The Earth's Layers

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Overview/Problem Statement

This curriculum is about the earth's design and its sustainability. As this curriculum is for a second grade class, it is being designed as an investigative unit about the components of the earth. The unit, The Earth's Layers, will investigate how many layers the earth consists of, what they are called, what each layer is comprised of, why each layer exists, and how the outer layer supports life on earth. This unit will also investigate the sustainability of earth, how its being damaged and what we can do to improve its chances for survival and ours.

Rationale

In this testing environment, heavy emphasis is placed on Math and Reading. While science is required to be taught to students, resources are not allocated towards the study of either. Simultaneously, climate change is a topic that has been heavily researched and debated for more than ten years. In part because of our current global climate initiatives, STEM has become increasingly important for the development of future scientists and environmental specialists. In order to develop STEM in young students, it is important that students begin learning about scientific inquiry early in their educational lives. It is equally important that they begin this process by investigating their own planet.

In the second grade band, students study the habitat of all animals. This includes our habitat, earth. In this unit I will focus on the most fundamental study of our planet, what it is made of. In order for students to be able to fully engage with this topic, there is some prerequisite knowledge they should have. First, students should know what a habitat is. They should have studied the habitat of other animals, why they live in particular habitats and how their habitats support life. They should know what humans need to support our lives and that our planet is uniquely made to support not only us but animals as well.

Students should also be aware of the current ideas about climate change. This information should be presented at their level, in an interactive format. Once the students are able to articulate the challenges our planet is having with climate change along with the possible manifestations of that change, they will be able to correlate climate change with our activities and provide ideas about how we can change what we do and save our earth.

The Earth and Its' Layers

Objective

My objective is to have students develop a hypothesis about the earth and its layers that is formulated around how many layers the earth has, their functions, how they affect or do not affect us as well as how we affect or do not affect them. During this unit students will also answer various questions through investigations, mini lessons, hands on experiments, short documentaries, web based earth geology explorations and the experience of building a three dimensional model of the earth and its layers. By the completion of this unit students should be able to answer the following questions:

How many layers does the earth have?
Students should be able to tell how many layers the earth has, name the layers and be able to tell the difference between the inner most layer and the outer most layer. They will ultimately make a model of the layers

What is each layer comprised of?
Students should be able to tell, based on our study some of the primary materials the layers are made of and properties of each layer such as, is it hot, liquid, solid etc.

Why do the layers exist?
Students should be able to convey their ideas about why each layer of the earth exists and what their role is in supporting every other layer.

How does each layer support life?
Students should be able to convey which layer supports life and how.

What is the current condition of the earth?
Through the study of climate change, students should be able to demonstrate knowledge of the health of the earth.

Are we responsible for the damage to the earth?
Students will be able to investigate our activities and determine how, if at all we are responsible for the damage to the earth.

What can we do to repair the damage?
Students will be able to present a plan to help repair the damage done to our planet in a group format.

Background

Students have a disconnected relationship to the planet on which they live. They know that they live on the earth, but have no real knowledge about what the earth is made of, how it affects us and how we affect it. In this unit they will learn that the earth is made

up of layers. The earth consists of five layers. The inner most layer is the inner core. The next layer is the outer core. The layer above the outer core is the lower mantle, followed by the upper mantle. The last layer of the earth is the crust.

The Inner Core

According to National Geographic Kids, the earth's core is 2,500 km wide and maintains a temperature of 5000 to 6000 degrees Celsius. It is solid and composed of iron and nickel, which though it should be melted due to the heat, stays solid because of the pressure surrounding it.

Outer Core

According to National Geographic kids, the outer core is different from the inner core because it is in a completely liquid state. It is made of iron, nickel, sulphur and some oxygen. This layer is 5,150 km deep with a temperature of 4,000 to 6,000 degrees Celsius. This layer flows around the center of the earth and it is this movement that is responsible for our magnetic field.

Lower Mantle

According to National Geographic Kids, the lower mantle is comprised of iron, oxygen, silicon, magnesium and aluminum. It is a solid layer, which is approximately 3,000 degrees Celsius hot.

Upper Mantle

According to National Geographic Kids, the upper mantle is comprised of iron, oxygen, silicon, magnesium, and aluminum. This layer is both solid and liquid and its temperature is between 1,400 and 3,000 degrees Celsius. The lower part of the layer is made of solid and liquid rock. The rock in the upper portion of the upper mantle is completely solid due to the coolness of this portion of the upper mantle.

