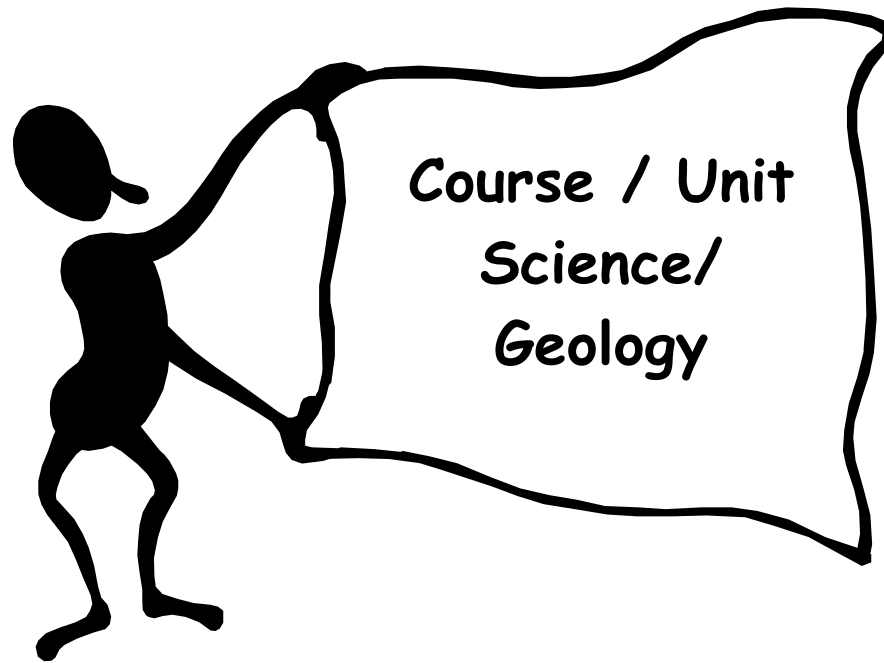


**New York City Department of Education
Magnet Program District 25 & 28**

School Name

JHS 217

Robert A. Van Wyck Middle School



Essential Question: How do we know that the Earth is continually changing?

Suggested Time Frame: 5 weeks

Theme: Green Magnet School for Career Exploration

Graphic Overview of Unit

Suggested Time Frame: 5 weeks

Essential Question: How do we know that the Earth is continually changing?

Unit name: GEOLOGY

Mini-unit name: Rocks and Minerals

Mini-unit name: Fossils and Earth's History

Mini-unit name: Plate Tectonics

Mini-unit name: Presentation of Culminating Activity

Mini-Units
* It is recommended that each mini-unit end with a standardized test that reflects the state / city assessment

Unit's Culminating Project: (briefly explain in 2-3 sentences):

The students will form groups of four. Each member of the group will assume different roles. One will be a soil scientist, one will be a paleontologist, one will be seismologist and one will be a computer expert. The computer expert will be responsible for studying the ways by which they could create a podcast. They will research about the jobs of these different careers. They will be given situations wherein they have to learn and study about the impacts of human activity on environment. After doing all the research part, they will consult with the group's computer person who will lead the group in creating a podcast.

Stage 1- Desired Results

Standards-Based Learning Goals:

PS 2.1e, TPS, 3.3c, PS2.2g, 2.2f,2.2h,PS 2.1g,2.1h,PS 2.1i,2.1g, LE 3.2b, 3.2c,2.2c 3.3a, PS 2.2d,2.2c, PS 2.2a, PS 2.2e, PS 2.1c, 2.2b, 2.2f.

Concepts

Big Ideas for this Unit

Change or continuity

Magnet School Theme:

Green Magnet School for Career Exploration

How does the Big Idea in your unit connect to your theme?

In this unit, we will talk about caring for the environment. The students will be introduced to different careers that they can study in college. For the environment part, during our study of weathering and erosion, they will be introduced to the concept of acid rain (chemical weathering) and deforestation (erosion). For the culminating activity, they will be asked to research about different careers: soil scientist, paleontologist, seismologist, researcher, videographer. They will learn that the earth is continually changing and they can consider these careers as they learn that Earth is continually changing. They can also learn the importance of new technology to prove that Earth is continually changing.

Enduring Understandings

Students will understand that....

Scientists gather and interpret evidence that shows that earth is continually changing.

Overarching Essential Question: (this question should connect to your school theme)

How do we know that the earth is continually changing?

- How do scientists gather evidence that Earth is continually changing?
- How do scientists use rocks to show what happened to Earth in the past?
- How do scientists use rocks to predict what will happen in the future?

