Giant Traveling Map Lesson
Elevate Your State
A 3-D Study of Colorado's Elevations
Kevin Hoskin
Mesa County Valley School District #51

COLORADO ACADEMIC STANDARDS / SUITABLE DISCIPLINES:
- SS Geography 4.1.a Answer questions about Colorado regions using maps and other geographic tools (DOK 1-2)
- SS Geography 4.2.a Describe how the physical environment provides opportunities for and places constraints on human activities (DOK 1-2)

OBJECTIVES:
Students will:
- Create a 3-D model of elevations in Colorado
- Discuss how the topography of Colorado could be broken up into specific regions
- Discuss how Colorado's topography might influence humans

RECOMMENDED GRADES: 4 and above

TIME NEEDED: 30 – 45 minutes

MATERIALS:
- Master list of elevations of locations marked on the Giant Map
- Team elevation cards
- Stacking blocks
- Bags to hold stacking blocks
- Elevation Block Legend (A – 123, B – 109, C – 99, D – 107)

PREPARATION:
- Divide students into at least five groups, depending on the class sides.

RULES:
- Shoes are not allowed on the map. Please have students put on socks before walking on the map.
- No writing utensils on the map.
- No sliding on the map.

DIRECTIONS:
1. Sit around the edges of the Giant Map, starting on the south side.
2. Discuss how **altitude** is measured in feet above sea level.
    a. https://www.nationalgeographic.org/encyclopedia/elevation/
    b. https://www.nationalgeographic.org/encyclopedia/altitude/
    c. http://www.esri.com/esri-news/arcuser/winter-2015/using-arcgis-online-elevation-and-hydrology-analysis-services
3. Discuss the idea of **scale: a ratio that is used to make some form of measurement manageable.** In this case, 1 block will represent 1,000 feet of altitude. Discuss how to round to the nearest 1,000 feet (if they miss, it will not harm the outcome of the lesson).
4. Teams of two or three will build towers of blocks to represent elevations of specific locations on the Giant Map – based on a card listing map locations with corresponding altitude – and place the towers on the map at those locations. Faster groups can choose another card to continue building elevation towers.
5. When each group has completed their towers, sit (carefully!) around the edge of the Giant Map and discuss what they are observing. Challenge students to identify areas of similar elevations (region). Point out the Continental Divide, cities, rivers, and the highest and lowest points.
6. Discuss how different elevations might affect how humans interact with the land in those places.
7. After discussion, teams collect their towers and return cards and blocks to supply boxes.

NOTES: As towers are placed on the map, kids may have to work from the perimeter, rather from only one side, to prevent knocking over previously placed towers. Also, if there is a fold or wrinkle in the map and the tower won't stay up, students can either skip that one, or put it just to the side of the wrinkle.

MODIFICATIONS:
- Teams can be as many as four or as few as one individual student, depending on group size.

EXTENSIONS:

- Colorado Digital Atlas, Exploring Colorado's Ecoregions
  http://education.maps.arcgis.com/apps/PublicGallery/index.html?appid=c51608846a7f435d94fd921667382d81.
- Theorize why towns and cities are located where they are.
- Point out and discuss that Colorado has the highest mean (average) altitude of any state, 6,800 feet.
- Even the lowest point in Colorado, at the Arikaree River (3,315 ft.) is higher than some states' highest elevations.
- Identify other features to illustrate using blocks (rainfall, wind speed, lightning strikes, population, etc.).

