

Colorado

Giant Traveling Map Lesson

TITLE / AUTHOR: Where Is My Town? / Rebecca Theobald

COLORADO ACADEMIC STANDARDS / SUITABLE DISCIPLINES:

- Social Studies, Geography: Sixth Grade Standard 2, Grade Level Expectation 1: Use longitude, latitude, and scale on maps and globes to solve problems (DOK 1-2)
- Social Studies, Geography: Fourth Grade Standard 2, Grade Level Expectation 1: Use geographic grids to locate places on maps and images to answer questions (DOK 1-2)
- Social Studies, Geography: Second Grade Standard 2, Grade Level Expectation 1: Use map keys, legends, symbols, intermediate directions, and compass rose to derive information from various maps (DOK 1-2)
- Social Studies, Geography: First Grade Standards 2, Grade Level Expectation 1: Explain that maps and globes are different representations of Earth (DOK 1)

OBJECTIVES:

Students will:

- Learn about basic cartographic concepts such as projection and scale
- Practice using grids
- Practice using latitude and longitude lines
- Review choices made by cartographers

RECOMMENDED GRADES: General Audiences

TIME NEEDED: 20 minutes

MATERIALS:

- Blow-up globe or classroom globe
- Laminated maps of the world and the United States
- Ultimate U.S. Road Trip Atlas
- City cards
- Menu holders
- Paper road map
- Compass rose
- Map keys

PREPARATION:

- Discussion about creating maps could be undertaken prior to the visit of the Giant Map of Colorado, but it is not required.
- Have all the materials on a table or desk at the north side of the map for easy access

RULES:

- Shoes are not allowed on the map. Please have students remove shoes before walking on the map.
- No writing utensils on the map.
- No sliding on the map.

DIRECTIONS:

Before you go to the giant state map: (Optional segmenting of the lesson)

1. Review what a geographer does.
2. Review what a cartographer does [<http://cca-acc.org/resources/what-is-cartography/>].
3. Discuss projections, scale, and size of the Giant Map of Colorado compared with other types of maps.
4. Review symbols used by cartographers, such as those represented on the map key.
5. Discuss the purpose of a compass rose and a map legend or key.

On the map: (Optional segmenting of the lesson)

1. Invite students to sit at the south side of the map (and around the east and west sides if the class is large).
2. Ask students if the Giant Map of Colorado is useful in a car (no, it is too big and it has no roads).
3. Pick up the globe and ask students what it represents, what shape it is, and how a flat map can represent a sphere.
4. Discuss the concept of projection and the challenges involved for cartographers. <http://nationalgeographic.org/activity/investigating-map-projections/>
5. Demonstrate why the Albers Conic Equal-Area Projection is a good choice for a large format map of Colorado. The Albers Conic projection is good for any map, regardless of size, that represents the mid-latitudes. A cone is placed with its point centered above the pole which makes the cone's surface tangent or secant in the mid-latitudes. This results in very little distortion along the line of tangency. Since Colorado is in the mid-latitudes the choice of a conic projection is a good one because of the lack of distortion. A paper shaped as a cone can show the relationship between the developable surface and the globe.
6. Identify two different locations on the map, one of them being the present location of the map. Ask students to identify which grid the location is in (i.e. F4).
7. Observe that there are (probably) a great many other features or cities in the same square on the grid and that to identify the location of a particular town we need more specific information about where it is on the earth. Use the globe to discuss lines of latitude in relationship to the equator and lines of longitude in relation to the poles, if appropriate to the grade level using the Giant Map.
8. Choose one or two city cards which represent places the map has visited but that are not shown on the Giant Map of Colorado. Ask a student to read the description of the location (Ellicott or Paonia are good sample cards). Ask two other students to serve as markers for latitude and longitude. For younger students, help them find the correct latitude or longitude line and have them walk toward each other. Where they meet will be the location of the town (more or less). For older

students, hand out multiple city cards in pairs and ask them to find the towns and place the cards on the map using metal holders.

9. Address questions about why certain features are included or left off the map. The cartographer chose certain cities based on size, location, and historical importance. (See notes below.)
10. Depending on the time available and the level of the students using the map, discuss the concept of scale. One can think of the scale of the Giant Map of Colorado using multiple measures: 26 inches = 60 miles, 1:146,215.
<http://nationalgeographic.org/activity/measuring-distances-map/> Unfold a road map or other type of map of the state of Colorado and compare that scale and size to the Giant Map of Colorado.
11. Review information that is available on a map using the Giant Map of Colorado as an example. This includes the compass designating cardinal directions (<http://nationalgeographic.org/activity/cardinal-directions-and-maps/>) and the map key which describes the meaning of various symbols (<http://nationalgeographic.org/activity/mapping-classroom/>).
12. Segway to the scavenger hunt activity. This could be done on its own or combined with the “Simon Says” type of activity. “Put one toe on the Indian Reservation.” “What corner of the state are you standing in?”

MODIFICATIONS:

For younger students, focus on the map key and compass rose. For older students, invite them to have more autonomy in the lesson.

EXTENSIONS:

Ask students to undertake a writing assignment that shares the most important details about their town or school with other students across the state. Share that information with the Colorado Geographic Alliance so it can be uploaded to the online map or added to the city card collection.

NOTES:

Cartographers have to make many choices about what to include or leave off the map. Cities and towns were identified based on size, location (good geographic distribution), and significance – historical or otherwise. The larger or longer rivers are labeled. Some of the intermittent rivers end in an arrow to show the direction of flow. There are no passes shown on the map because Colorado has a lot of peaks and physical features labeled, so passes would not be shown as it was felt they crowded the map. To reference the original map on which the Giant Map of Colorado is based, look at the map in the Ultimate U.S. Road Trip Atlas included in this trunk.