Content and Skills	
<p>Content Students will know...</p> <p>Vocabulary words: Minerals Rocks Igneous rocks Sedimentary rocks Metamorphic rocks Rock cycle Weathering Chemical weathering Mechanical weathering Erosion Fossils Permineralized remains Mold Cast Relative age Absolute age Radioactive decay Half life Uniformitarianism Geologic Time Scale Continental drift Pangaea Seafloor spreading</p>	<p>Skills Students will be able to...</p> <p>Compare minerals and rocks</p> <p>List the factors used to identify minerals</p> <p>Create a concept map to show the 3 different types of Rocks</p> <p>Draw and explain the rock cycle</p> <p>Create a Concept Map to show 2 types of weathering – mechanical and chemical</p> <p>Compare and contrast chemical and mechanical weathering</p> <p>Compare and contrast weathering and erosion</p> <p>Explain how acid rain affects the environment particularly the soil</p> <p>Explain why erosion is important</p> <p>Explain why deforestation is bad and how it contributes to erosion</p> <p>Perform a mini-experiment on: soil classification erosion</p> <p>Create lab reports</p> <p>Perform a mini- experiment on casts and molds</p>

<p>Plate tectonics Asthenosphere Convection current Convergent Divergent Fault</p>	<p>Explain why rocks are important to show the history of the Earth</p> <p>Perform an experiment on fossil creation</p> <p>Describe the concept of continental drift Identify evidence showing continental drift</p> <p>Explain the seafloor spreading</p> <p>Compare and contrast the 3 types of plate boundaries</p> <p>Create a map showing the different earthquake zones of the earth</p>
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Stage 2- Summative Assessment Evidence

If students understand, know and are able to do the items in Stage 1, they should be able to show their understanding by completing an authentic task found in the world beyond the classroom.

- Design the Culminating/Summative Task:
- Please note: The Essential Question and the Grasp are interconnected. The GRASP is a way for students to demonstrate their knowledge and understanding unit by answer of the Essential Question. Or you can say, they are answering the essential question through their GRASP.

G- (goal)

Your goal is to inform the community how certain processes occurring in the earth affects our daily life. You will try to explain why the earthquake occurred in Haiti. You will explain why fossil remains were found in Haiti. You will publish your results through a podcast.

R- (role)

There should be four members in your group. One should be a soil scientist, one is a seismologist, one a paleontologist, one videographer or director.

The soil scientist will study about the effects of acid rain on our soil and plant life as well as how deforestation affected soil erosion. The seismologist will show how the earthquake happened and where it is more likely to happen. Paleontologist studies fossil and fossil remains. The videographer will be responsible for taking videos and pictures and make sure the quality of the podcast is good.

A- (audience)

People in Haiti and all over the world, including scientists, who are interested to learn about your findings in Haiti.

S- (situation)

After the Haiti earthquake there was evidence of fossil remains seen in different parts of Port-Au-Prince. A team of researchers was created to study and investigate this. The team is made up of a soil scientist (to study the condition of the soil), a paleontologist (to study the fossils), a seismologist (to study the cause of the earthquake and the possibility of another earthquake) and a person who is good in taking pictures and expert in computer technology. You will be a part of the research team. You will document your findings and publish it through a podcast.

P- (purpose and product)

Researchers are expected to publish their findings so that other people may gain access to it. In your case, you will come up with a research paper and then publish your final results through a podcast which will be available to people all over the world.

S- (standards for performance)

There is a rubric to follow. The project is divided into 2 parts: research and podcast.

Student Task

In the space below, write the task exactly as students will see it.
You should give this task to them on the first day of the unit. This way they know where they are going.

The students will look into different careers in science: soil scientist, paleontologists and seismologists. They will form groups of four and decide who will perform those roles. One student should be over all in charge of production so that student should be good with computers, pictures and recorders. Every week, they will be asked to research about one career. They will forward all their research to the person assigned for that specific role. For example, in week 1, they will research on what a soil scientist does. They will give all their research to the person assigned to be the soil scientist in the group.

On the second week, they will be asked to research about paleontologists. In the third week, they will be asked to research about seismologist. They will do the same as done in the first week.

On the fourth week, they will start to put together all the information, write their script and start recording for their podcast.

They must work together as a group and they should have their work posted on google docs.

PART 1

Create groups of four students. Each student in the group will choose the role they want to play.

PART 2

Every week, students will be asked to conduct a mini research on a specific career. Week 1 will be soil scientist. Week 2 will be paleontologist. Week 3 will be seismologist. Week 4 will be computer expert or videographer. The research will help them create their scripts and storyboard for the podcast.

PART 3

They will also do research about environmental issues and concerns; like acid rain as related to chemical weathering, the impact of deforestation on erosion of land and cities or places prone to earthquake.

PART 4

They will start working on the storyboard. They have to input their part by working on google docs.

PART 5

Start recording and videotaping for the podcast.

