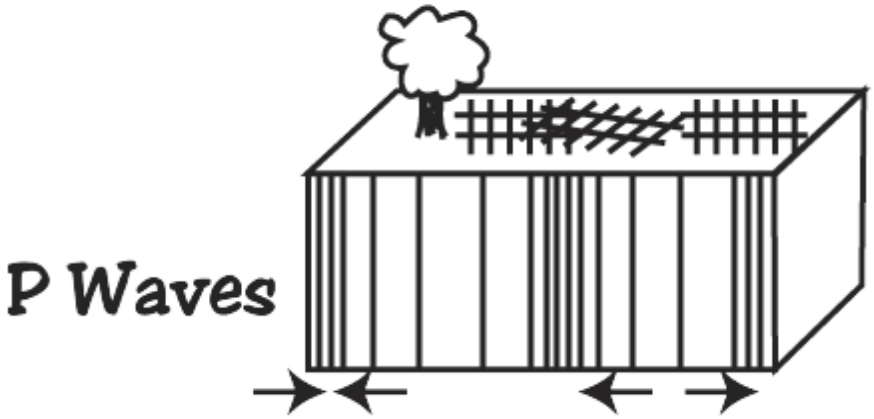
Always:

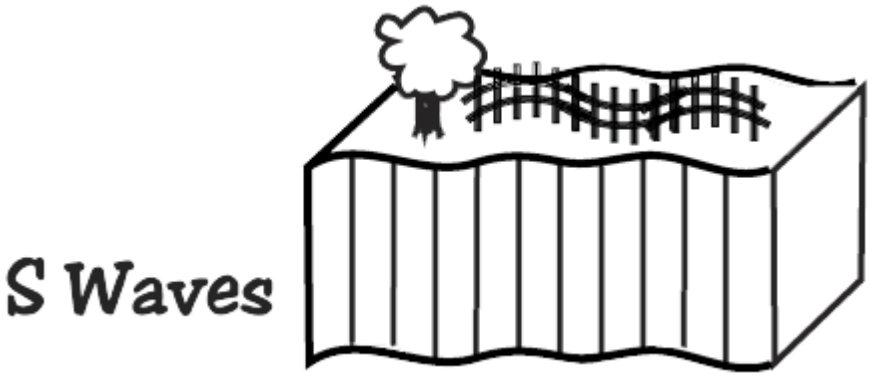
- Climb under a table and hold on to it.
- Lean against a wall away from objects if you have no table.
- Stay in your safe spot. Do not walk around.
- If you are outside, stay away from buildings.
- Beware of power lines, tress, lights, and possible fires!

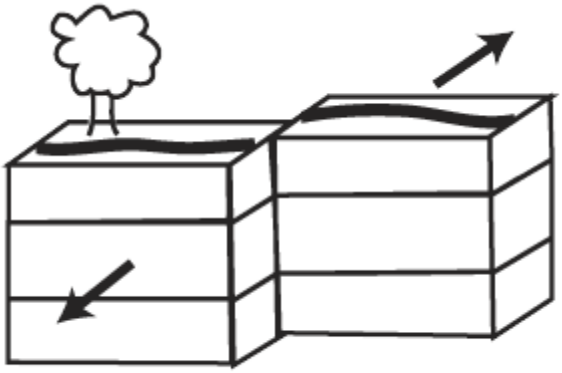
Earthquake Formation

Color the pictures below. Cut them out and paste them on construction paper, in order to create a paragraph to explain how earthquakes are formed.

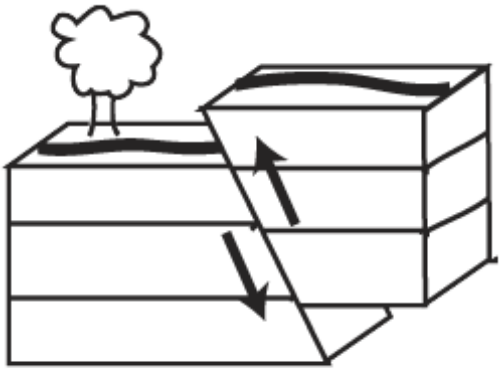




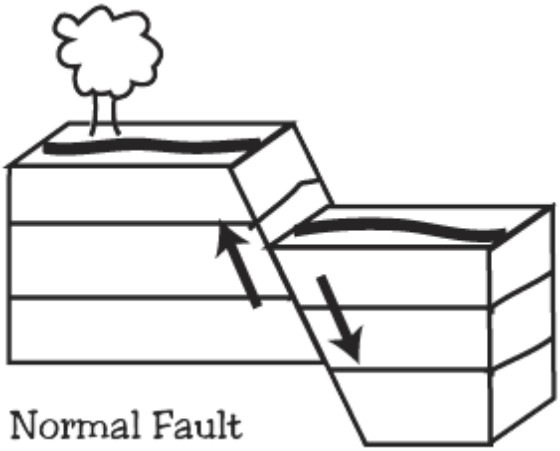




Strike-slip Fault



Thrust Fault



Normal Fault

Lesson 4: Volcanoes

Key Learning Elements Covered:

- *Easy:*
  - Students will be able to explain how the Earth looks when affected by a volcano.
- *Medium:*
  - Students will identify the causes and effects of volcanoes.
- *Advanced:*
  - Students will build a volcano model and use it to explain how volcanoes affect the Earth.

Materials Needed

- *Volcano Eruption* video
- "V" Letter Trace Worksheet
- Build a Volcano Worksheet
- Volcano Report Cover
- Volcanic Poetry Worksheet
- Volcano In A Cup Worksheet

Introduction

A volcano is an opening in the Earth's surface that allows hot magma, gases and volcanic ash to escape from below the surface. Volcanoes are caused when the different plates in the Earth's crust move towards or away from each other. When this occurs, magma is released from the Earth's core. Volcanoes are very dangerous, but despite the damage they cause, volcanoes are indeed a beauty.

Most volcanoes today are dormant and it is in this state that they are safe. However, when the Earth gets too hot and the layers of the Earth shift, hot liquid, called magma, finds a path of escape through vents and shafts found in the form of volcanoes. The Bible speaks of fire and blasting under the earth as we go about our day-to-day activities. This is how magma in the Earth's crust flows. "As for the Earth, out of it comes bread, but underneath [its surface, down deep in the mine] there is blasting, turning it up as by fire," Job 28:5, *Amplified Bible.*

Procedure

- Watch the introduction video on volcanoes. (*Volcano Eruption)*
- Discuss how a volcano is formed.

- Discuss what happens to the area around a volcano after if erupts. Liken a volcano erupting to shaking up a bottle of soda and then opening it.
- Easy: Use the *Build a Volcano* sheet to create an example in class of an erupting volcano. Explain to students what the different parts represent.
- Medium/Advanced: Place students in groups and give them a volcano model each. Pre-measure the components and have them take turns adding them into the volcano mixture. Based on the video, have them identify the parts of the volcano they made in class to the volcano seen in the *Volcano Eruption* video.