Crust

The upper most layer of the earth is the crust. According to National Geographic Kids, the crust consists of a continental crust and an oceanic crust. The continental portion of the crust is comprised of igneous rocks (granite), sedimentary rocks and metamorphic rocks. This portion of the crust is 8 to 70 km thick and maintains an average temperature of approximately 22 degrees Celsius. The oceanic crust is comprised of igneous rocks (basalt) and sedimentary rocks. The oceanic crust is the layer beneath the ocean bed, according to National Geographic Kids. It is 6km thick and maintains an average temperature of 380 degrees Celsius.

Once the students have a firm grasp on the Earth and how it is made, their attention can be turned towards the condition of our planet , what our challenges are and what we can do as a member of the global community to help solve these problems.

Climate Change

According to EPA.gov's website, A Student's Guide to Climate Change, in order for a student to understand climate change, they must first understand climate. According to the authors climate is defined as the average weather in a certain place over a number of years, whereas weather refers to conditions that exist on a particular day. When scientists refer to climate change, they're talking about climate changes that have taken place all over the world over a period of many years.

Greenhouse Effect

According to the EPA's Student's Guide to Climate Change, the earth's warming is a result of people adding gases to the atmosphere that trap heat, by burning fossil fuels. According to NASA's Climate kids website, the earth is like a greenhouse. It traps the sun's energy inside and keeps plants warm all day and night and even in the winter. The earth is like a greenhouse without a roof to keep the heat trapped inside. On the earth, carbon dioxide acts as the roof of our greenhouse. This means that we soak up the sun's rays and trap the energy to keep the temperature of the earth at around 15 degrees Celsius. But because of all the greenhouse gases being released into the atmosphere, the atmosphere is getting warmer and warmer.

The Effects of Climate Change

There are many well-documented effects of Global Warming. According to the EPA's Student Guide to Global Warming, changes include higher temperatures, more droughts, wilder weather, change in rain and snow patterns, melting glaciers, shrinking sea ice, warmer oceans and rising sea levels.

These changes not only affect our earth, but us, who live on it in numerous ways. EPA's Student Guide to Global Warming outlines the effects of global warming below:

> Agriculture – warming temperatures, may make it too hot to grow some crops. This warming could also cause droughts, which make it more difficult for farmers to irrigate their crops.
>
> Energy – there are some areas of our country where there is enough water to use hydropower, such as California. But because of the droughts caused by Global

Warming, they may not have enough water to use Hydropower causing them to have blackouts and power outages.

Water Supplies – According to A Student's Guide to Climate Change website, rising temperatures, along with changing precipitation patterns and droughts, affect the amount of water in lakes, rivers and streams. It also lessens the amount of water that gets into the ground for ground water. It affects areas that rely on snowmelt to keep their bodies of water, which in turn keep their drinking reservoirs full. Because there is less snowpack and it is melting in larger portions and earlier than usual, that has had a negative effect on communities who rely on these sources.

Plants, animals and ecosystems – Due to global warming, plants and animals that need to live in colder environments are in danger of becoming extinct because the temperatures are rising and cannot continue to meet their daily living requirements. The loss of animals and plants from any region affects the entire ecosystem, as they are all an integral part of a balanced system of living with one animal or plant fulfilling the needs of another. An example of this system is the coral reef. Warmer water has caused the bleaching of coral. Because live coral reefs provide fish and other sea creatures with a habitat, their bleaching could cause damage to the sea ecosystem in the form of many fish disappearing because their habitats have lessened and the food chain has been disrupted.

Forests – Wildfires occur quite frequently, especially in the traditionally warmer months, in the western part the United States. However, as the earth continues to warm the incidents of wildfires are predicted to occur with more frequency and be more destructive to nearby communities and people who live in them.

Coastal Areas –Millions of people around the world live in low lying coastal areas. The draw is obvious, but as global warming's effects make themselves known, so is the danger. As the sea level rises, beaches will erode and damage will be done to many coastal wetlands. Why is this important? Coastal wetlands protect the shore from flooding. Lack of this protection could cause beaches to eventually be completely destroyed and islands as well.

