

County Implementation Award Program (CIAP) Math and Science Lesson

<p>Unit Title: Earth, Land, and Sea (Lesson 6 of 6)</p>
<p>Lesson Title: Model of Land and Water</p>
<p>Author: Peggy Stone</p>
<p>Grade Level: 2nd</p>
<p>Time Frame: 4-5 class periods</p>
<p>Targeted Standard(s): NGSS: 2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area. [Assessment Boundary: Assessment does not include quantitative scaling in models.] Math: Developing and Using Models</p> <ul style="list-style-type: none"> ▪ Develop a model to represent patterns in the natural world. (2-ESS2-2) ▪ MP.4
<p>Short Description of Targeted Phenomenon: Use the National Geographic interactive map to zoom into student’s town and surrounding area to view physical features noting waterways and landforms. https://mapmaker.nationalgeographic.org</p>
<p style="text-align: center;">Three Dimensions of NGSS</p> <p>Science & Engineering Practice/s (SEP): <i>Developing and Using Models</i> Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions. Develop a model to represent patterns in the natural world. (2-ESS2-2)</p> <p><i>Obtaining, Evaluating, and Communicating Information</i> Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</p> <p>Crosscutting Concept/s (CCC): <i>Patterns</i>: Patterns in the natural world can be observed. (2-ESS2-2) Disciplinary Core Idea/s (DCI): <i>ESS2.C (b): The Roles of Water in Earth’s Surface Processes</i></p> <ul style="list-style-type: none"> ▪ Water is found in the ocean, rivers, lakes, and ponds. <p><i>ETS1.C: Optimizing the Design Solution</i> Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (secondary to 2-ESS2-1)</p>
<p>Language Supports:</p> <p>W.2.8 Recall information from experiences or gather information from provided sources to answer questions.</p>

Materials Needed: book: Earth's Landforms and Bodies of Water by Natalie Hyde or attached PowerPoint, self-drying clay (Crayola or other brand) OR salt dough in green and blue, Chinet paper plates (dinner-size)

Salt Dough Recipe:

In a large zip-lock bag, add the following:

2 cups of flour 1 cup of salt

1 cup of water 1 tablespoon of cream of tartar

Few drops of green food coloring

Zip the bag and knead the ingredients

Add water as needed for consistency

*Repeat with blue food coloring

Objective(s): Students will be able to:

1. Listen to a story and draw various landforms and waterways as they read
OR
Watch linked power point and draw various landforms and waterways
2. Create a 3-D representation of land and water using clay or salt dough
3. Follow criteria as assigned by the teacher

How Math and Science concepts/skills/practices were integrated in this lesson: This lesson is a continuation of the previous lesson on mapping NGSS: 2-ESS2-2a

Possible Challenges /Misconceptions: Students should be given some time to explore and manipulate clay prior to lesson in hopes to eliminate desire to play rather than create their 3-D model.

Formative Assessment: Students will create a 3-D model of an area as prescribed by the teacher to include waterways and landforms.

Lesson Opening

Teacher Actions

- T- Projects the website:
<https://mapmaker.nationalgeographic.org> for students to see.
- T- Zooms to location of the school.
- T- Asks: What do you see? Where is our school located? Do you see any waterways or mountains near us? How can you tell?
- T- Talks about landforms and waterways in the area and how they are represented on website.
- T- Zooms out to include various waterways and landforms in the area.

Student Actions

S-Respond with answers to the questions

Lesson Introduction	
<p>Teacher Actions</p> <p>T- Passes out paper and has students fold it into fourths.</p> <p>T- Reads book: <u>Earth's Landforms and Bodies of Water</u> by Natalie Hyde stopping to have students draw landforms and waterways For example: When the teacher reads about mountains, teacher pauses, and students are given about 5 minutes to draw and label a mountain on $\frac{1}{4}$ of the paper. This should be repeated for each landform and waterway. (This may take 2 class periods.)</p> <p style="text-align: center;">OR</p> <p>https://docs.google.com/presentation/d/1ytuGBpx5PXK4LvFp5JUeb7q0U60XWijg2uw1_0Xj-o/edit?usp=sharing (need permission from owner of this Google document)</p>	<p>Student Actions</p> <p>S- Fold paper into fourths</p> <p>S- Draw, label, and color landforms and waterways as the teacher reads about them</p>
Body of Lesson	
<p>Teacher Actions</p> <p>T- Give criteria for landform model Model must include: *mountain or hill *river *lake or pond Caution students to make sure that the river flows down from high ground to low ground</p> <p>T- Have students do a quick sketch of their model T- Passes out dough and plates for each student T- Have students knead their dough T- Have students complete their model</p> <p>(Instructions and planning may take one day and on day 2, building may begin)</p>	<p>Student Actions</p> <p>S- Listen to directions S- Make a quick sketch of their plan S- Knead dough S- Create landform model</p>
Lesson Closure	
<p>Teacher Actions</p> <p>T- Collect models to dry (may take several days)</p> <p>Note: If colored dough was not used, students may need to paint or color their models</p>	<p>Student Actions</p> <p>S- Pass in model to dry</p> <p>*If need be, students may need to paint or color their models</p>

Summative Assessment:

Check to make sure students have followed the criteria

Once models are complete, students can share with another class or a partner explaining the landforms included in their model

Other Teaching Resources:

Lab Safety: Don't eat the dough!

Extensions (if any)