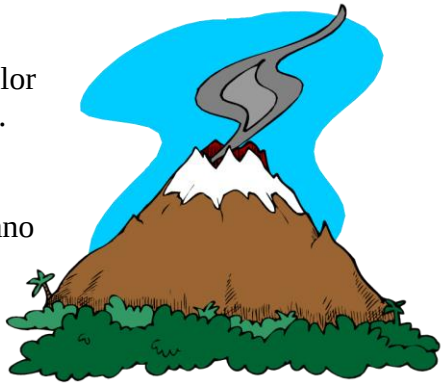
Vocabulary

- Active: the stage when a volcano can erupt.
- Heat: energy given off by a volcano making it hot.
- Plates: different sheets that make up the surface of the Earth.
- Core: the center of the Earth. It is hot and liquid.
- Inactive: the stage when a volcano has no energy and will not erupt.
- Vents: small shafts in the cone of a volcano through which heat, steam and gases escape.
- Crater: a bowl-shaped depression with a raised edge.
- Lava: the molten, fluid rock that leaves a volcano or a vent.
- Volcano: a vent in the earth's crust through which lava, steam, and ash shoot out.
- Crust: the other layer of the Earth. This is the part that we live on.
- Mantle: the part of the Earth that is found between the outer crust and the center core.
- Eruption: the ejection of molten rock, steam, and ash from a volcano.
- Molten rock: super-hot rock that reaches temperatures so high that it melts.
- Flow: the movement of a liquid from one place to another.
- Mountain: the natural elevation of the Earth's surface, rising more or less abruptly to a summit.

Evaluation

Easy
Students will complete writing worksheets tracing the letter "V" and spelling out the word "Volcano." They will practice their letter formation and letter association to make words.

Medium
Students will look draw a picture of a volcano erupting. They must color it and write three sentence explaining what it happening in the picture.



Advanced
Distribute the *Volcano Report Cover*. Students need to color the volcano picture on the cover in appropriate colors and then accurately label the different parts of the volcano. This will be used as the cover for their write up for the volcano they build.

Homework

Easy:
Students will color a volcano and write the word "Volcano" underneath the picture.

Medium:
Distribute the *Volcanic Poetry* Worksheet. Students will create an acrostic poem and draw a picture of a volcano.

Advanced:
Distribute *Build a Volcano* worksheet to each student. They must create a volcano diorama and write an explanation of what happens to the land and living things in the area around where a volcano erupts. Write a short report on what causes a volcano to erupt. State the name of the tallest volcano and where it is located.

Cross-Curricular Links

Bible
Find and read Job 28:5 in the *Amplified Bible*. Create a visual depiction of the text. Try not to draw the items but use items around your house to represent the different items or cut out shapes using construction paper and stick them to paper.

Volcano In A Cup

Things You Will Need

- Styrofoam cup
- Red food coloring
- Baking soda
- Vinegar
- Plastic wrap
- Rubber bands

Pre-Lesson Discussion

- Talk to the students about forces of nature and have them come up with a list of natural forces (ex: floods, hurricanes, lightning hitting buildings, volcanoes, and tornadoes).
- Ask students if they have been part of a natural disaster before. If they are not sure, ask them where they were during Hurricane Sandy.
- Ask students if they know what to do during a natural disaster – use a natural disaster that occurred in your area recently.

Procedure

1. Give each student a cup, rubber band, and a small piece of plastic wrap.
2. Take the cup and cut off the small bottom piece of the cup.
3. Take the small piece of plastic wrap and cover the top with it.
4. Use the rubber band to hold the plastic wrap on.
5. Hold the cup with the plastic wrap covered part on the bottom.
6. Put a few drops of food coloring in the bottom.
7. Put a teaspoon of vinegar in each one and watch the reaction occur.

Discussion

1. Discuss how lava gets hot and how it burns forests and houses and everything in its path.
2. Talk about the biggest volcanoes and have students write book reports on different volcanoes in the world.
3. Tell me one thing you learned today that before this you did not know.
4. Make a picture of a volcano and write the new information that you have learned today. Or write a volcano fact that you learned today. Such as the highest, oldest, or last known volcano to erupt.

"V" Letter Trace Worksheet

Name: _____ **Date: _____**

Trace the letter V.

V is for Volcano

V V V V V V V V

V V V V V V V V

Trace the word Volcano

Volcano Volcano

Volcano Volcano

Volcano Color Sheet

Name: _____ Date: _____

Color the picture of Dora and Boots by the volcano. Trace the word below. Color the letter V.

Vv

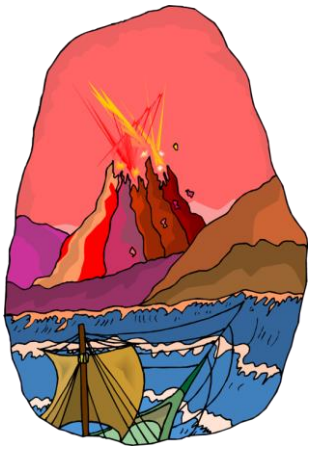
Volcano

Build a Volcano

Things You'll Need

- Baking pan or large tray
- 6 cups flour
- 2 cups salt
- 4 tbsp. cooking oil
- Funnel
- 2 cups warm water
- 16 oz. plastic bottle
- 2 cups water
- 2 tbsp. baking soda
- 1/4 cup vinegar
- Few drops orange, green, brown food coloring
- Few drops of detergent

Instructions



1. Create a flour dough to build the volcanic mountain. Mix six cups of flour, two cups of salt, four tablespoons cooking oil and two cups of warm water together. Add green or brown food coloring to the mixture. Stir with a spoon or mix by hand until the mixture is smooth and firm like play dough. Add more water if needed.