<u>What can we do to help save our Earth?</u>

According to many organizations, the fight to decrease global warming does not have to be a losing one. There are many ways to fight global warming. According to the website Greenpeace.org, the list below encompasses things that can be done to fight Global Warming:

100% Renewable Energy – We need to educate others about using renewable sources of energy such as wind, solar and geothermal energy as opposed to using

resources like coal and oil. In fact, according to Greenpeace.org we should keep the world's remaining fossil fuels in the ground in order to avoid what they consider to be a climate catastrophe.

Protecting our Oceans – Industrial fishing is destroying habitats and putting many fish on the endangered species list. Slowing down that process is key to sustaining the lives of these species. But we also need to protect their habitat. Pollutants such as plastic water bottles, trash bags, and other plastics pollute our oceans, making it dangerous for the sea life. In order to help in the effort to clean our oceans, we need to work with organizations that are working to end over fishing and fight ocean pollution.

According to Conserve-Energy-Future.com, there are other things students can encourage their families to do to fight Global Warming and save our planet. Some of their suggestions are listed below:

Save energy – we can do this by replacing regular light bulbs with incandescent bulbs, as they consume 70% less energy than regular bulbs and have a longer life.

Reduce vehicle emissions – This can be accomplished by using public transportation, cycling, car-pooling or walking. These methods result in less driving, resulting in less fossil fuels being used and less carbon dioxide emitted into the air.

Reduce, recycle, reuse - Reduce the need to buy new products or use less, so there is a reduction in the amount of trash we dispose of on a daily basis. Buy eco friendly, biodegradable products when possible and reuse them many times before discarding them. Recycle plastic items as much as possible as opposed to throwing them away.

Plant a Tree – Planting a tree, perhaps more than any other method, will help fight global warming, by putting more oxygen in the air and reducing the amount of carbon dioxide in the atmosphere.

Conserve Water – Our water sources are in danger. Doing things like turning the water off while brushing your teeth, taking a five minute shower, taking showers instead of baths, watering flowers a couple times a week as opposed to on a daily basis, will save hundreds of gallons of water.

Eat less burgers – The agriculture industry uses hundreds of gallons of water to keep their livestock's source of feed well watered. The water used to water acres and acres of grass for cows to graze on alone would help a country struggling with a shortage of water tremendously.

Eat less meat – Plan a day where you and your family go meatless. This means having an entire day where no one consumes meat. After you have successfully achieved that, expand it to two days or even three that are completely meatless.

No Bottled Water – Why? It's bad for the environment. While we can recycle those bottles, eventually they will end up in the trash or a landfill or the ocean. We can avoid this by using glass bottles and refilling and reusing them as often as we like.

Keep electronics out of the trash – Use electronics as much as possible, but do not throw them away when you are done. Instead, take them to a center that recycles your old electronic games, phone etc.

Turn your computer off at night – Most of us let our computers sleep at the end of the day. But even though it is "asleep" its still using energy. Instead of putting your computer to sleep, unplug it so it will no longer use energy.

Celebrate Earth Day – on Earth Day, organizations all over the world converge in their communities to plant trees, pick up trash, turn off lights and spread awareness. Joining in these efforts would multiply the number of trees planted, the amount of trash picked up, therefore making the earth cleaner and greener because of one day of work.

Spread Awareness – Educate the community about Global Warming. Share the news about Global Warming with friends and family. Join a Global Warming group or Club and spread the word with them. Make posters to spread the word in schools and in other acceptable public spaces.

Standards

The Core Curriculum of the School District of Philadelphia is aligned to the Pennsylvania Academic Standards for Science. These standards include instruction on Science as Inquiry, Understanding and being able to matter and its interaction. According to the Pennsylvania State Standards students are also to be able to describe earth features and processes, identify natural events and how human interaction affects those events. Lastly, students are expected to understand that the earth is a system, made of multiple inter -dependent parts

- PA:3.3.3 Science as Inquiry
- Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known.
- Use simple equipment (tools and other technologies) to gather data and

understand that this allows scientists to collect more information than relying only on their senses to gather information.

- Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge.

SCI.2.2-PS1: Matter and its Interactions

- Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.

S.K-2.D.1.2. Earth features and processes that change the Earth and its resources.

S.K-2.D.1.2.1: Identify Earth's natural resources.

