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| **Earth Science Lesson Plan 1**  **Name: Barbara (BJ) DeJarnette** | | **Date: July 8, 2011** |
| **Content Area: Earth Science** | **Grade Level(s): 9/10** | **Topic(s): Mapping** |

**Standards (SOL):**

**ES/1c:** The student will plan & conduct investigations in which scales, diagrams, maps, charts, graphs, tables, & profiles are constructed & interpreted.

**ES.3c/d**: The student will investigate & understand how to read & interpret maps, globes, models, charts, & imagery, including c) direction & measurements of distance on any map or globe; and d) location by latitude & longitude & topographic profiles.

**Objectives:**

The student will investigate and understand how to read and interpret a road map of Virginia. (direction & measurements of distance; location of latitude & longitude; scales; diagrams). The student will identify that a road map is one of the types of specialized maps used today.

**Materials & Resources:**

Road map of Virginia, magnifying glass, pencil, ruler, foot long piece of string, worksheet, highlighters.

**Safety Considerations:**

Can be completed in lab if not close to sinks or can use desks pushed together if they are even at the tops.

**Engage:**

**Time Estimate: 8 minutes**

With Lab partner, list as many cities/ towns they have been to in Virginia (including Culpeper). After 3 minutes, teacher will ask for each group to tell at least one place on their list and write it on the board. Don’t repeat any places. The teacher will then ask whether the places are located north, south, east, or west of Culpeper and will record the responses next to the places.

Ask if any student has his/her driver’s license; if so, have they used a road map in order to reach a destination. Ask how the map facilitates that process. Pass out Lab Assignment and go over directions. Then pass out the maps.

**Explore:**

**Time Estimate: 30 minutes**

Students go into the lab and with their partner, take the map of Virginia and use it to explore and complete the attached Lab assignment.

At the bottom of the worksheet, have students copy the list of cities/towns that were not included in the lab. Identify their location (N, E, S, W).

**Explain:**

**Time Estimate: 5 minutes**

Steps to relate learning in the exploration phase to the content being taught. What steps are you going to take to insure that no misconceptions are being perpetuated?

Relate how the coordinates used to locate places are similar to locating places according to latitude and longitude.

**Extend:**

**Time Estimate: 30 minutes (homework assignment).**

Students will continue to use their knowledge of map skills and identify places in Culpeper (using map of Culpeper). They may also draw a map from the school to their own house and include directions, scale, and legend.

**Evaluate:**

Teacher would grade the Lab and go over it the next day.

**Plans for Diversity:**

ED/LD students: go around room and make sure students are orientating the maps correctly, provide highlighters, markers, file cards; laminated maps, etc. to be used as needed. When they find an answer, they may need to identify the answers by physically marking on the maps, thus if they are laminated, they can be wiped off at the end of the lesson. If that becomes too messy, additional maps may be needed for future lessons. The map may need to have some boundaries (ie- state lines) in larger/ bolder print. File cards or solid colored paper may be needed to block out unnecessary material so the student can focus on specific information. The map can be folded in order to focus on specific information.

Magnifying glasses or other computer accessories may be needed for students requiring visual accommodations. Raised dots may be used to identify specific places.

**Connections:**

Students have been exploring **ES.3**. Using their Unit Organizer, they would discuss where/how learning how to read a road map fits into the picture of “Mapping Our World.” They would engage in discussion as to the type of map it is as well as continuing with a lab on Topographic Maps of the Culpeper & Old Rag Mt. (adjust for area in which you teach). Vocabulary will continue to be enhanced via the “LINCS” method of learning.

Other assignments could be given as follows: Use a road map to plot the way to and from a point of interest for a family outing, getting there using a scenic route and returning home by the fastest path possible. Students could also locate the various utility companies in their town via a road map. Students could continue to explore the various types of maps by using a GPS system and see how that system compares to their written directions from the school to their homes.