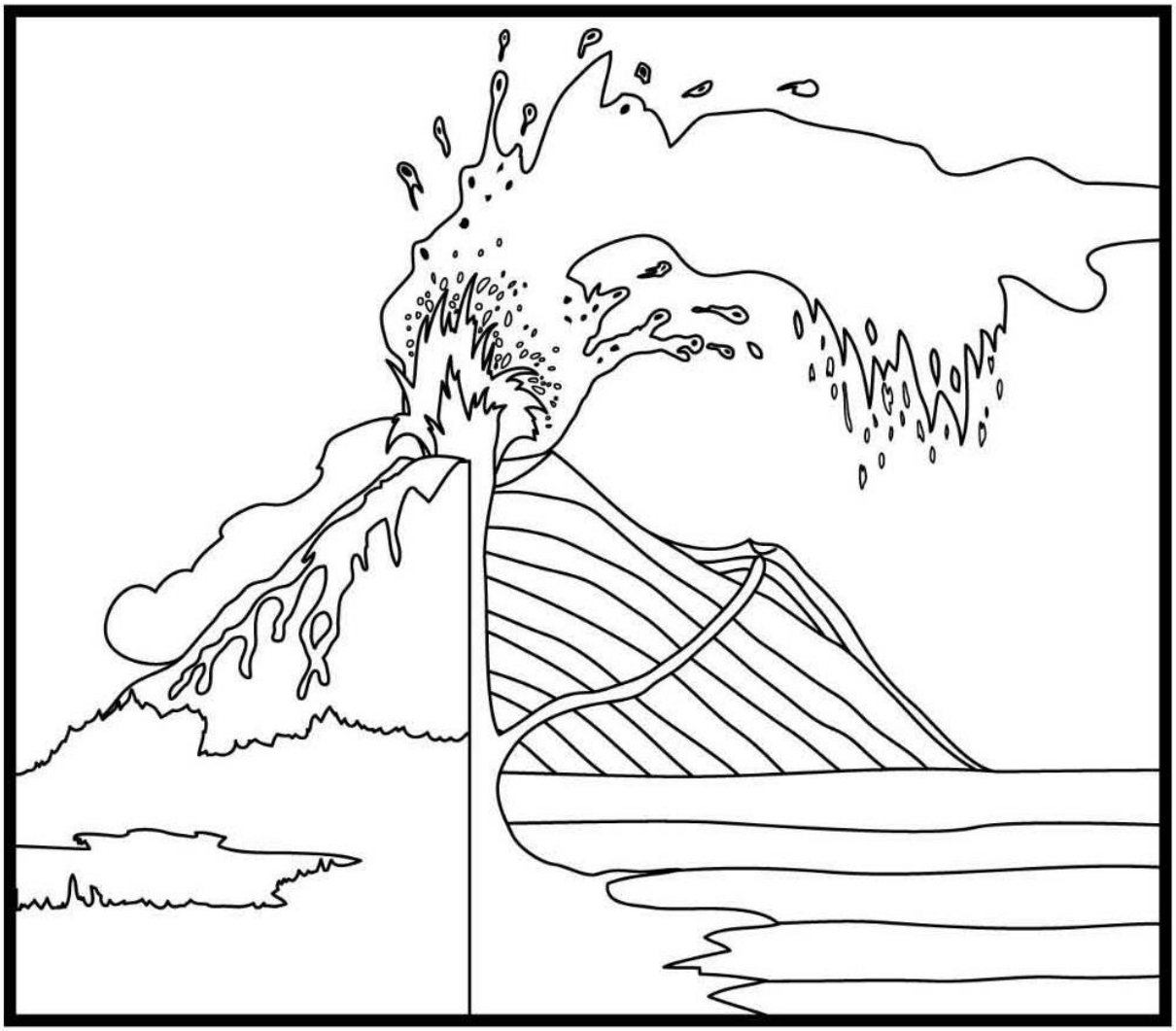
2. Place the plastic bottle in the middle of the baking pan or on a large tray. Mold the dough mixture into a mountain shape around the bottle. Leave the top of the bottle open and be careful not to drop any dough into the bottle. Shape a channel or ridge in the mountain for the lava flow.

3. Move this project to a waterproof area or outside. Use a funnel to add ingredients to the bottle. Pour about two cups of warm water into the bottle. Add a few drops of orange food coloring, six drops of liquid detergent and two tablespoons of baking soda into the bottle. Wait a few minutes for the above ingredients to mix. Slowly pour vinegar into the bottle.

4. Watch the chemical reaction as liquid bubbles flow out of the bottle and down your mountain. This is a chemical reaction that is happening between the baking soda and vinegar.

5. To reuse this project, carefully pour all the liquid off the project and dry. Use different colors of food coloring to create different effects. To make a larger display, increase the ingredients proportionately. The diorama of the volcanic mountain can be enhanced with small trees, houses, or dinosaurs.

Volcano Report Cover



Volcanoes

Name: _____

Date: _____

Name: _____ Date: _____

Volcanic Poetry

Draw a picture of a volcano and then create a poem beginning each line of the poem with the letters in the word VOLCANO.

V
O
L
C
A
N
O

Lesson 5: Minerals & Rocks

Key Learning Elements Covered:

- Easy:
  - Understand the difference between minerals and rocks.

- Medium:
  - Give examples of minerals and their uses.

- Advanced:
  - Describe three types of rocks.
  - Describe the rock cycle.

Materials Needed

- Adventurer Award: Geologist Worksheet
- Crystal Garden Worksheet
- *Real World Science: Rocks and Minerals* video
- Rock Cycle Worksheet
- *Rocks and Minerals* Prezi

Introduction

Although we don't see it easily, rocks go through many changes. These changes happen over many years as opposed to overnight or during a week. Rocks affect all living things – us included. There are three main types of rocks – igneous, sedimentary, and metamorphic. Mineral crystals are formed when volcano lava cools to form igneous rocks. How fast or slowly an igneous rock cools will determine the size of the minerals in it. If there is slow cooling large crystals will form, and fast cooling forms small crystals.

Minerals have different functions and purposes based on the properties they have. Minerals are needed for the body to function properly and are needed for you to be healthy. Furthering this, some minerals are precious stones. In the Bible we see these precious minerals and stones being used in the making of the Priestly Garments in Exodus 39. Deuteronomy 8:6, 7, 9 also admonishes us to "Observe the commands of the Lord your God walking in obedience to him and revering him. For the Lord your God is bringing you into a good land . . . a land where break will not scarce and you will lack nothing; a land where the rocks are iron and you can dig copper out of the hills, " *NIV Bible.*

Procedure

- Discuss the different types of rocks and how minerals are formed from rocks.
- Discuss the different types of minerals and their functions.
- Show the video *Real World Science: Rocks and Minerals.*

- Explain that minerals are a part of basic nutrition and we every living thing needs minerals to survive and thrive.
- Easy/Medium Have students build a crystal garden using the *Build a Crystal Worksheet* (Adventurer Award #2). Explain why crystals form. Have them choose the color crystal they want to make. Be careful with the pre-mixing of the chemicals as you are working with hot water and children.
- Advanced: Discuss how the rock cycle occurs and how one type of rock is converted to another. Distribute *Rock Cycle Worksheet.*

Evaluation

Easy:
Students must participate in all aspects of the discussion and the class activity. They should cover #1 & 4 of the Adventurer Geologist Award. *(See insert)*

Medium:
Students must participate in all aspects of the discussion and the class activity. They should be able to explain why crystals form. They should cover #1 & 4 of the Adventurer Geologist Award. *(See insert)*

Advanced:
Sit in groups and create a simplified diagram of how rocks change from one type to the other.

Homework

Easy/Medium:
Use the *Adventurer Award: Geologist Worksheet* to complete #3 & 5

Advanced:
Use the *Rock Cycle Worksheet* to explain what happens in the rock cycle.

Cross-Curricular Links

Bible
Use the *Adventurer Award: Geologist Worksheet* to complete #1 & 4.

Field Trip
Use the *Adventurer Award: Geologist Worksheet* to complete #3.

Art
Use the *Adventurer Award: Geologist Worksheet* to complete #2 & 5.

Build a Crystal Garden

Crystal Gardens are fun to make and young children get excited watching the crystals form. You can make a crystal garden using table salt or Epsom salt. The choice is yours!