S.K-2.B.3.2.1: Identify natural events (e.g., fire, flood, extreme weather) and human actions (e.g., road construction, pollution, urban development, dam building) that can impact an ecosystem.

S.K-2.A.3.1: Describe a system as being made of multiple parts that work together.

S.K-2.B.2.1. Understand that all living things are part of an ecosystem.

Strategies

This is a six-week unit. As this is a six-week unit, I intend to break the unit apart according to the layer we are studying. I plan to employ the use of may different learning modalities in order to help all students achieve an understanding of the layers of the earth, global warming and how we can help slow the process of global warming. This unit will begin with vocabulary studies. The vocabulary studies will include quick writes, an activity where students respond in writing or by drawing to a vocabulary word or phrase about the earth in journals they created. It will also include Vocabulary Bingo, Vocabulary jeopardy and Vocabulary Concentration.

The next modality to be employed in this unit is for the visual learners. We will watch a variety of videos throughout this unit, but we will begin the unit by watching videos about the layers of the earth. After each video student, who are writers, will respond in the Earth Layers journal they've created. Students who are unable to write (perhaps special needs students), will respond by drawing a picture in response to the videos.

The remainder of this portion of the unit will continue to focus on the layers of the earth, using a variety of methods, such as graphics, worksheets, foldables, and multiple hands on models created by the students.

During this portion of the unit, students will begin with a web quest about climate change. This will also jumpstart the conversation about the health of the earth. After we open this line of inquiry, we will continue to study damage to the earth, how we've caused the damage and what we can do to fix the damage. In order to do this, we will read articles; watch mini documentaries, and complete interactive smart-board activities. This portion of the unit will culminate in student groups creating a model of the earth and working on group project about how we can slow down global warming. Each group will present both their earth models and their global warming in front of other second grade classes and their families and friends.

Lesson Plans - Classroom Activities

In order to achieve the objectives, students will engage in a variety of classroom activities and investigations during this six-week unit.

Week One – Students will be introduced to the vocabulary for the unit using Vocabulary Quick Writes and discussions.

Quick Writes
In a quick write, students place their vocabulary along with the definitions inside their journals. Then the teacher asks a question using the vocabulary word and the students respond in their journal (See Appendix A)

Example "Where is the mantle?"

Discussions
In a discussion, students will respond in group discussion format to an item the teacher presents using the vocabulary word.

Example: teacher shows pictures of the mantle. Students then discuss the pictures

Vocabulary Jeopardy
Students use their vocabulary words to play Jeopardy (See Appendix B and F)

Vocabulary Concentration
In this activity, students will match the vocabulary word to its definition. (See Appendix D)

Vocabulary Bingo
In this activity, the teacher will recite the definition of words and students will mark the words with their BINGO chip if they're on their BINGO board. (See Appendix C)

Week Two – During this week students learn about all the layers while focusing on the most inner layer of the earth through a series of activities and investigations.

Layers of the Earth Smart board Lesson
In this lesson students will complete the activities in the lesson about the layers of the earth. (See Appendix G)

Earth Journal
Students will create Earth Journals. Inside the Earth Journals they will put information we learn about each layer as we move through the unit. In response to the Layers of the Earth Smart board lesson, they will record information about the earth's core.

The Earth's Core Video
Students will watch the earth's crust video, discuss and then record what we discovered in their earth journals

Earth Layer Lab
After completing the video, the students will complete a lab where they will replicate the model of the earth's layers that was built in the video.

Week Three – During this week, the students will learn about the outer core of the earth.

Layers of the Earth Smart board Lesson
In this lesson students will complete the activities in the lesson about the layers of the earth this time focusing on the outer most layer.(See Appendix F)

Layers of the Earth For Kids Video
Students will take a fresh look at the layers of the earth in a longer kid friendly video, which focuses a considerable amount of time on the outer most layer of the earth. Students will respond in their Earth Journals.

Earth's Layers Diagram
Students will begin labeling the diagram. They will label the inner most and outer most layers of the earth, coloring them the color that corresponds with their temperature. (See Appendix E)

Outer and Inner Core Video

Students will watch this video about the outer and inner core. They will complete a worksheet in response to the video. Then record what they learned about the outer core in their Earth Journals.

