EARTH'S SPHERES & INTERACTIONS PROJECT
"Everything is connected to everything else."
Due 2/19

Standards:

5-ESS2-1-I can....develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

5-ESS3-1 I can....obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Earth is often referred to as a system; a complex whole that is produced by various interacting parts. These parts, which you have learned as spheres, interact in very dynamic ways to produce everyday life as well as natural disasters.

In this project, you will demonstrate your understanding of each sphere, how it interacts with other spheres, and how Earth represents a system. You will choose a scenario such as presented in class to complete this task. This scenario should include a specific habitat or biome, people/person, animals, plants, water, rock/soil etc. Be creative in your modeling and demonstrating their interactions.

Guiding Questions:

1. What is a system?
2. What are the Earth's systems?
3. What are the Earth's spheres and how do the spheres interact?
4. What can humans do to diminish their impact on the hydrosphere, atmosphere, geosphere, and the biosphere?

The spheres that must be included in your project are:

Atmosphere
Geosphere
Hydrosphere
Biosphere

Lithosphere – solid earth **Atmosphere** – gases (the air)
Hydrosphere – all water **Biosphere** – all life

Part 1 Task: Spheres Research and Project Outline (20 Points)

Using your notes as well as researching on the web, look up information that helps you describe each sphere, explain how humans impact the environment (ie pollution, trash etc), and explain different interactions within the spheres with a created scenario.

❖ Describe this geosphere in detail-What makes up the geosphere? What things can be found in the geosphere? How is it/why is it important to Earth? What are some ways to reduce the human footprint (i.e human negative impact) on your sphere?

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❖ Describe this biosphere in detail. -What makes u p the biosphere? What things can be found in the biosphere? How is it/why is it important to Earth? What are some ways to reduce the human footprint (i.e human negative impact) on your sphere?

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Describe this hydrosphere in detail.-What makes up the hydrosphere? What things can be found in the hydrosphere? How is it/why is it important to Earth? What are some ways to reduce the human footprint (i.e human negative impact) on your sphere?

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Describe this atmosphere in detail. What makes up the atmosphere? What things can be found in the atmosphere? How is it/why is it important to Earth? What are some ways to reduce the human footprint (i.e human negative impact) on your sphere?

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❖ Scenario: Choose a habitat/biome and build an example that includes people/a person, animals, plants, water, rock/soil etc. Explain these details below. For example, in class we showed the picture of the people rafting down the river. Think about the interactions we discussed and wrote down in your notebook.

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❖ How does the hydrosphere interact with the other three spheres in your scenario? Write down up to three ways that the biosphere, geosphere, and atmosphere interact with the hydrosphere.

1._____

2._____

3._____

❖ How does the biosphere interact with the other three spheres in your scenario? Write down up to three ways that the biosphere interacts with the hydrosphere, geosphere, and atmosphere.

1._____

2._____

3._____

⬥ How does the geosphere interact with the other three spheres in your scenario? Write down up to three ways that the geosphere interacts with the hydrosphere, biosphere, and atmosphere.

1._____

2._____

3._____

⬥ How does the atmosphere interact with the other three spheres in your scenario? Write down up to three ways atmosphere interacts with the biosphere, geosphere, and hydrosphere.

1._____

2._____

3._____

Part 2: Modeling Earth's Interactions (20 points)

Choose a format/platform from the choice board to present the information you collected and the scenario you created.

Include the following in your presentation:

1. The four spheres (atmosphere, biosphere, hydrosphere and geosphere).
2. Illustrate how each sphere interacts with the other. For example, if you chose a horse (biosphere) drinking from the water (hydrosphere) you would need to label those items with their sphere and use arrows to represent their relationship/interaction.
3. Recorded audio explaining each sphere interaction and be **specific** in your explanations.
4. Use arrows to show or demonstrate the interactions in your scenario/model.
5. Edit! Make sure to edit through your presentation before you export as a movie or final version.
6. Upload your final products to Seesaw (folder).

Part 3: Presentation (10 points)

Present both model and interactions to the class to show comprehension of Earth's Spheres. We will review the rubric and what to expect for presentation day.

Project Total: 50 Points
(see attached rubric)

Earth's Spheres Project Rubric

| SCORE	1	2	3	4
COVERAGE OF THE TOPIC	Information on the model does not accurately describe the spheres-little to no information is present.	Information on the model somewhat describes the spheres-some information is present.	Information on the model describes the spheres-most information is present.	Information on the model throughly describes the spheres-all information is present.
LAYOUT AND DESIGN	The model/representation is somewhat distracting and neatness is not evident. No graphics are used and little creativity is evident.	The model/representation is somewhat attractive in terms of design, layout, and neatness. One or two graphics are used to reflect some student creativity.	The model/representation is attractive in terms of design, layout and neatness. Several of the graphics used on the poster reflect student creativity in their creation and/or display.	The model/representation is exceptionally attractive in terms of design, layout, and neatness. All of the graphics used on the poster reflect a exceptional degree of student creativity in their creation and/or display.
EARTH'S INTERACTIONS	Does not Illustrate interactions between spheres.	Illustrates 1 interaction between spheres Somewhat describes each interaction.	Illustrates 2 or more interactions between spheres Describes each interaction.	Illustrates 3 or more interactions between spheres Describes each interaction.
MECHANICS	Many grammatical, spelling, or punctuation errors.	A few grammatical, spelling, or punctuation errors.	Almost no grammatical, spelling, or punctuation errors.	No grammatical, spelling, or punctuation errors.
PRESENTATION	Information presented was unclear, rushed etc.	Information presented was somewhat clear, somewhat hard to follow.	Information was clear, easy to follow.	Information was very clear, loud, clear voice.