Table Salt Garden

You will need

- Hot water
- Table salt
- Ammonia
- Bluing
- Mixing bowl
- Spoon
- Glass jar or bowl
- Rock, rough

Instructions

1. Heat one to two cups of water to boiling and transfer it to a mixing bowl. You can heat the water in a microwave or on a stove.
2. Pour equal amounts of table salt, ammonia and bluing into the water, stirring as you pour. For example, for every one cup of water you use, add one cup of salt, one cup of ammonia and one cup of bluing. Stir until you saturate the water and no more salt will dissolve. You can add more salt as necessary.
3. Place a rough rock into the bottom of a glass jar or bowl and pour the saturated solution over the rock. The rock will give the crystals a place to start growing. You can also use frayed cotton string or a seed crystal of the same substance if you do not have a rough rock. Tumbled, or polished, rocks do not work well for crystal gardens.
4. Place the jar on a counter at room temperature. Check the solution in six hours. Salt crystals will begin to form quickly, and increase in size over the next three days. Let the solution sit until the crystals are as large as they will grow. You will know that the crystals are finished growing when they do not increase in size over a 24-hour period.
5. Pour any remaining solution out of the jar or bowl once the crystals are fully grown.

Epsom Salt Gardens

You will need

- Hot water
- Ammonia
- Bluing
- Mixing bowl
- Spoon
- Glass jar or bowl
- Rock, rough
- Epsom salt

Instructions

1. Heat one to two cups of water and transfer it to a mixing bowl. Do not boil the water.
2. Pour an equal amount of Epsom salt into the water, stirring as you pour. For example, for every one cup of water you use, add one cup of Epsom salt. Stir until you saturate the water and no more Epsom salt will dissolve. Add more Epsom salt to the solution as needed.
3. Pour the saturated solution over the rock. The rock will give the crystals a place to start growing. You can also use frayed cotton string or a seed crystal of the same substance if you do not have a rough rock. Tumbled, or polished, rocks do not work well for crystal gardens.
4. Place the garden into the refrigerator. Check the solution in two to three hours. The Epsom salt crystals will begin to form quickly. Let the solution sit until the crystals are as large as they will grow. You will know that the crystals finished growing when they do not increase in size over a 24-hour period.
5. Pour any excess solution out of the jar or bowl once the crystals are fully grown.

Geologist

Category: Nature

Item Number: YOU4690

Originating Institution: General Conference

Requirements:

1. Tell what a geologist does.
   Recite a text in the Bible that tells about rocks or minerals. Tell a Bible story about a time when rocks or stones were used.

2. Experiment with soil, sand, gravel, rocks, and water, OR make a crystal garden.

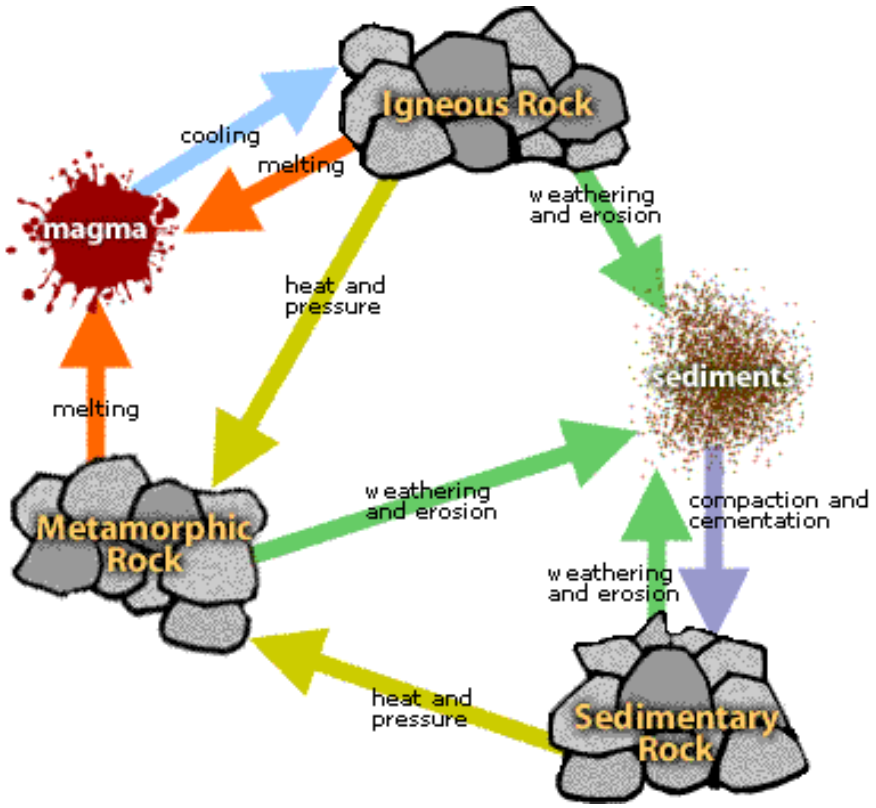
3. With an adult, go on a field trip and collect different types of rocks or minerals. See how many different types, shapes, colors, and textures you can find. Make a collection of five different rocks and label them to tell where you found them.

4. With a group, read Revelation 21.
   a. Use an encyclopedia or other reference book to find out about the precious stones listed in the text.
   b. Make a colored drawing of the heavenly city.

5. Use stones or rocks to make an art object or painted rock.

Rock Cycle Worksheet

What Happens in the Rock Cycle?



Explain what is happening in the picture above.

Lesson 6: Erosion

Key Learning Elements Covered:

- Easy/Medium:
  - Students will understand the concept of erosion.
- Advanced:
  - Students will understand the role that humans play in erosion.

Materials Needed

- *Erosion* video.
- Erosion Game explanation sheet.
- *Creating a Podcast* Podcast
- Potted plant
- Soil
- Water
- Rocks
- Disposable aluminum pans
- Container for water
- Newspapers

Introduction

Erosion is the state in which the Earth's surface is worn away due to the movement of water, wind, waves, or glaciers moving over it. Erosion can turn one type of landform into another. For example, plateaus that are worn down turn into mesas. There are different ways to protect the Earth from erosion. One such was is by the planting of trees in order to hold the soil together. Trees are made up of roots, branches, and leaves. These tress act like an umbrella (a canopy) stopping the rain from hitting the ground heavily and the roots penetrate the soil and help hold it together like a mesh. With the increase in modernization, logging companies have removed trees to use them to make items like houses and paper goods. In doing this, the soil becomes exposed and hence becomes eroded. Furthering the erosion, landslides can occur.

Vocabulary

- Erosion – the removal or wearing away of soil or rock by wind or water of other forces or processes.
- Roots – the lower part of a plant that anchors the plant to the ground.
- Soil – the top layer of the Earth's surface in which plants grow. It contains organic and inorganic material along with living organisms.
- Slope/Elevation – the amount of which something is angled up or down.
- Canopy – the upper part of the forest where a continuous cover of branches and leaves is formed by the crowns of adjacent trees.
- Logging – the work of cutting forest trees for timber.

Procedure

- Discuss how erosion occurs.
- Easy:
    - Play the Erosion Game (see Game Instruction Sheet).
    - Follow discussion questions on the Game Sheet.
- Medium/Advanced:
    - Have students watch the video *Erosion* to introduce the concept of erosion. Have them view the effects of wind, water, and ice on rocks.
    - Take a potted plant out of the pot, with soil intact and discuss how the roots of the plant help to hold the soil in place.
    - Students will predict what they think will happen if the plant was not in a pot, but rather in the ground and water kept running over it.
    - Introduce the term erosion and discuss how wind, water, and ice can cause erosion. Ask students if and where they have ever seen the effects of erosion.
    - Take students outside and have them look for places where they see erosion in their playground. Have them pay special attention to areas near drain pipes.

In-Class Activity

1. Provide each pair of students with a disposable aluminum baking tray, enough soil to fill the tray, water, small container, newspapers and some rocks. Cover each working area with newspapers.
2. Instruct students to fill their tray with soil, patting down to firm in place. Position rocks in the soil so that they cannot move about freely.
3. Place the narrow side of the tray filled with soil and rocks on a book, so as to place the tray on a slant.
4. Next have one of the students pour little drops of water, starting at the highest part of the tray, so the water can run down the soil.
5. Ask students to notice if any changes are taking place in their trays. See if the soil or rocks are moving out of position.

6. Direct the other student to pour larger amounts of water at the highest part of the tray. Again, ask the students to describe what changes are taking place in the tray. Are they seeing signs of erosion?

Evaluation

Easy:

Have students draw pictures of the ground showing the effects of erosion.

Medium/Advanced:
Students need to explain the changes that take place in the tray during the in-class activity. They should explain if and where they saw erosion.

Homework

Medium/Advanced:

Use the internet to find cases of erosion due to the removal of trees. Also find organizations that are currently re-planting trees in communities. Why are these trees being re-planted? Be prepared to share your discoveries with your classmates at the next class.

Cross-Curricular Links

Computer
Students will use the internet to find information and use that information to make sensible and relevant conclusions.

Erosion Game

What you will need:

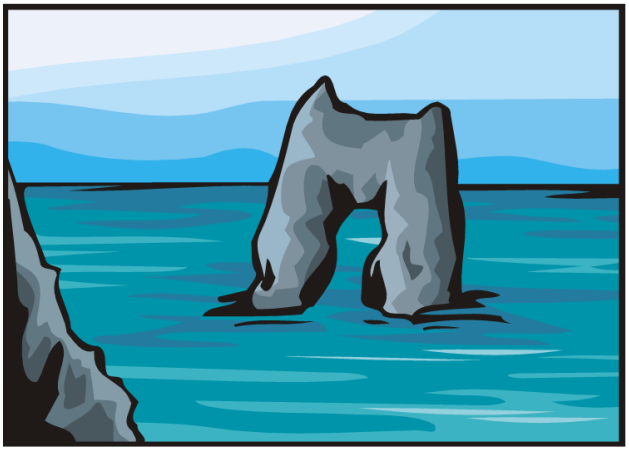
1. Large group of students
2. Three individual students

Instructions

1. Cluster the large group of students in the center of the room. This group is the mountain.
2. Have students stand on different level of stairs (or bleachers if you have them) to create the height of a mountain.
3. Assign each of the three (3) students a name – rain, wind, and ice. Explain to them that these are three forms of erosion.
4. Shout a weathering term – rain, wind, ice.
5. When the name is called, that assigned person must run to the mountain and remove one to three students (depending on the size of the mountain).
6. Eroded children must be scattered in various locations away from the mountain.
7. The game will carry on until the mountain has been "eroded" to a small hill size.

Discussion:

1. Explain that when a student was removed from the mountain, it showed how erosion takes place – small pieces removed over time.
2. Explain that in erosion, the eroded pieces can be scattered near and far from the original location.
3. Ask students to explain the process of erosion based on the game they just played.



Lesson 7: Soil (A Service-Learning Project)

Elementary Gardening

Key Learning Elements Covered:

- Advanced:
  - Describe the compost of soil.
  - Explain why good soil is important.
  - Describe soil pollution.

Materials Needed

- *Soil Testing* Video
- *What is Service Learning* Video
- Garden starter kit
- Seed packets
- Child size garden equipment
- Items for the celebration (utensils, plates, cups etc.)
- Items to cook meal (dependent on student choice)
- Read aloud books on vegetables, gardening, insects, earthworms, and taking care of the earth
- Watering cans or hose, or drip irrigation system

Introduction

Service-learning is a special teaching and learning strategy which integrates community service along with instruction and reflection in order to enrich the learning experience of a student. Additionally, it teaches civic responsibility along with building and strengthening communities. Students use what they learn in the classroom to solve real-life problems. They not only learn practical applications of their studies, but they also become active contributing citizens and community members through the service that they perform.

Procedure

Students will participate in a variety of activities surrounding a school garden.

- Have students watch the video *What is Service Learning*.
- Have students watch the video *Soil Testing* prior to starting the project.
- Students will study the components and inhabitants of the soil.

Fall Garden

- Students will plant lettuce and other winter vegetables. These will be based on what grows in their particular region and community.

Spring Garden

- Students will get together and choose, with the help of the teacher, a meal and plant the garden based on the needed ingredients.
- Students will grow the necessary plants in order to create lunch for another class in the school.

On-Going Meals

- Students will cook/prepare healthy snacks in order to show that vegetables taste good and are a good snack.
- Students will prepare monthly food items which correspond to a holiday or celebration.

Purpose

To create an understanding, tolerance, and love for vegetables and healthy eating within the school environment.

Presentation

- Students will prepare invitations, menus, and the meal for another class in the school.
- Students will create a video using Windows Movie Maker (of similar software available at the school) of the purpose of their project and include images of the stages of the growth of their plants.

Time Line

September

- Take students on a tour of the garden area.
- Have students look at the soil and discuss the importance of insects and worms in the soil.
- Test soil for nutrient levels.
- Put compost in the garden.
- Plant lettuce and winter plants.
- Begin garden journal and take regular activities.
- Food: Make a meal for Hispanic Heritage month.

October

- Continue to water plants.
- Take pictures of plant growth.
- Journal observation in the garden.
- Keep adding compost.

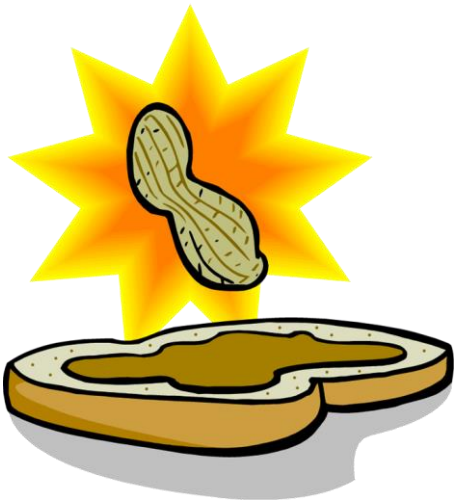
November

- Continue to water plants.
- Take pictures of plant growth.

- Journal observation in the garden.
- Keep adding compost.
- Plant paper whites in classroom to give as holiday gifts.
- Food: Make a meal for Native American Heritage month and/or Thanksgiving.

December

- Continue to water plants.
- Take pictures of plant growth.
- Journal observation in the garden.
- Keep adding compost.
- Observe, journal and take pictures of paper whites.



January

- Continue to water plants.
- Take pictures of plant growth.
- Journal observation in the garden.
- Keep adding compost.
- Food: Make a meal for Chinese New Year.

