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***Geocaching***

**Sixth Grade Standards:**

* Globes and other geographic tools can be used to gather, process and report information about people, places and environments. Cartographers decide which information to include and how it is displayed.
* Latitude and longitude can be used to identify absolute location.
* Regions can be determined, classified and compared using various criteria (e.g., landform, climate, population, cultural, or economic).

**Objectives:**

* Students will find absolute locations using GPS navigation.
* Students will report information about a region based on observations and research.
* Students will compare regions using various criteria.

**Resources/Materials:**

* GPS navigation software like the geocaching app / directions on cell phones or iPads, etc.
* Planted caches (slips of paper with coordinates) within walking distance from school. Possible caches are:
  + 30.6289° N, 72.8639° E (Harappa from Indus River Valley Civilization)
  + 29.8447° N, 31.2508° E (Memphis in Egypt)
  + 37.3833° N, 126.9333° E (Anyang in China)
  + 30.9628° N, 46.1031° E (Great Ziggurat from Mesopotamia)
* iTouchMap.com. (2014). Latitude and longitude of a point. Retrieved from <http://itouchmap.com/latlong.html>.
* Computers/iPads with printers for research
* Butcher block paper or large pieces of construction paper for Venn Diagrams
* Markers, crayons, scissors, glue sticks, etc.
* globe

**Assessment:**

* PRE -- poll before geocaching
* ONGOING -- checklist for ability to find cache, make sense of coordinates, research regional markers. Also take anecdotal notes
* POST -- Venn Diagram and presentation
* FUTURE POST -- Given certain regional characteristics (e.g. very humid, low population, economy based on selling coffee) and access to globe and Google Earth, find place on the globe and give latitude and longitude ranges for possible places.

**I.**    **Readiness/Motivation for Lesson  *(Engage)***

1. Take a poll (you can use clickers if you have them) of the different types of navigation aids they have experience with using this question: “Which of these have you used in the past? -car GPS like TomTom  -Google Maps  -Google Earth   -actual paper map   -navigation app on a phone.” Talk about the different uses of these things and the information that can be gained from them. Bring up the difference between Google Maps and Earth’s streetview and the differences in information. Briefly introduce students to latitude and longitude. Tell students they will be finding an absolute location that is a clue to what they’ll be studying throughout the year.

2. Plant geocaches somewhere within walking distance from school. For the caches, use small slips of paper that have latitude and longitude coordinates of a capital city or important monument for each of the civilizations students will be studying.

**II.**     **Lesson Focus:  *(Explore, Explain, Extend)***

1. Split students into small groups.While students are searching for the geocache using the geocaching app, have them keep a log of their surroundings (climate/temperature, landforms, any people they see and cultural markers, etc.)

2. After they find their cache, have each group come back and use this website to find a street view of the place they’ll be studying: <http://itouchmap.com/latlong.html> . Have them take the same kind of log notes for that place.

3. Have students compare and contrast their notes for both regions in their small groups by filling in a Venn Diagram. Circulate during this discussion and ask questions like:

* Why do you think the temperatures are so similar/different?
* How do the landforms compare?
* Could these places be classified in the same region? Why or why not?
* What other information would you need to find out to make more and/or better comparisons?

4. Have students in groups look for other information for the region such as population, culture, economics, religions, etc. Have students add to their Venn Diagrams and have them find a few pictures to go with their information.

**III.**       **Closure to Lesson**

1. Have each group share what they found, and lead students to compare and contrast all of the different places/regions. Get out a globe and have the class discuss what the positions of the places on the globe have to do with their regional classification and the different pieces of information they found out about the regions.

**Differentiation**

* Heterogenous grouping based on student needs
* Assign roles based on student abilities
* Give struggling students specific questions to look for answers to
* Have advanced students try to find other regions on Google Earth with similar regional characteristics and/or ask those groups what they would expect regional characteristics would be for a place based on its latitude and longitude