World Geography Layers of the Earth Game
Students will play an Earth's Layers game where they will label the layers of the earth and receive points for answering correctly. (See Appendix F)

Week Four – During this week the students will learn about the Earth's Mantle and Crust, then they will be assessed on the knowledge they've gained so far about the Earth's layers during this unit.

Layers of the Earth Smart board Lesson
In this lesson students will complete the activities in the lesson about the layers of the earth this time focusing on the mantle and the crust (See Appendix F)

Make an Earth's Layer Foldable
In this activity, the students will complete an earth's layers foldable activity, where they will label each of the layers, color each layer in a color (already indicated) corresponding with their temperature and then fold it to show each layer.

Kids Geo Earth Layers Web Quest
In this activity, students will form groups of four. They will then receive a list of questions about each layer of the earth and they will find the answers on this website and fill in the answers on their web quest sheet.

Earth's Layers Journal/Worksheet
Students complete entries for the earth's mantle and the earth's crust. Then they will complete the labeling of their worksheet, filling in the mantle layer, the crust layer and coloring both according to their temperature.

Week Five – During this week, Students will choose groups and begin working on their final earth modeling projects as they learn about the challenges facing our planet.

Oreo Cookie Layers of the Earth Model
Students will make a model of the earth using the Oreo Cookies, M&M's and chocolate syrup. After they make the model, they will each present them placing emphasis on the different layers. After the presentation, students get to eat their models

Interactive Layers of the Earth Model
Students will build an interactive model of the earth and it's layers next and print them so they can go into their Earth Layers Journals.

Clay Layers of the Earth Models (two day activity)
Using modeling clay, groups will make a model of the earth. The groups will receive a planning sheet and a list of their choices of materials. Each group must use their Earth Layers Journals to decide what colors to use for each layer and write their choices on the sheet. Then the groups must decide what the core will consist of and then as they make their models they must make sure there is a liquid center. The key to this activity is the choices the group makes to represent each layer. After they have made their layers they must do a presentation of their work.

Week Six – Students will investigate changes in our planet and what we have done to affect those changes. Then they will create Save Our Earth Dioramas. These Dioramas will be presented, along with their Earth Layer models to a larger audience of the teacher's choosing.

What is climate change?
Students will be introduced to climate change by investigating NASA'S Climate Kids website. On this website they will read about climate change and learn the definition, its affects on the earth and the possible causes of the global changes in the earth. Then they will follow Climate Tales' heroes as they too learn about climate change, how it started and try to make changes to help the planet.

Greenhouse Effect
Students will watch two-videos; one about the greenhouse effect and one about global warming. Students will learn about the Greenhouse Effect, what it is and how it affects the earth. Then they will learn how too many greenhouse gases contribute to global warming and what humans have done to contribute to the emission of more greenhouse gases, therefore warmer and warmer temperatures.

Greenhouse in a Jar Experiment Lab
Students will watch an experiment where the greenhouse effect will be simulated in a jar. They will record what they see on their lab sheets. Then students will be directed to the Climate Kids website where they will play climate change games while they await their turn to try the experiment. Then each group will be called (one at a time, with the direct supervision of the teacher) to replicate the experiment and record their findings. At the end of the lab, conduct a whole class discussion about the experiment and what was learned during the lab.

What can you do about Climate Change?
Students will watch a video where they learn what they can do about climate change. This video will give them ideas for their dioramas and presentations. Once they watch

the video, the class will have a group discussion about climate change and what they learned they could do to make things better for the earth.

Our Plan (2 classes)

Day One: During the first session, students will watch the "Save Our Planet" DVD. They will then brainstorm solutions for changing global warming and saving our planet. Students will discuss what they can do as children to slow down global warming. Then they will discuss what changes they can encourage their families to make in their homes. Next they will discuss what changes can be made in their communities to help heal our planet. After brainstorming, they will fill out their planning sheets and meet with the teacher to discuss their plan before starting their in class projects.

Our Plan

Day Two: During the second session, students will complete their planning meetings with the teacher and continue or begin work on their earth models and dioramas.

Presentation Practice Day 1

Students will present their completed models and dioramas to the class. They should receive feedback from their peers about their presentations this day.

Presentation Practice Day 2

Students will present their models and dioramas again, making the changes to their presentations that their peers have suggested. Their teacher will then grade the students on these presentations.