Rubric For Culminating Project

Project Component	1	2	3	4
Content/Research Paper (25 %)	Concepts not clearly explained, vocabulary words not used and defined, guide questions not answered,	Concepts not clearly explained, vocabulary words not well defined, 2 guide questions not answered, many typographical errors	Concepts clearly explained, some vocabulary words were not used and not defined, 1 guide question was not answered. Few typographical errors.	Concepts clearly explained, vocabulary words are used and defined thoroughly, all guide questions answered. Keeps in mind the fonts, colors, pictures, format are professional looking
Group Work (20%)	The workload was not divided OR several people in the group are viewed as not doing their fair share of the work. No participation in google docs	The workload was divided, but one person in the group is viewed as not doing his/her fair share of the work Participation in group work is seen on google docs but insufficient	The workload is divided and shared fairly by all team members, though workloads may vary from person to person. Participation in group work is seen on google docs but the slide does not contain relevant information	The workload is divided and shared equally by all team members. Participation in group work is seen on google docs-each member has at least 1 attractive slide relevant graphics and accurate information.
Podcast elements (35%)	I couldn't even finish listening to it! Basic use of technology yet presentation is	It was ok to listen to once but probably not again.	Good to listen to. I'd recommend it to others who want review this info Good use of	Fun to listen too! I'd get others to listen to this Well rehearsed, smooth delivery in a conversational style. Voice quality is clear and consistently

	not professional looking.		technology	audible throughout the presentation. Excellent use of technology
Sources/Bibliography (10%)	Only one source used. Maybe be cited, but quotes and pictures are not cited.	2-3 sources of information are used. Some sources, picture and quotes are cited, but many are not. No variety of sources.	Has 3 to 4 sources of information. Includes a list of most of the sources used. Uses some variety of sources, yet tends to use one source predominately.	Has at least 4 sources of information. Includes a list of all sources used with the storyboard. Uses a variety of sources such as internet, newspaper, and books. Site sources of quotes and pictures used.
Overall Presentation (10%)	Presentation is not professional looking. Presentation shows little thought or planning about the over all look.	The presentation lacks a professional look. Little time and thought were put into the over all look.	Most of the presentation looks professional and time and consideration were put into the titles, fonts, pictures and music.	It is apparent that much thought and planning went into the look and music

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Unit's Essential Question:

Mini-Unit Title (each mini-unit is approx 1 week long)	Big ideas of the mini-unit / concept statement (macro) What is the big idea of this mini-unit?	Key Content /Knowledge (Important Content to Know about, vocabulary, the specifics) (Micro)	Skills What should the students be able to do? (rule of thumb - skills are verbs – knowledge is a noun)	List of Topical / Content Based Questions (make sure to amend the essential question so that it becomes topical for this mini-unit)	Mini-Unit Assessment (must be aligned to the NYS / NYC exams. It can be a test or a quiz - i.e.: DBQ Essay; 10 multiple choice questions; or 3 constructed response questions)	Scaffolding towards the culminating project (what can be done during this mini-unit to develop the stage 2 culminating assessment (grasp)
ROCKS and MINERALS	Due to the pressures of the Earth, rocks change into different forms or types.	Rocks Minerals Igneous Sedimentary Metamorphic Rock cycle Weathering Erosion Mechanical weathering Chemical weathering	List the factors used to identify minerals. Compare the 3 types of Rocks. Create a mini-poster showing the rock cycle. Perform mini experiments on soil and erosion. Create lab reports.	How do we classify minerals? How do we compare the types of rocks? What is weathering? How do we compare the 2 types of weathering? Why is chemical	Chapter quiz Short response questions	Students will learn about chemical weathering and its effects on the environment. One of the careers in the culminating activity is soil scientist. They will learn about what a soil scientist does.

Backwards Design Unit Planning

				<p>weathering significant?</p> <p>What is erosion?</p> <p>How does deforestation cause erosion?</p>		
FOSSILS and EARTH'S HISTORY	The evidence that the Earth has changed is found in fossils and fossil records.	<p>Fossils</p> <p>Permineralized remains</p> <p>Mold</p> <p>Cast</p> <p>Relative age</p> <p>Absolute age</p> <p>Radioactive decay</p> <p>Half-life</p> <p>Uniformitarianism</p> <p>Geologic Time Scale</p>	<p>Identify the parts of the geologic time scale.</p> <p>Construct model of trace fossils (mini lab)</p> <p>Describe the information that you can learn from your model.</p>	<p>What are the conditions necessary for the fossils to form?</p> <p>How do fossils form?</p>	<p>Chapter quiz – multiple choice</p> <p>Short response</p>	<p>Students will learn about paleontologists – what he does and how he works.</p>
PLATE TECTONICS	The Earth is constantly changing as evidenced by the movement	<p>Continental drift</p> <p>Pangaea</p> <p>Seafloor spreading</p> <p>Plate tectonics</p>	<p>Describe the concept of continental drift</p> <p>Identify evidence</p>	<p>What is continental drift theory?</p> <p>How did</p>	<p>Chapter quiz</p>	<p>Students will work on earthquake. They will know what a seismologist does.</p>

