**5E Template- Science**

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| **Name: Danny Cole** | | **Date: 7/19/2011** |
| **Content Area: Earth Science** | **Grade Level(s):7-9** | **Topic(s):Mapping distances.** |

**Standards (SOL)**

ES.1 The student will plan and conduct investigations in which

1. scales, diagrams, maps, charts, graphs, tables, and profiles are constructed and interpreted;

ES.3 The student will investigate and understand how to read and interpret maps, globes, models, charts, and imagery. Key concepts include

c) direction and measurements of distance on any map or globe;

**Objectives (UKD’s)**

*The students will learn how to interpret the map key and determine distances from city to city.*

**Materials & Resources**

*Maps for all groups, string for all students, highlighters, pencil, paper, calculators, push pins.*

**Safety Considerations**

*No safety issues with this lab.*

**Engage – Time Estimate \_\_5 Minutes\_\_\_\_\_\_**

*Break students into groups of four. Issue each group a map and have them search for their city points of interests.*

**Explore – Time Estimate \_\_\_15 minutes\_\_\_\_\_**

In their groups of four, have each student select two cities of interest on a map and highlight them with their highlighters, or use push pins to mark each city.(It would be best to use a map of Virginia).

Explanation #1

After students have made an educated guess at their distance, have each student cut a piece of string that is equivalent to the distance between their two cities. Have students place the string over the map key and mark the distance on the string. Now have the students take the mark and put it at the beginning of the key and mark the distance on the string again. Continue this process until students have run out of string. Have students calculate the distance marked on the string with the map key. Students then can compare their estimated distance to their string distance.

**Explain -- Time Estimate \_\_5 minutes\_\_\_\_\_\_**

*Explanation #1. Ask student to try to estimate how many miles it is from their two cities, and show them the map key at the bottom of the map.*

**Extend -- Time Estimate \_10 Minutes\_\_\_\_\_\_\_**

*Using the same cities marked and using the same string. Have students calculate a road route and follow the road with the string until they reach their cities. Have students compare all three distances and discuss which distance would be more accurate if going on a trip in a car, or hiking from one place to the other. Have students look at a topographical map to determine what the terrain will be like from one city to the other.*

**Evaluate -- Time Estimate \_\_10 minutes\_\_\_\_\_\_**

*Have four or five pre-determined cities marked and calculated. Give each student a separate destination for each group member and have them determine the distance in a straight line from city to city.*

**Plans for Diversity**

*For students of special needs, you can provide the cities already marked for them. You can ask them to tell you two cities and find them and have them mark each city. Allow the use of calculators.*

**Connections**

*This lesson can be an introduction to basic mapping skill prior to using topographic maps, globes, imagery etc. Once this is learned you can use the same cities and show a topographic map and compare and/or use a imagery program such as google to show the aerial look.*