Final Presentation

Students will present their models to other classes as well as their families. Students should have their Earth Layer models displayed (they should be displayed and labeled as a visual model of the earth, making sure all the layers are labeled) so guests can look at their models and diagrams of the earth and its layers after their presentations. Then students should give their Global Warming Presentations to the guests, their classmates and any other invited guests. Students should not be graded on these presentations (they have already been graded in a low-pressure environment by the teacher).

Annotated Bibliography

Cowens, J. W. (2001). Layers of the Earth. *Teaching Pre K-8, 31*(7), 29-30.

In this book the author explains to the educator how to teach about the layers of the earth to the elementary school aged child. This book provides kid friendly explanations of the earth and its layers. It also provides kid friendly activities for teachers to use to reinforce what they are teaching.

Marcus, S. R. (2012). The Atmosphere/Climate Change/Earth's Layers
Library Monthly, *26*(10), 8-9.

In this article the author writes about the atmosphere. Describes the elements the atmosphere is comprised of. Then the author provides a very detailed description of the earth and the earth's layers. The author then details climate change. In this article, the author chronicles the theory of climate change, talks about the environmental results of climate change and well as the implications for the future if we are unable to turn things around.

Schimmel, S. (2002). Children of the Earth-- Remember. Chanhassen, MN: NorthWord Press**.**

This book is written as a letter from the Earth to its inhabitants. In this letter the Earth talks about the changes happening to it. Through this letter, children receive information about how to save the earth. The Earth also tells about the beauty of the earth and the importance of protecting its resources. The letter provides information about how over using our natural resources hurts all the living things on Earth. The book is beautifully illustrated, with poetic language.

Tedford, R., & Warny, S. (2006). Layer-Cake Earth. *Science & Children*, *44*(4), 40-44.

Layer-Cake Earth is a book that uses the analogy and imagery of a layered cake to explain the layers of the earth to children. This book gives a child friendly explanation of each layer of the earth.

West, K. (2009). The Restless Earth: Layers of the Earth. *NSTA Recommends*, 45.

This textbook talks about the earth in detail. It provides information about the earth's composition, down to the smallest element. It also discusses the Earth's Layers. In its discussion of the earth's layers, the text goes into great detail about the composition of each of the layers.

Student Resources

Cole, Joanna. *The Magic School Bus: Inside the Earth.* Illus by Bruce Degen. 40p. CIP. Scholastic. 1987. ISBN 0-590-40759-7. LC 87-4563

In this episode of the Magic School Bus, the students take a physical journey inside the earth. Once they are inside the earth they find out what is in the center of the earth. They experience the heat of the earth's core and journey through the rest of the earth's layers.

Why Are the Ice Caps Melting? The Dangers of Global Warming. (2008). Paw Prints.

In this children's book, the author talks about our Earth. Children are introduced to the Earth and the benefits of living on this planet. Then the author explains the origin of climate change on the planet and gives many examples of the effects of climate change. Last, the author provides young readers with suggestions about how children can help to save the environment.

68 Ways to Save the Planet Before Bedtime (Grade 2). (2016). Pearson.

This book provides detailed descriptions of how students can save the planet from the effects of global warming. The ideas that the authors provide are cost effective things that children can do without needing to purchase supplies. It gives ideas about recycling and reuse, like turning old socks into a sock puppet. It also gives less crafty solutions such as turning off lights and unplugging unused electronics

Appendix A

Quick Write

Respond in a sentence to the question your teacher poses.

_____
_____
_____
_____
_____
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_____
_____
_____
_____
_____

Name_____

Date_____

Appendix B

EARTH LAYER'S VOCABULARY

EARTH	**CRUST**	**LOWER MANTLE**
OUTER CRUST	**INNER CRUST**	**UPPER MANTLE**
CLIMATE	**WEATHER**	**RECYCLE**
GREENHOUSE EFFECT	**GLOBAL WARMING**	**CONSERVE**
COASTAL	**FORREST**	**ECOSYSTEM**
RENEWABLE	**ENERGY**	**IGNEOUS ROCKS**
SEDIMENTARY ROCKS	**LAVA**	**EMISSIONS**