Elevation Block Legend

A ....
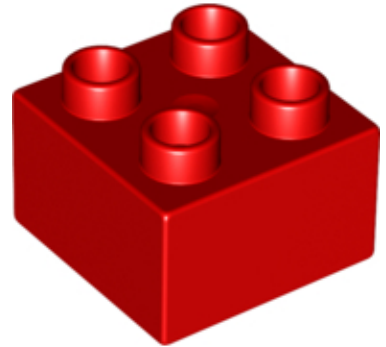
B..........................
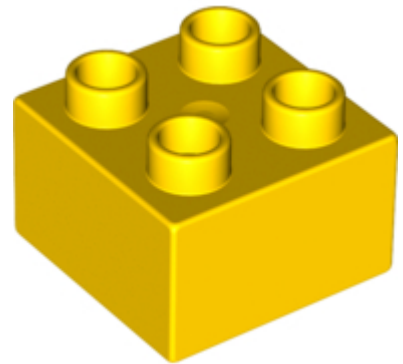
C..........................
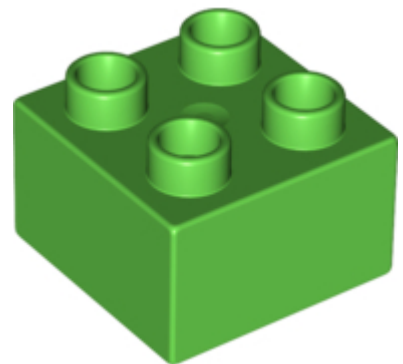
D ....
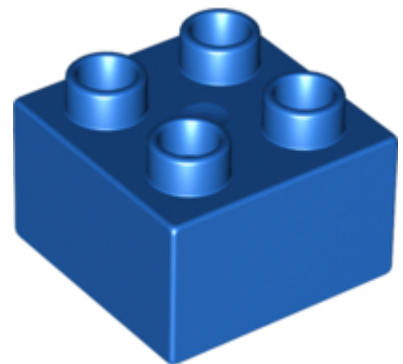
Springfield ....4,360 ft. A	Alamosa ....7,543 ft. B
Trinidad.....................6,010 ft. B	Pueblo.........................4,692 ft. A
Canon City ....5,331 ft. A	Great Sand Dunes .....13,604 ft. D National Monument
Sangre de Cristo........14,351 ft. D Mountains	Salida ....7,083 ft. B
Pawnee National ....5,230 ft. A Grassland	Boulder ....5,430 ft. A
Fort Collins..................5,003 ft. A	Colorado Springs ....6,035 ft. B
Greeley ....4,658 ft. A	Woodland Park...........8,465 ft. C
Sterling ....3,875 ft. A	White River Plateau . 10,000 ft. C

Pagosa Springs............7,126 ft. B	Gunnison ....7,700 ft. B
Telluride.......................8,750 ft. C	Uncompahgre Plateau 9,500 ft. C
Mesa Verde National 8,572 ft. C Park and Preserve	Black Canyon of the.. 8,320 ft. C Gunnison National Park
Durango ....6,512 ft. B	Montrose.....................5,807 ft. A
Leadville ....10,200 ft. C	Grand Mesa.................11,332 ft. D
Rampart Range ....9,632 ft. C	Roan Plateau ....9,200 ft. C
Vail ....8,022 ft. C	Rangely ....5,297 ft. A
Glenwood Springs.......5,761 ft. A	Burlington...................4,170 ft. A

Park Range...................12,182 ft. D	Denver .... 5,280 ft. A
Dinosaur National .....5,900 ft. A Monument	Steamboat Springs... 6,732 ft. B
	Rocky Mountain.......... 14,439 ft. D National Park
Meeker ....6,240 ft. B	
Craig.............................6,198 ft. B	Estes Park................... 7,522 ft. B
Rocky Ford .... 4,180 ft. A	Akron .... 4,659 ft. A
Walsenburg .... 6,171 ft. B	Fort Morgan .... 4,324 ft. A
Limon.............................5,377 ft. A	Longmont .... 4,984 ft. A
Pikes Peak .... 14,114 ft. D	Mt. Elbert .... 14,439 ft. D

Grand Junction..........4,593 ft. A	Aspen .... 8,000 ft. C
Colorado National. .....7,000 ft. B Monument	Gore Range................. 13,534 ft. D
	Blue Mesa Reservoir. 7,519 ft. B
Rifle ....5,348 ft. A	Delta............................ 4,953 ft. A
Orchard City...............5,446 ft. A	
Aurora ....5,471 ft. A	
Castle Rock..................6,224 ft. B	
Kiowa...........................6,378 ft. B	
Last Chance.................4,820 ft. B	