Total Points for Project Section: _____/20 points

Earth's Spheres Project Choice Board

Video

Must include:
-A model or display representing Earth's Spheres to represent your habitat and scenario you created with the sphere interactions.

Include the following in your presentation:

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2. Illustrate how each sphere interacts with the other. For example, if you chose a horse (biosphere) drinking from the water (hydrosphere) you would need to label those items with their sphere and use arrows to represent their relationship/interaction.
3. Recorded audio explaining each sphere interaction) and be **specific** in your explanations.
4. Use arrows to show or demonstrate the interactions in your scenario/model.
5. Edit! Make sure to edit through your presentation before you export as a movie or final version.
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Chatter Pix

Must include:
Use Chatterpix with a character such as planet Earth or an element/item in your scenario to explain and represent your habitat and scenario you created with the sphere interactions. Use as many 30 second clips as needed to present your content and combine in iMovie or Clips.

Include the following in your presentation:

1. The four spheres (atmosphere, biosphere, hydrosphere and geosphere).
2. Illustrate how each sphere interacts with the other. For example, if you chose a horse (biosphere) drinking from the water (hydrosphere) you would need to label those items with their sphere and use arrows to represent their relationship/interaction.
3. Recorded audio explaining each sphere interaction) and be **specific** in your explanations.
4. Use arrows to show or demonstrate the interactions in your scenario/model.
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Stop Motion

Must include:
-Be creative! Use the Stop Motion App with paper, clay or other mediums to represent your habitat and scenario you created with the sphere interactions.

Include the following in your presentation:

1. The four spheres (atmosphere, biosphere, hydrosphere and geosphere).
2. Illustrate how each sphere interacts with the other. For example, if you chose a horse (biosphere) drinking from the water (hydrosphere) you would need to label those items with their sphere and use arrows to represent their relationship/interaction.
3. Recorded audio explaining each sphere interaction) and be **specific** in your explanations.
4. Use arrows to show or demonstrate the interactions in your scenario/model.
5. Edit! Make sure to edit through your presentation before you export as a movie or final version.
6. Upload your final products to Seesaw (folder).

3D Model

Must include:
-Create a 3D model using various materials to represent your habitat and scenario you created with the sphere interactions.

Include the following in your presentation:

1. The four spheres (atmosphere, biosphere, hydrosphere and geosphere).
2. Illustrate how each sphere interacts with the other. For example, if you chose a horse (biosphere) drinking from the water (hydrosphere) you would need to label those items with their sphere and use arrows to represent their relationship/interaction.
3. Recorded audio explaining each sphere interaction) and be **specific** in your explanations.
4. Use arrows to show or demonstrate the interactions in your scenario/model.
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Keynote Animation

Must include:
-Use Keynote Animation to take images you create, included in Keynote or that you retrieve from the internet (cannot be a whole scene/picture already created) and represent your habitat and scenario you created with the sphere interactions. See further information and examples in project packet/class.

Include the following in your presentation:

1. The four spheres (atmosphere, biosphere, hydrosphere and geosphere).
2. Illustrate how each sphere interacts with the other. For example, if you chose a horse (biosphere) drinking from the water (hydrosphere) you would need to label those items with their sphere and use arrows to represent their relationship/interaction.
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Your Choice

If you think you have another fun way to model the Earth's spheres, please check in with your teacher and outline your idea below. Should still include basic components/information as outlined.

Idea Plan:

Example of a model:

The image below gives you a simple example of the four spheres with arrows indicating their interactions:
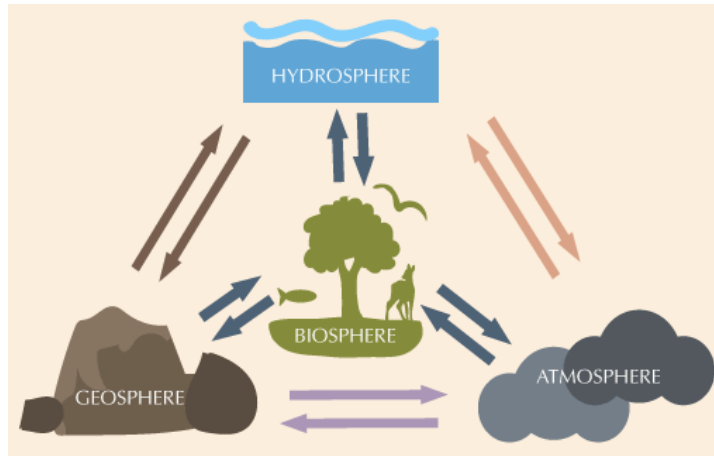
The Keynote template is designed to show you examples to help your group animate the sphere interactions and explain your different systems. Some further helpful hints or instructions are below.

EXPLAIN A PROCESS

Explain a Process gives students the chance to create and explain an animated process from scratch or provide your students with an animated process template and have them record audio to orally explain how the process works.
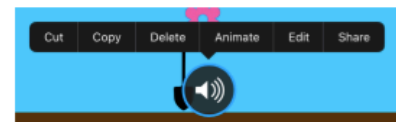
Let's Make It!

1. Create a scene using shapes or upload an image into Keynote and share to your class (Bonus: animate your objects!)

2. Students will select + and choose "Record Audio"

3. Students will explain how the process works.

Select the audio recording and choose "Animate"

Choose "Build Order" and put the audio recording first

Export completed recording as a movie

Explain a Process Template