Appendix C

Earth Layers Bingo
Player Board

		FREE SPACE		

Earth Layers Bingo Cards

Students will cut cards and place them on their bingo boards in any order

Earth	**Crust**	**Inner Crust**	**Coastal**	**Mantle**
Climate	**Weather**	**Igneous Rocks**	**Lava**	**Emissions**
Forrest	**Energy**	**Conserve**	**Ecosystem**	**Renewable**
Sedimentary Rocks	**Core**	**Global Warming**	**Lower Mantle**	**Upper Mantle**
Resources	**Inner Core**	**Outer Core**	**Greenhouse Effect**	**Climate Change**

Appendix D

Vocabulary Concentration

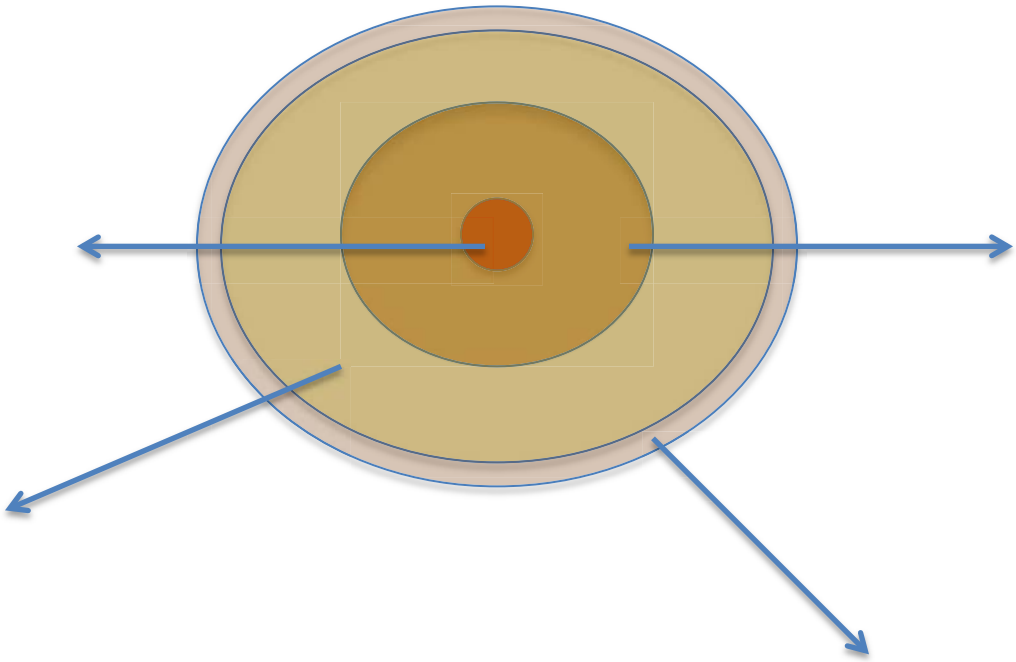
Students cut out both sets of cards, scatter them, turn them over and try to find their matches

Earth	**Crust**	**Inner Crust**	**Coastal**	**Mantle**
Climate	**Weather**	**Igneous Rocks**	**Lava**	**Emissions**
Forrest	**Energy**	**Conserve**	**Ecosystem**	**Renewable**
Sedimentary Rocks	**Core**	**Global Warming**	**Lower Mantle**	**Upper Mantle**
Resources	**Inner Core**	**Outer Core**	**Greenhouse Effect**	**Climate Change**

Vocabulary Concentration cont'd

Earth	**Crust**	**Inner Crust**	**Coastal**	**Mantle**
Climate	**Weather**	**Igneous Rocks**	**Lava**	**Emissions**
Forrest	**Energy**	**Conserve**	**Ecosystem**	**Renewable**
Sedimentary Rocks	**Core**	**Global Warming**	**Lower Mantle**	**Upper Mantle**
Resources	**Inner Core**	**Outer Core**	**Greenhouse Effect**	**Climate Change**

Appendix E



Name_____ **Date_____**

Earth's Layers Diagram

Label the Diagram above with the words listed below

1.Crust

2.Inner Core

3.Outer Core

4.Mantle

Appendix F

Activity Links:

Vocabulary Jeopardy
jeopardylabs.com/play/earths-layers-vocabulary

https://youtu.be/oEW_Qwj6ZCE (Sci Show - Can I dig a hole to the other side of earth?)