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	of the plates.	Asthenosphere Convection current	<p>showing continental drift</p> <p>Explain the seafloor spreading</p> <p>Compare and contrast the 3 types of plate boundaries</p> <p>Create a map showing the different earthquake zones of the earth</p>	<p>scientist prove that the continents moved?</p> <p>How do we compare the 3 types of plate boundaries?</p> <p>Where are earthquakes located? Where is ring of fire located?</p>		

Backwards Design Unit Planning

A Week at a Glance – Copy as Necessary

WHERE is the student going and what is expected HOOK with needed skills to experience and explore Opportunity to REVISE and RETHINK their understanding		Allow students to EVALUATE work and implications TAILOR work to student needs Be ORGANIZED to maximize engagement		
Monday	Tuesday	Wednesday	Thursday	Friday
Content Focus: How do we identify minerals? Hook: Brain pop (Mineral Identification)	Content Focus: How do we classify rocks? Hook: United streaming video on types of rocks	Content Focus: How do rocks change from one form to another? Hook: Brain pop	Content Focus: How does weathering happen? Hook: Brain pop - Weathering	Content Focus: Why is erosion important? Hook: Using lab materials, show a mini demonstration of erosion
Daily Assessment: Mini-lab report/ journal entry Science journal	Daily Assessment: Vocabulary words	Daily Assessment: Mini – poster of Rock Cycle	Daily Assessment: Create a concept map showing the factors affecting weathering	Daily Assessment: Journal writing

Weekly Assessment (must be aligned to the NYS / NYC exams):

Journal Writing

Chapter 4 – Intermediate-Level Science Examination (Glencoe exam view)

What have the students produced that scaffolds towards the units culminating assessment?
 (for example if the unit’s culminating assessment is a newspaper – perhaps the students have written an article)

They will conduct a research about the works of a soil scientist. Also they will research about acid rain and its effects on soil. They will also research on effects of deforestation on soil erosion.

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: A Week at a Glance – Copy as Necessary

WHERE is the student going and what is expected HOOK with needed skills to experience and explore Opportunity to REVISE and RETHINK their understanding		Allow students to EVALUATE work and implications TAILOR work to student needs Be ORGANIZED to maximize engagement		
Monday	Tuesday	Wednesday	Thursday	Friday
Content Focus: Rocks and Fossils: How are they connected? Hook: Brain pop - fossils Daily Assessment: Vocabulary words	Content Focus: Where do we find fossils? Hook: United streaming video Daily Assessment: Journal writing	Content Focus: How do we know the date of organisms? Hook: United streaming video Daily Assessment: Journal/reflection writing	Content Focus: How do we construct a model of trace fossils? Hook: Laboratory activity: Trace Fossils (Glencoe page 140) Daily Assessment: Journal/reflection on the activity	Content Focus: What did we learn from the lab activity? Hook: TPS –share with a partner your findings from the lab activity Daily Assessment: Lab Report
Weekly Assessment (must be aligned to the NYS / NYC exams): On a loose leaf, answer the Intermediate Level Science Exam Practice – page 146 to 147 What have the students produced that scaffolds towards the units culminating assessment? (for example if the unit’s culminating assessment is a newspaper – perhaps the students have written an article) Research about fossils, fossil remains, and paleontologists.				

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A Week at a Glance – Copy as Necessary

WHERE is the student going and what is expected HOOK with needed skills to experience and explore Opportunity to REVISE and RETHINK their understanding		Allow students to EVALUATE work and implications TAILOR work to student needs Be ORGANIZED to maximize engagement		
Monday	Tuesday	Wednesday	Thursday	Friday
Content Focus: What is the continental drift theory? Hook: Brain pop video Daily Assessment: Journal entry	Content Focus: What is seafloor spreading? Hook: Show pictures of the ocean floor. Ask students to label. Use their laptops to identify the parts. Daily Assessment:	Content Focus: How do we compare the different types of plate boundaries? Hook: Brain pop video Daily Assessment: Reflections/ journals	Content Focus: How do we know that the continents moved? Hook: Mini lab from the American Museum of Natural History website Daily Assessment: Lab report	Content Focus: Hook: Daily Assessment:
Weekly Assessment: (must be aligned to the NYS / NYC exams): What have the students produced that scaffolds towards the units culminating assessment? (for example if the unit's culminating assessment is a newspaper – perhaps the students have written an article)				

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Unit Resources

Books:

New York Science Glencoe grade 7

Websites:

**United streaming
American Museum of Natural History
www. Glencoe.com
brainpop**

Teacher Materials:

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Other: