ARIZONA

Giant Traveling Map Lesson

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ARIZONA ACADEMIC STANDARDS / SUITABLE DISCIPLINES:

OBJECTIVES:
Participants will:
- Learn about major cities in Arizona during three different historical periods
- Practice using grids and cardinal directions to locate cities in the state
- Practice using latitude and longitude lines (if appropriate for grade level)
- Analyze change over time
- Discuss topics such as the census (source of data), distribution of resources in the state, and implications of changes in population for political representation at various levels of government

RECOMMENDED GRADES: Fourth through adult

TIME NEEDED: 20 to 25 minutes, depending on whether discussion is held as part of the map visit or at a later time

MATERIALS:
- Compass rose
- 15 flat markers (red or fluorescent)
- 15 tall cones (blue-striped or multi-colored)
- 15 shorter, flexible cones (orange with dots or see-through)
- 3 to 4 plastic chains for dividing state
- List of Arizona cities by population for 1880/1950/2010 (some cities are not on the map and will need to be found by using latitude and longitude lines at the sides of the map)

PREPARATION:
- Discussion about the reasons why people choose to live in different places
- Review of historical settlement patterns in Arizona
- Development of predictions by participants about where they think people might live

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

DIRECTIONS:
Using the list of cities and colored cones, participants will locate the fifteen most populous cities in Arizona for the years 1880, 1950, and 2010. They will then look for trends based on the east/west axis and north/south axis, speculating about the factors that contributed to populations shifting along the Front Range.

On the map:

1. Provide participants with an overview about exploring the top fifteen populated places in Arizona in 1880, 1950, and 2010 using U.S. Census data as a source of information.
2. Ask participants about the kinds of jobs they imagine people were doing in Arizona in 1880. Ask them to predict where people might be living.
3. Take 15 of the round makers. Pass them out to 15 of the participants (usually just ask them to take one and pass the remainder along).
4. Read the 15 largest cities one at a time, going down the row of participants and asking the participants to place the marker on the dot identifying the town (star in the case of Phoenix).
5. Remind the participants that they can provide assistance to their classmates or colleagues about the location of a city based on cardinal directions or the grid. They should avoid shouting "over there", "this way", etc.
6. After the flat, round markers are all on the map, ask the participants to interpret the new information that has been added to the map.
   - None of the largest cities in 1880 are in the northern region of the state. The population clusters around Phoenix, the capital, because of employment in government jobs, goods and services, and agriculture. Cities south and west of Phoenix support the silver mining industry in nearby mountains or are historic transportation routes. Agricultural areas flourish in such cities as Yuma because they have year-round water sources and historic trade and transportation routes through the Southwest.
7. Move on to the 1950 census and ask participants what jobs people were doing then. Ask them to predict where people might be living.
8. Pass out the 15 larger cones. Assign individual participants to place their cones on the 15 cities. For cities in the top 15 in 1880 and 1950, have participants pick up the red marker and place it on top of the cone.
9. After the larger cones are all on the map, repeat Item 6 above, asking them to think about what has changed and why.
   a. Agricultural communities are growing due to development of the reservoir system for the Phoenix area (year-round water supply). After the 1880 census, a decline in silver mining occurred. The size of industries supporting the military after WWI and WWII continued to increase. The development of evaporative cooling and air conditioning made the state more attractive for

living as well. Ask how many cities that were in the top 15 in 1880 are in the top 15 in 1950. (6, is that more or less than half of 15?)
10. Repeat process with 2010 census data and smaller or flexible orange cones. Have participants put the orange cone on top of the flat, round marker creating a pyramid, or on top of the large cone if the city was in the top 15 only in 1950.