February

- Continue to water plants.
- Take pictures of plant growth.
- Journal observation in the garden.
- Keep adding compost.
- Discuss what meal students want to create for their cooperating class.
- Create menus.
- Food: Make a meal for Black History month (peanut butter is a good choice).

March

- Discuss what vegetables we need to plant for our meal.
- Plant seeds indoors in decomposable containers.
- Garden ABC big book to give to kindergarten classrooms (7 copies).
- Food: Make a meal for Dr. Seuss' birthday (green eggs and ham) and a rice drink in honor of C. Chavez's birthday.

April

- Water vegetables.
- Observe plant growth.
- Continue to compost.
- Start to plan Movie Maker presentation.

May

- Water vegetables.
- Observe plant growth.
- Continue to compost.
- Work on Hyper Studio presentation.
- Create recipes for meal.
- Food: Make a meal for Cinco de Mayo.

June

- Celebration.
- End of the year assessments.
- End of the year evaluation.
- Write invitations.
- Create cookbook/recipe book of all the recipes used during the year.

Evaluation

On –going activities will include, but are not limited to:

- Garden related read alouds and writing assignments,
- Shared reading with garden poems,
- Each month the students will cook/prepare a food item for the class to enjoy.

Students will be assessed in a variety of ways. This includes:

- KWL charts
- Teacher created assessment
- Performance based assessments
- Oral assessments
- Hyper Studio presentations
- Class created rubrics

Cross-Curricular Links

The skills and knowledge that the students learn at the garden site will be reviewed and included in classroom discussions. Students will participate in the project during the school day as a class. This project covers multiple subject areas.

Language Arts:

- Students will be able to select a focus when writing.
- Students will be able to write brief expository descriptions of a real event.
- Students will be able to stay on the topic when speaking .

Science:

- Students will be able to understand that plants and animals have predictable life cycles.
- Materials come in different forms including solids, liquids, and gases.
- Record and observations and data with pictures, numbers, or written statements.

Social outcomes:

- Students will understand the importance of plants and animals.
- Students will feel a sense of responsibility toward the garden.
- Students will be able to work together cooperatively.
- Students will be informed of expected outcomes at the beginning of the project. There will a beginning and end of the project assessments on the anticipated outcomes. This will done through written assessments, oral assessments, and a KWL chart.

Reflection

Students will reflect before, during, and after the project in a variety of ways. This includes:

- KWL charts
- Student journals
- Oral reflections
- Teacher prepared reflection of the process (in the middle of the project and at the end of the project)
- Students will reflect on the academic and the social objectives

Project Evaluation:

- Describe how the quality of the service-learning activity will be evaluated.
- Evaluation of student achievement: student journals, teacher created assessments, and oral and visual assessments.
- The students will be asked to fill out a middle of the year and end of the year evaluation of the Project.

Project Expansion:

- The project could be expanded to include more classrooms at the school.
- In addition, the students could visit a local farmers' market or take a field trip to a working farm.
- Another extension could include partnering with a local farmer and having the students sell produce to the community.

Project Wrap-Up

The project will conclude with a celebration. The students will create a menu and create a meal based on the vegetables grown. They will write invitations to their cooperating class. At the celebration, the students will serve a meal to the other class and do a Movie Maker presentation on the importance of vegetables and the process of growing vegetables. The principal will also be invited to the celebration.

Resources

EdHelper
http://edhelper.com/

Enchanted Learning
http://www.enchantedlearning.com/Home.html

Hazards Around Us
http://www.edu4hazards.org

Learn 360
http://www.learn360.com/index.aspx

Lesson Planet
http://www.lessonplanet.com

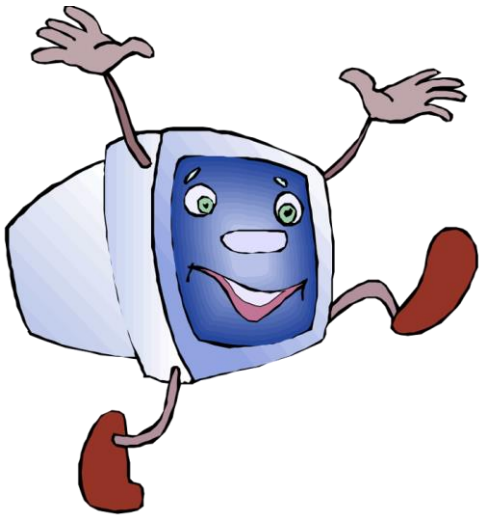
NAD Curriculum Guide – Science Grades K-8
http://www.nadeducation.org/client_data/files/730_sciencek8.pdf

NAD SMART Science Curriculum – K-8
http://circle.adventist.org/files/download/SMART08.pdf

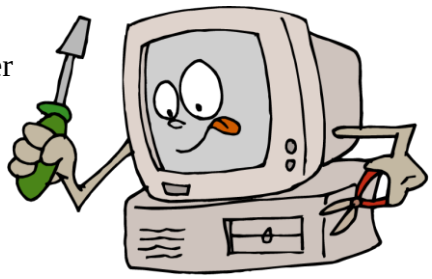
Oregon State
http://volcano.oregonstate.edu

Preserve Articles
http://www.preservearticles.com/2011111216966/what-are-the-three-types-of-earthquake-waves.html

Service-Learning
http://www.servicelearning.org



Annotated Internet Links: Teacher



1. **abc Teach**
   Pre-made worksheets and activities across varying subject matter and topics. You can also use it to make customized sheets. Covers a wide expanse of grade levels.
   http://www.abcteach.com

2. **Adventist Education**
   This is a resource site for Adventist teachers. It has items ranging from leadership resources to the purchasing of resource subscriptions such as the Learn360 Subscription. *(See #15, Learn360)*
   http://adventisteducation.org/curriculum/secondary/teacher_resources

3. **Alaska Science**
   Looking for information on glaciers and erosion in those cold wintery places? This is a good site to check out.
   http://www.akscience.org

4. **Berkeley Seismological Laboratory**
   All about earthquakes.
   http://seismo.berkeley.edu

5. **Bible Gateway**
   Need to find a text? Search it online with this site. Need a different version? This site does that as well.
   http://www.biblegateway.com/

6. **Bible Kids**
   This site is full of Bible worksheets. It is very nice for coloring sheets for the lower grades and small children.
   http://www.biblekids.eu

7. **Circle**
   This is the Adventist website that links educators with the resources needed to teach a lesson a faith-based effective lesson. Curriculum Guides are also available here.
   www.circle.adventist.org

8. **Dictionary**
   An online dictionary that you can access on numerous devices – internet, iPad, iPhone, iPod, Android. It not only gives the definition of words but also correct pronunciation of the word.
   www.dictionary.com

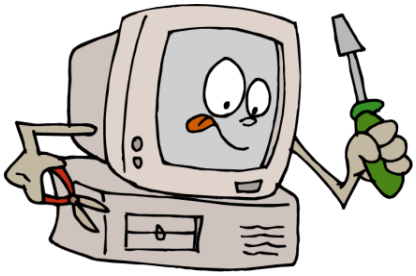
9. **Discovery Education**
   There are a wealth of videos on numerous topics across different subjects and grade levels. *Subscription Needed.* However, it is possible to create puzzles without subscription on the landing page of this site. You can create puzzles just by entering whatever vocabulary words you are currently working with.
   http://www.discoveryeducation.com

