

From Big World to Small World - Mapping 4th grade

Teaching Point: People make and use maps for many reasons. They help explain the world in which we live on a variety of levels. They can show natural features such as the shape of the ocean floor, the topography of the land, various plant habitats, geologic features like mountains and rivers, volcanoes, etc. They can also show us man-made features such as roadways, borders, buildings, cell towers, etc. We use maps to find patterns and better understand the geography of a place.

Cross Cutting Concepts: Patterns; Structure and Function, Cause and Effect

NGSS:4: ESS2-2 Analyze and interpret data from maps to describe patterns of Earth’s features.

ESS2.E Biogeology- Living things affect the physical characteristics of their region.

Time: 45-60 minutes

Materials: laminated maps, lengths of yarn or frames, magnifying glasses, clipboards, drawing paper, a few directional compasses, pencils for drawing, crayons to enhance drawings

Architecture	Lesson Script
Set <i>1-2 minutes</i>	<p>Maps are like a snapshot of PLACE. There are many kinds of maps. In fourth grade you have been studying the map of California. Who can list some of the important physiographic features in California? (Coastal Range, Sierra Nevada Range, the San Francisco Bay and Delta region, Sacramento River, Central Valley, Deserts, Klamath Mountains, Cascade Range, etc.) You also have looked at map of where Indigenous peoples and early settlers lived (tribal regions, missions maps)</p> <p>Today, we are going to look at a few maps and review some of their key features. Then we will draw our own map.</p>
Teach <i>15 minutes</i>	<p>Show various maps (Mangini Ranch, Diablo Range, school grounds, local city, California, etc.) and have kids notice the similarities and differences in the maps. What features do they have in common? Title, date, key, compass rose, color, borders, etc.</p> <p>Show students how to orient the map toward the north using a compass/sun. Show them where we are on the map and where their school/town is.</p> <p>Today we are going to zoom in and make a “small world” map. You are going to find a quiet spot that appeals to you and use the yarn/frame to encircle an area of the land for your zoomed in map. You will be looking at all the different plants, rocks, leaves, water channels, bugs, and things you can find in your small world.</p> <p>Draw them into your map and make sure to add map features including: Title or name for this tiny world, a compass rose, a key to explain/tally some of the features in this world. Remember, you can also annotate or write little captions on your map that explain things with words as well as pictures.</p>
Active Engagement <i>15-30 minutes sketching</i>	<p>Students find quiet space near one another but far enough so that each student is able to concentrate on their own space and engage fully in the task. Remind them this is a quiet time to really be scientific observers of this small world. Provide the students with color pencils and magnifying glasses to allow them to get more engaged in their space. How might a ladybug see this space? What about a worm or a butterfly?</p> <p>As students sketch, the teacher should also sketch for a while. Then quietly check in with students and give them constructive feedback “I like the way you showed north.” “You show great detail about these small blue flowers here, did you count them and add that tally to your key?” “Nice job adding the line here to show that water dug a channel like a tiny river through the middle of your small world.” “Nice job noting the name of your small world.”</p>

<p><i>10-15 minutes sharing and adding information to create key</i></p>	<p>Call students back into a circle to share their small worlds. What kinds of features did they notice? How are their maps similar/different from the ones we looked at? Ask about the borders of these worlds. How does a border affect the butterfly or the earthworm in these small worlds?</p>
<p>Link</p> <p><i>Transfers back to student work and encourages accountability</i></p> <p><i>2 minutes</i></p>	<p>“Open spaces like Mangini Ranch Educational Preserve are critical spaces that are maintained so that plants and animals can cross through the spaces safely, find enough habitat and food in those spaces and connect to other open spaces. It is very important for us to keep connecting our open spaces to make what we call wildlife corridors for animals and plants to live without being interrupted by cities, roads, cars, and too many humans. Land Trusts like Save Mount Diablo help defend and preserve open spaces so each of these small worlds becomes interconnected as bigger wildlife corridors.”</p>