NOTES:
Review Arizona history eras for contextual information about population shifts for the time periods explained in this lesson

GUIDING QUESTIONS:
Q. What factors influenced where people initially settled?
A. Tucson, the largest city in 1880, was settled by the Spanish and then by the U.S. military to protect Arizonan ranchers and settlers from Native Americans. Its location on a major travel and trade route across the Southwest attracted many people, and the Southern Pacific Railroad arrived in 1880, leading to employment opportunities and more goods. Arizona's physical features (waterways, mountains, farmlands) influenced population distribution.

Transportation and trade incentives for settlement went hand in hand with the growth of agricultural areas. In Safford, farming regions were irrigated with waters of the Gila River (grains, alfalfa, fruits, vegetables, cattle), and Mesa and Tempe relied on an irrigation system from the Salt River (barley, wheat, alfalfa, corn, beans.) Services from agricultural communities as well as railroads supported silver, gold, and copper mining. Military posts in cities like Yuma sought to protect trade routes and Arizonans. Also, many of the largest cities during this period (Prescott, Florence, St. Johns, Phoenix) served as county seats, providing great employment with government jobs.

Q. How many of the fifteen largest cities were located on a river providing a year-round water supply in 1880, 1950, and 2010?
A.

1880	1950	2010
9 (Salt, Verde, Gila, Santa Cruz, Little Colorado, Colorado, Hassayampa)	1 (Colorado River)	2 (Colorado River)

What happened?   By 1950, many of the AZ rivers were dammed and reservoirs created. The water in the reservoirs was taken to cities by a canal system. Some of the cities have always depended on well water and are still dependent on this today. There are very few year-round rivers in AZ.

Q. How many of the cities were located outside the metropolitan Phoenix area in 1880, 1950, and 2010?
A.

1880	1950	2010
12	11	4

Q. For what reasons did this pattern exist?
A. After the 1880 census, the prevalence of mining declined as mechanization of mining was on the rise; therefore, fewer personnel were needed. By 1950, Phoenix became the hub for employment as the state capital and county seat. After WWI and WWII, an increase in military installations in areas led to an influx of new residents: military veterans and development of industries (AirResearch and Motorola in Phoenix.) The expanded use of air conditioning and evaporative cooling encouraged more year-round settlement, and cross-country automobile and railroad transportation routes guided migration. Agricultural communities (Mesa, Yuma, Tempe) were still strong in the 1950s. By 2010, most of the major industries and employers in AZ were found in the Phoenix area. Agriculture decreased, but population density increased as the farmland gave way to new housing.

Q. How did Arizona compare with the rest of the United States?
A. In 1880, the population of all of Arizona was 44,440. That was a 318.7% increase over the population in 1870. During the same decade, the population of the United States increased by 30.2% to 50,189,209.

Q. After adding cones from the 1950 Census, ask participants to consider how many of the new top fifteen largest cities are in central, northern, and southern AZ?
A.

Central (33°N to 35°N)	Northern (35°N to 37°N)	Southern (31°N to 33°N)
9	1	5

Central: Phoenix, Mesa, Glendale, Tempe, Prescott, Winslow, Globe, Coolidge, Miami
Northern: Flagstaff
Southern: Douglas, Ajo, Yuma, Tucson, Nogales

Q. How many cities in the new top fifteen in 1950 were also in the top fifteen in 1880?
A. Six

Q. Is six more or less than half of fifteen?
A. Less than half

Q. How many cities in the new top fifteen in 2010 were also in the top fifteen in 1880?
A. Five

Q. Where are most of the large cities in Arizona located in 2010? Why?
A. In 2010, Phoenix continued to grow as the state capital and a county seat, and its municipal government created employment. Its establishment as the largest city in Arizona in 2010 was also bolstered by large firms: Shamrock Farms, Walmart, Banner Health, Wells Fargo, Bank of America, U.S. Postal Service, American Express, etc.) Professional sports teams as well as a transportation center for Interstate 10 attracted settlement. Tourism increased as the climate promoted settlement of winter visitors and high-end resorts (Tucson, Mesa, Scottsdale.) With Phoenix as a central hub and the capital, the largest cities around grew due to employment from other institutions (University of Arizona in Tucson, US Airways in Tempe, Mesa Public Schools in Mesa.) A main incentive for settlement was following a healthful way of life with a better education system,

cheaper housing, less crime, and proximity to shopping centers. These provisions might not be satisfied fully in Phoenix, so cities outside the capital like Glendale, Gilbert, Peoria, and Surprise grew. Agricultural communities became smaller as homes were built on former farmland; the growth of large firms and the jobs they offered influenced population shifts.