10. **eHow**
    This is a good place to find art projects that can be tied into classroom topics.
    http://www.ehow.com

11. **Enchanted Learning**
    This site has over 35,000 pages covering a wide range of topics covering grades K-12. New pages are added nearly every day.
    http://www.enchantedlearning.com

12. **Everything PreSchool**
    It is not easy to find resources for the very young children - this site has resourced it all for you.
    http://www.everythingpreschool.com

13. **Handwriting Worksheets.com**
    On this site you can create your own handwriting sheets in both script and cursive. You can make the letters traceable in varying sizes. Additionally, you have the option to make single words, sentences, and even complete paragraphs for your students.
    http://www.handwritingworksheets.com



14. **HotChalk Lesson Plans Page**
    HotChalk's LessonPlansPage.com is a collection of over 3,500 lesson plans from preschool through high school and beyond, were developed by students and faculty at The University of Missouri. Elementary school teachers get lesson plans that are ready to use in their classrooms.College students get great example lesson plans or ideas to base their own lesson plans on. Home schoolers can get lesson plans to use at home and parents can get ideas for educational activities to use with their children.We have worked hard to develop a good extensive resource for educators.
    http://lessonplanspage.com/sciencessvolcanoexplosionsideak3-htm/

15. **Learn 360**
    Learn360 is an interactive media-on-demand service for the K-12 education market, providing teachers and students the power to meet and exceed 21st century educational expectations across all curriculums. Content is correlated to State, Common Core and Provincial standards, as well as 21st century learning initiatives, and can be further adapted to meet the demands of local

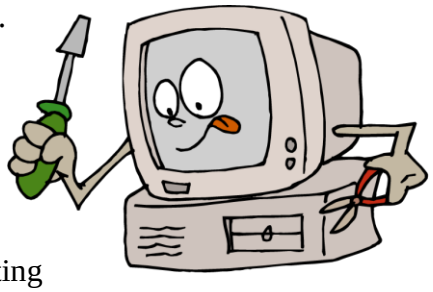
school districts and individual teacher curricula. *Subscription Needed.* NAD has a contract with Learn360 and this resource can be ordered at the Adventist Online Store. *(See #2, Adventist Education)*
http://www.learn360.com

16. Lesson Planet

This is a good place to find lesson plans and lesson inspiration. There are hundreds of resources in addition to the lesson plans. *Subscription Needed*
http://www.lessonplanet.com

17. Make Me Genius

This is a site of educational videos and resources that are created by a group of secondary grade students with the help of their parents. Resources are free to use.
http://makemegenius.com/



18. Mp3 Rocket

While this is not an actual site to use online, it is a peer sharing program to download. The great thing is that while you can download music and other stuff, it is very helpful in converting media files from one format to another.
http://www.mp3rocket.me/

19. Prezi

Tired of making PowerPoints? You can now make a Prezi which allows you to show a presentation in a more relaxed manner. It also can easily link directly YouTube videos. It is more captivating in a classroom as the slide transition in new ways that PowerPoint cannot. Download the presentations to your computer.
www.prezi.com

20. Quiet Tube/Quiet You Tube

Ever wanted to show your students a video without the other distracting videos at the side? Are you ever worried about the un-Christian comments that people leave under videos? This site solves your problem. It allows you to view ONLY the video you want to see and nothing else.
http://quietube.com/
http://www.quietyoutube.com/

21. Rubistar

This is a site that helps you create professional rubrics for all subjects and projects in under 15 minutes.
http://rubistar.4teachers.org/

22. School Tube

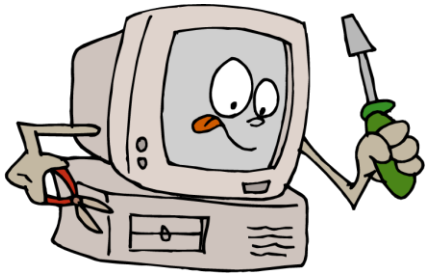
SchoolTube.com is the nation's largest K-12 moderated video sharing platform, specifically designed for students and educators - exclusively endorsed by over twenty national education associations.
http://www.schooltube.com/

23. ScienceNetLinks

This is a K-12 science education resource which allows you to find and use teaching tools, interactives, podcasts, and hands-on activities, and all of it is free!
http://www.sciencenetlinks.com

24. Teach Engineering

T eachEngineering.org is a collaborative project between faculty, students and teachers associated with five universities and the American Society for Engineering Education, with NSF National Science Digital Library funding. TeachEngineering.org is a searchable, web-based digital library collection populated with standards-based engineering curricula for use by K-12 teachers and engineering faculty to make applied science and math (engineering) come alive in K-12 settings.
http://www.teachengineering.org



25. Teach Kids About Christ

Ever had a Bible infused lesson and you could only find secular sheets to support it?
http://teachkidsaboutchrist.com

26. USGS Earthquake Hazards Program

This website is provided by the United States Geological Survey's (USGS) Earthquake Hazards Program as part of an effort to reduce earthquake hazard in the United States. It gives good background information as to the formation of earthquakes and also safety tips to stay protected in the event of an earthquake.
http://earthquake.usgs.gov

27. Weebly For Education

Designed with the educator in mind, you can use this site to build WebQuests or a personal website. One account allows you to add multiple sites that you can use for different purposes in your classroom.
education.weebly.com

28. YouTube

There are many educational videos available here that can be used. Furthermore, you can also upload your own videos to have them for future use or to share with students when they are not in the classroom.
www.youtube.com

Annotated iDevice Apps

1. **3D Cell Simulation and Stain Tool**
   Ever wanted to show your class what some cells looked like but lacked the means to do so? Now you can do it virtually via this application.

2. **Bible**
   The ability to read and listen to the Bible across 200+ different versions. Built in search to pull up texts based on a particular word. You can also email passages to yourself (requires Internet connection).

3. **Common Core Standards**
   View the Common Core Standards in one convenient application.

4. **DocuSign Ink**
   Use this to sign .pdf documents in the classroom or on the go and mail them off. Additionally, create a .pdf version of your work and view it here to be able to make writing and note what edits need to be made without taking the printed version with you to proofread.

5. **Garage Band**
   Turns your iDevice into a collection of instruments with a recording studio allowing you to create your own pieces of music for your classroom.

6. **Geo Walk**
   Do you like to discover new things? This is an interactive globe model with handpicked articles on various topics.

7. **Handy Sign**
   Use this to sign .pdf documents in the classroom or on the go and mail them off. Additionally, create a .pdf version of your work and view it here to be able to make writing and note what edits need to be made without taking the printed version with you to proofread.

8. **iBooks**
   Not only to be used to read novels and textbooks, use it to preview how an article will look when printed. (For example, flip through an entire teacher bulletin unit in book form and book mark pages you want.)

9. **iMovie**
   Make HD movies by combing images and videos you already have. Additionally you can add narration to a movie or music. Pre-set themes allow you to make them look like news reports and so on.

10. Khan Academy

This application allows you to learn a wide array of things and has been extended to cover K-12 math, science, and even the humanities with playlists on art history, civics, and finance.