Name	Type	Location	Latitude / Longitude	County	Elevation	Number of Duplos	Color - PP	Total
Sterling	City	Eastern			3875	4	R	
Burlington	City	Eastern			4170	4	R	
Rocky Ford	City	Eastern			4180	4	R	
Fort Morgan	City	Eastern			4324	4	R	
Springfield	City	Eastern			4360	4	R	
Grand Junction	City	Northwest/North Central			4593	5	R	
Greeley	City	Denver Metro Region			4658	5	R	
Akron	City	Eastern			4659	5	R	
Pueblo	City	Eastern			4692	5	R	
Last Chance	City	Eastern			4820	5	R	
Delta	City	Southwest/South Central			4953	5	R	
Longmont	City	Denver Metro Region			4984	5	R	
Fort Collins	City	Denver Metro Region			5003	5	R	
Pawnee National Grassland	Park	Eastern			5230	5	R	
Denver	City	Denver Metro Region			5280	5	R	
Rangely	City	Northwest/North Central			5297	5	R	
Canon City	City	Southwest/South Central			5331	5	R	
Rifle	City	Northwest/North Central			5348	5	R	
Limon	City	Eastern			5377	5	R	
Boulder	City	Denver Metro Region			5403	5	R	
Orchard City	City	Southwest/South Central			5446	5	R	
Aurora	City	Denver Metro Region			5471	5	R	
Glenwood Springs	City	Northwest/North Central			5761	6	R	
Montrose	City	Southwest/South Central			5807	6	R	
Dinosaur National Monument	Park	Northwest/North Central			5900	6	R	
						123	123	125
Trinidad	City	Eastern			6010	6	Y	
Colorado Springs	City	Eastern	38.8339° N, 104.8214° W	El Paso	6035	6	Y	
Walsenburg	City	Eastern			6171	6	Y	
Craig	City	Northwest/North Central			6198	6	Y	
Castle Rock	City	Denver Metro Region			6224	6	Y	
Meeker	City	Northwest/North Central			6240	6	Y	
Kiowa	City	Eastern			6378	6	Y	
Durango	City	Southwest/South Central			6512	7	Y	
Steamboat Springs	City	Northwest/North Central			6732	7	Y	
Colorado National Monument	Park	Northwest/North Central			7000	7	Y	
Salida	City	Southwest/South Central			7083	7	Y	
Pagosa Springs	City	Southwest/South Central			7162	7	Y	
Blue Mesa Reservoir	Water Body	Southwest/South Central			7519	8	Y	
Estes Park	City	Northwest/North Central			7522	8	Y	
Alamosa	City	Southwest/South Central			7543	8	Y	
Gunnison	City	Southwest/South Central			7700	8	Y	
						109	109	111
Aspen	City	Northwest/North Central			8000	8	G	
Vail	City	Northwest/North Central			8022	8	G	
Black Canyon of the Gunnison National Park	Park	Southwest/South Central			8320	8	G	
Woodland Park	City	Southwest/South Central			8465	8	G	
Mesa Verde National Park	Park	Southwest/South Central			8572	9	G	
Telluride	City	Southwest/South Central			8750	9	G	
Roan Plateau	Natural Feature	Northwest/North Central			9200	9	G	
Uncompahgre Plateau	Natural Feature	Southwest/South Central			9500	10	G	
Rampart Range	Natural Feature	Southwest/South Central			9632	10	G	
White River Plateau	Natural Feature	Northwest/North Central			10000	10	G	
Leadville	City	Northwest/North Central			10200	10	G	
						99	99	101
Grand Mesa	City	Northwest/North Central			11332	11	B	
Park Range	Natural Feature	Northwest/North Central			12182	12	B	
Gore Range	Natural Feature	Northwest/North Central			13534	14	B	
Great Sand Dunes National Park and Preserve	Park	Southwest/South Central			13604	14	B	
Pikes Peak	Natural Feature	Eastern	38.8409° N, 105.0423° W	El Paso	14114	14	B	
Sangre de Cristo Mountains	Natural Feature	Southwest/South Central			14351	14	B	
Mt. Elbert	Natural Feature	Northwest/North Central			14439	14	B	
Rocky Mountain National Park	Park	Northwest/North Central			14439	14	B	
						107	107	109
							438	446