Q. Are Phoenix and suburbs significantly more concentrated than they were in 1880?
A. Yes. Tell participants that the total population of the fifteen largest cities in 1880 was approximately 17,138 and that the total of the top fifteen cities in 2010 is nearly 4,079,746.

Now ask participants:

Q. Generally speaking, how would you describe the majority of population movement and growth in the Arizona over the past one hundred years?
A. Arizona is the second fastest growing state according to census data. What attracts people to move to AZ? (climate, low cost of housing, employment, family, education)

Q. Why? What factors have encouraged people to move and live in cities?
A. Employment opportunities with the growth of large firms and industries, access to educational opportunities and entertainment, and better health care.

MODIFICATIONS:
For younger students, focus on the map key and compass rose. For older students, invite them to have more autonomy in the lesson and incorporate additional mathematical concepts.

EXTENSIONS:
Consider using the census data in math lessons. How much larger is Phoenix today than in 1880? How much larger is Phoenix than the 15th largest city? How concentrated is the population in Phoenix over time? How did the population of your city change?

For use with the GeoCivics activities (https://www.uccs.edu/geocivics/), invite participants to think about the current configuration of United States Congressional Districts in the state. Ask them to remember the key characteristics of how districts are drawn (equal population and contiguous). Invite them to pretend that their state has just two Congressional Districts; ask two people to pick up one of the chains and divide the state generally in half by population; invite two more people to divide the state into four districts (they may choose to move the original chain, or not). Discuss why some districts would likely be smaller in area than others. If appropriate, determine how to divide the state into state senate districts.

NOTE:
Thanks to National Geographic's Giant Traveling Maps team for the inspiration for this lesson, which is based on "People on the Move", a lesson for the North America Giant Map.

City	1880	√		City	1950	√		City	2010	√
State	**40,440**			**State**	**749,582**			**State**	**6,392,017**	
Tucson	7,007			Phoenix	106,818			Phoenix	1,445,632	
Pinal City	2,000	Approximately		Tucson	45,454			Tucson	520,116	
Prescott	1,836			Mesa	16,790			Mesa	439,041	
Phoenix	1,708			Douglas	9,442			Chandler	236,123	
Yuma	1,200			Yuma	9,145			Glendale	226,721	
Florence	902			Glendale	8,179			Scottsdale	217,385	
Globe	704			Tempe	7,864			Gilbert	208,453	
Saint Johns	546			Flagstaff	7,663			Tempe	161,719	
Springerville	364			Prescott	6,764			Peoria	154,065	
Snowflake	275			Winslow	6,518			Surprise	117,517	
Safford	173			Globe	6,419			Yuma	93,064	
Mesa	151			Nogales	6,153			Avondale	76,238	
Tempe	135			Ajo	5,817			Flagstaff	65,870	
Wickenburg	104			Coolidge	4,990			Goodyear	65,275	
Casa Grande	33			Miami	4,329			Lake Havasu City	52,527	
				Casa Grande	4,181			Buckeye	50,876	
				Bisbee	3,801			Casa Grande	48,571	
				Chandler	3,799			Maricopa	43,482	
				Kingman	3,342			Prescott	39,843	
				Scottsdale	2,032			Kingman	28,068	
				Avondale	2,505					
				Florence	1,776					
				Saint Johns	1,469					
				Goodyear	1,254					
				Gilbert	1,114					
Source: United States Census				Snowflake	929					