**5E Template- Science**

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| **Name: Beth Gall** | **Date: 7/11/11** |
| **Content Area: Earth Science** | **Grade Level(s): 9** | **Topic(s): Latitude & Longitude** |

**Standard/ SOL**

**ES.1d**

**Objectives (UKD’s)**

Students will plan and conduct investigations in which maps are interpreted including finding locations by latitude and longitude.

**Materials & Resources**

A U.S. map

A World map

Stickers – bright colored dots/disks

Metric ruler

Atlas

**Safety Considerations –**

None

**CTA Session Reference: Something to Put in Your Earth Science Teaching Toolbox – Virginia Greenlaw**

**Engage – Time Estimate - 5 -10 minutes**

Ask students to brainstorm the following: If they could travel anywhere in the world on a two week vacation, make 5 stops and money was no object, where would they like to go. They can start with a list of more than 5 locations, then reduce their list to their 5 top choices later.

**Explore – Time Estimate – 45 minutes**

1. Give each student a world map and a U.S. map and an atlas. They can use the U.S. map if they plan only to travel in this country. Use the wwrold map if they want to travel abroad. Using the atlas, they can revise their brainstorm list if they wish. They must reduce their list to their top 5 favorites.
2. They are to locate these 5 places and put a bright dot sticker on each of these spots.
3. They will record the latitude and the longitude of each spot.
4. While students are working on their maps, move around the room to make sure each student is progressing appropriately.
5. Then using a ruler, they should connect these 5 points in the order in which they would travel from one destination to the other. They must start from home or their departure airport.

**Explain -- Time Estimate – 10-15 minutes**

1. Ask each student to pick their #1 destination.
2. Using a large, laminated world map, each student can come to the front with their “’desk partner”.
3. One student will give their latitude and longitude to their partner and they will put a marker spot on the map. (Use an overhead marker as it will wipe off).
4. Students will verbalize the coordinates and review vocabulary/concepts of latitude and longitude.
5. Students can explain why they chose these destinations and explain their logic for the order of travel.

**Extend -- Time Estimate – 20 – 30 minutes**

For an extension activity, perhaps the next day, students can use map scale to determine the distance from one point to the next on their vacation and also the total distance traveled.

The following could be additional extensions:

1. Calculate free airline miles earned
2. Who crossed the most time zones? Calculate time at different destinations. Discuss jet lag.

**Evaluate -- Time Estimate – 10 minutes**

1. Ask the following questions of students. They can move around the room to get the answer….(somewhat like a scavenger hunt)
2. Who traveled to the most northerly latitude?/ Destination?
3. Who traveled to the most southerly latitude?/ destination?
4. Who traveled closest to the equator?/destination?
5. Who traveled closest to the Prime Meridian?/ Destination?
6. Name someone who traveled to the eastern hemisphere? / destination?
7. Did anyone stay in the western hemisphere for the who trip?/ Who?

**Plans for Diversity**

I find it helpful if highlighter markers (2 colors) are used with special needs students. ALWAYS use the same color for latitude and a different color for longitude. Students can color the lines on their maps. It gives them a quick visual reminder of which is which…..over and over again. They can do the same on any map assessment as well.

**Connections**

Latitude and longitude are concepts that are used in many places, other than simple map reading objectives. This can apply to locating volcanoes, earthquakes and any other natural disaster that makes current events headlines. We also use this skill in tracking hurricanes making the news.