11. Ocean Science

This application take you on a journey deep into the sea. It includes movies, 360^0 pictures, outstanding animations and motion graphics.

12. Pages

View, edit, and create documents on the go. Email them out or print them as .pdf files. Type work while sitting on the train or bus without having to have a computer.

13. Prezi

View your online Prezi presentations on your device. You are even able to edit them. With the correct additional add-ons you can also display the presentation as well. Once a change is made online, it shows on your device that there is a new version of that file to update.

14. QuickOffice

View, edit, and create documents on the go. Email them out or print them as .pdf files. Type work while sitting on the train or bus without having to have a computer.

15. Science360

This application provides easy access to engaging science and engineering images and videos from around the globe and a news feed featuring breaking news from the National Science Foundation.

16. Science360 Radio

This is a branch of Science360 and it focusses on the latest developments in scientific research, providing a variety of science topics with continuous programming twenty-four hours a day, seven days a week.

17. Weebly

View and edit your Weebly Sites on your device.

18. YouTube

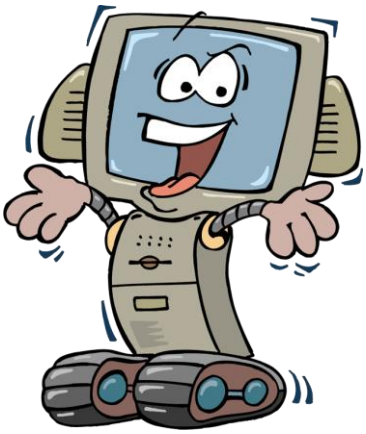
Not only can you use this to search for videos, but you can also upload a movie made in iMovie directly to your YouTube account.

Annotated Internet Links: Student

1. **Creation Answers**
   This is a Creation Ministries site which focusses on answering many popular creation questions.
   http://www.creationanswers.net

2. **Dictionary**
   An online dictionary that you can access on numerous devices. It not only gives the definition of words but it also pronounces the word and breaks it into correct syllables.
   www.dictionary.com

3. **Diorama Man – Having Fun With Dioramas**
   This is a great site for students who have to make dioramas for class. It goes through different techniques to use in order to make realistic looking scenery. Such an example is a video entitled "How to Make Miniature Trees for Dioramas."
   www.stormthecastle.com/mainpages/dioramas



4. **Discover Magazine/ Discover Kids**
   Archived articles and newly breaking articles are available here with related pictures. There is also a kids' version of the website.
   www.discovermagazine.com / www.kidsdiscover.com

5. **Earth Age**
   Creation vs Evolution. This is the Biblical perspective
   www.earthage.org/

6. **eHow Family**
   Not only does this site give you great projects to do at home, but it also gives help in completing science projects.
   www.ehow.com

7. **Enchanted Learning**
   This site has over 35,000 pages covering a wide range of topics covering grades K-12. New pages are added nearly every day. You can find stuff to help you do your work.
   http://www.enchantedlearning.com

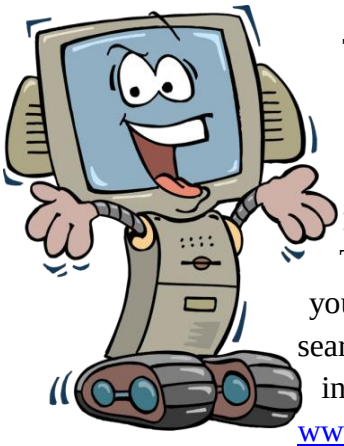
8. **Fox News**
   You can use this site to find out what is going on in the world around you. You can also use it search for past articles relating to different topics you need to research.
   http:/www.foxnews.com

9. **Institution for Creation Research**
   Looking for geological evidence of creation? This is your resource.
   http://www.icr.org/geological-strata/

10. **Kidzone Fun Facts for Kids**
    Send your students on a hunt to find out about an animal or use the site to produce lessons. It has pictures and facts and activities.
    www.kidzone.ws

11. **KidzWorld**
    This site makes education fun by combining bright colors, games, entertainment, and chat rooms in one location. It also has articles on various topics to be covered in the school curriculum.
    www.kidzworld.com

12. **National Geographic/National Geographic Kids**
    Archived articles and newly breaking articles are available here with related pictures. There is also a kid' version to the website.
    www.nationalgeographic.com / kids.nationalgeographic.com/kids



13. **Oracle ThinkQuest**
    There is a wealth of information on this site that can be used in helping finding information especially when doing a WebQuest.
    http://library.thinkquest.org

14. **Prezi**
    This is a useful site if your teacher uses Prezis for presenting subject matter as you can look at the presentation after class is over. Additionally, you can also search for other presentations on similar topics to those you have covered in class in order to get more background information.
    www.prezi.com

15. **Quiet Tube/Quiet You Tube**
    Ever wanted to view a video without the other distracting videos at the side? Are you ever worried about the un-Christian comments that people leave under videos? This site solves your problem. It allows you to view ONLY the video you want to see and nothing else.
    http://quietube.com/
    http://www.quietyoutube.com/

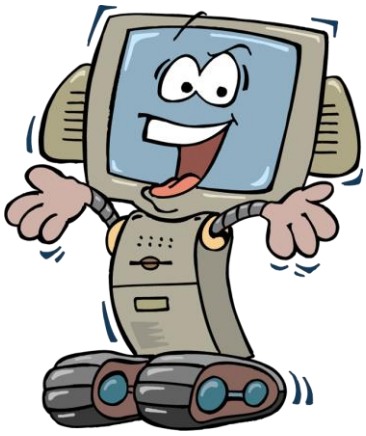
16. **Science Kids – Fun Science and Technology for Kids**
    Learn more about the amazing world of science by enjoying our fun science experiments, cool facts, online games, free activities, ideas, lesson plans, photos, quizzes, videos and science fair projects.
    www.sciencekids.co.nz

17. School Tube

SchoolTube.com is the nation's largest K-12 moderated video sharing platform, specifically designed for students - exclusively endorsed by over twenty national education associations.
http://www.schooltube.com/

18. The Ellen G White Estate

Here you can find digital version of different books by Ellen G. White. You can also search different passages for related words.
http://www.whiteestate.org/



19. The List – The Mother of all Lists

Ever had a project to research an animal or person but you did not want to choose the same ones you always hear about? The List is here to do as it says – it lists all the items in a category from the common to the rare.
www.thelist.org

20. Weebly For Education

With the help of your teacher, this another way you can display information from a project – via a free website.
education.weebly.com

21. You Tube

This is a good website for students to see very good educational videos that can be used to supplement material taught in class and can also be used to find videos that will help students better understand topics for their own knowledge.
www.youtube.com

22. Wordle

Wordle is a toy for generating "word clouds" from text that you provide. The clouds give greater prominence to words that appear more frequently in the source text. You can tweak your clouds with different fonts, layouts, and color schemes. The images you create with Wordle are yours to use however you like. You can print them out, or save them to the Wordle gallery to share with your friends.
http://www.wordle.net/

23. Worksheets for Young Leaders

Find worksheets that you can use to reinforce content you were taught in class.
bogglesworldesl.com/kids_worksheets/