

County Implementation Award Program (CIAP) Math and Science Lesson

Unit Title: Earth, Land, and Sea
Lesson Title: Mapping Your World
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Grade Level: 2nd
Time Frame: three or four - 45 min periods
<p>Targeted Standard(s): NGSS standards: 2-ESS2-2a Develop a model to represent the shapes of land in an area. [Assessment Boundary: Assessment does not include quantitative scaling in models.]</p> <p>Common Core Math Standard 2.2. MD.1a Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. <u>Measure using an inch ruler (2-S.2)</u></p> <p>Mathematical Practices</p> <ul style="list-style-type: none"> ▪ Make sense of problems and persevere solving them. ▪ Use appropriate tools strategically. ▪ Attend to precision. ▪ Look for and make use of structure.
<p>Short Description of Targeted Phenomenon: View the Earth from space using NASA website: https://www.nasa.gov/press-release/daily-views-of-earth-available-on-new-nasa-website</p>
<p>Three Dimensions of NGSS</p>
<p>Science & Engineering Practice/s (SEP):</p> <p><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):</p> <p><i>Patterns:</i> Patterns in the natural world can be observed. (2-ESS2-2)</p>

Disciplinary Core Idea/s (DCI):

ESS2.B: Plate Tectonics and Large-Scale System Interactions.

Maps show where things are located. One can map the shapes and kinds of land and water in any area. (2-ESS2-2)

ETS1.C: Optimizing the Design Solution

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)

Language Supports: W.2 Recall information from experiences or gather information from provided sources to answer a question.

Materials Needed: various maps (schoolyard, AAA maps, USGS maps, etc.), 1-inch graph paper, writing utensils, rulers, Science Journals

Objective(s):

1. Students understand that maps are models that represent where things are located.
2. Students independently create a map of a familiar area

How Math and Science concepts/skills/practices were integrated in this lesson:

Students prior study of landforms and waterways lead to mapping a familiar area with the use of graph paper and rulers.

Possible Challenges /Misconceptions:

Students may confuse physical models for runway models. Students may have difficulty following a map of the campus. Students may have trouble using tools (graph paper, rulers)

Formative Assessment:

Students will be able to explain their map to another person.

Students will be able to follow their maps of a familiar place to locate landmarks.

Lesson Opening

Teacher Actions

- T- Ask students if they had trouble finding things around the school
- T- Take students on a walk around the school while the teacher points out various things around the school while referring to school map (swings, bathrooms, basketball courts, etc.)

Student Actions

- S- Share some experiences finding things around the school
- S- Walk around schoolyard with teacher as teacher points out various 'landmarks'
- S- Locates various landmarks on campus using their campus map

Lesson Introduction

- T- Return to the classroom.
- T- Pass out various maps (schoolyard, AAA maps, USGS maps, etc.)
- T- Ask:
What do you see?

Student Actions

- S-Return to class
- S-Look at various maps
- S-Respond to questions from

<p>Do you see anything familiar? Do you see anything they all have in common? Do you see any patterns? What could you use these used for? How could a map be useful for people?</p>	<p>teacher</p>
<p>Body of Lesson</p>	
<p>Teacher Actions</p> <p>T- Read <u>Me on a Map</u> by Joan Sweeney</p> <p>T- Pass out rulers and scratch paper Discuss how people use inches and centimeters Show students how to use a ruler to draw straight lines</p> <p>T- Pass out 1-inch graph paper Show students how to draw X and Y axis Have students color in one square on the line Have students use their ruler and measure height of square Have students color 2 squares tall, next to the first square Repeat process several times</p> <p>T- Take students out to playground (or other familiar area) to a create a map; provide plain paper as well as various sizes of graph paper, rulers, and clipboards.</p> <p>T- Return to class. Provide spelling support for landmark words: gate, fence, bathroom, basketball, etc.</p> <p>Note: Some students may need guidance getting started. 'Where should you draw the gate? Should you draw an outline representing the fence?'</p>	<p>Student Actions</p> <p>S- Listen to story OR S- Read story 'Round-Robin' while book is projected overhead</p> <p>S- Practice making straight lines Make a picture using only straight lines</p> <p>S- Draw X and Y axis Color one square Measure one square Color 2 squares tall Measure the height of the 2 colored squares Repeat as instructed</p> <p>S- Draw a rough draft of area noting landmarks</p> <p>S- Make a final copy of map with labeling important landmarks. Some may start over while others will clean up and perfect their maps</p>
<p>Lesson Closure</p>	
<p>Teacher Actions</p> <p>T- Have students exchange maps Take students back outside</p>	<p>Student Actions</p> <p>S- Using a map from another student, locate various things on the map</p>

Summative Assessment:

Have students do a 'Quick Write' in journals:

Why do people use maps? How can you use a map?

Some students may need to draw or need assistance with spelling.

Other Teaching Resources:

Lab Safety:

Extensions (if any): Treasure Hunt using student maps