Allison Pramberger Professor Rickey Moroney

EDU 521.03 June 22, 2010

Grade:3 Topic: The Solar Sytem Content Areas: MST

**Instructional Objective**

After a discussion on how weight is affected by the pull of gravity between two masses, students will calculate their weight using a website from an Internet Hotlist. They will enter this information into Create-A-Graph and create a bar graph scoring 3 out of 4 on a graphing rubric, then answer questions to demonstrate their ability to understand a bar graph with at least 80% accuracy.

**Standards and Indicators**

Mathematics, Science and Technology

**Standard 4:   Science**

Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

* This will be evident when students calculate their weight on other planets to see the relationship between weight and gravity and how it differentiates from one planet to the next.

**Standard 5:   Technology**

Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.

* This will be evident when students utilize Create a Graph to create a bar graph of their data.

**Motivation**

Students will be shown a clip from the TV series the Magic School Bus to see the effect gravitational pull has on how heavy an object is.

**Materials**

* Projector/Screen
* Computers with internet access
* Printer
* Bar Graph Worksheet
* Pencils

**Strategies**

The teaching strategies that will be used include direct instruction, teacher demonstration, and cooperative learning.

**Adaptations**

* For the student who has a hearing disability the teacher will wear an auditory device to help the child hear well.
* For the student who has visual or physical disabilities that would inhibit them from using a standard keyboard, the teacher will provide them with an IntelliKeys USB.

**Differentiation of Instruction**

The teacher understands that the students have different learning styles. For the visual and auditory learners, the teacher will go through the directions step by step with the students using Excel, as well as having a set of written directions on the board.

**Developmental Procedures**

* The teacher will begin the lesson by discussing what weight is and its relationship to the pull of gravity. (*How do we measure how heavy something is? Why is it important to know the weight of objects? Does anyone know from what we have previously studied what affects the weight of an object?)*
* Each student will be measured on a scale if they do not know their weight then use the Internet Hotlist to calculate what their weight would be on each individual planet.
* The teacher will then demonstrate to the students what they will do with this data using Create a Graph, where they will create a bar graph to show how their weight would differ between planets. (*Now we are going to go step by step through the Create-A-Graph website. What type of graph do you think we could create with this information? What should the title of our graph be? What data should we put on the x axis? What should we put on the y axis?)*
* After the teacher asks if there are any questions, the students will begin to create their bar graphs while the teacher walks around the room to make sure everyone stays on task and while prompting the students with questions. (*Does anyone have any questions? What planet did you weigh the most on? What planet do you weigh the least on? Is the gravitational pull greater or less between you and that planet?)*
* Students will then print out their bar graphs and answer a worksheet pertaining to their graph. Students will then be able to share their findings with the rest of the class. (*Who would like to share and explain their graph with the rest of the class?)*

**Assessment**

Students will have successfully met the objective if they score 3 out of 4 on the graph rubric as well as answering 3 out of 4 questions correctly on their worksheet.

**Independent Practice**

Following the lesson, students will write a short paragraph in their science journal about why our weight does not stay the same on all planets and how a bar graph helped them to show this information.

**Academic Intervention and Enrichment**

Academic Intervention: For the student who does not meet the objective, the teacher will meet with the student for one-to-one assistance on using Create-a-Graph and the concepts covered in the lesson.

Academic Enrichment: For the student who easily reaches the objective, they will be allowed to help other students in the class who are having some difficulty converting their data into a bar graph.

**References**

*Kid zone's create a graph*. (2005). Retrieved from <http://nces.ed.gov/nceskids/createagraph/default.aspx>

*The Magic school bus: trapped by the pull of gravity*. (1997). [Web]. Retrieved from <http://player.discoveryeducation.com/index.cfm?guidAssetId=4DB083E0-4892-4A20-9474-92DD54AE7F93&blnFromSearch=1&productcode=US>

Pramberger, A. (2010, June 8). *Filamentality web page: the solar system*. Retrieved from <http://www.kn.att.com/wired/fil/pages/listthesolaap.html>

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Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**“My Weight on Different Planet”**

**Bar Graph Questions**

1. What was your original weight on Earth? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What planet did you weigh the most? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What planet did you weigh the least? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Why does our weight not stay the same from one planet to the next?

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| |  | | --- | | **Graphing : My Weight on Different Planets- Bar Graph Rubric**  Teacher Name: **Ms. Pramberger**    Student Name:     \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |

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| CATEGORY | 4 | 3 | 2 | 1 |
| Data Table | Data in the table is well organized, accurate, and easy to read. | Data in the table is organized, accurate, and easy to read. | Data in the table is accurate and easy to read. | Data in the table is not accurate and/or cannot be read. |
| Accuracy of Plot | All points are plotted correctly and are easy to see. A ruler is used to neatly connect the points or make the bars, if not using a computerized graphing program. | All points are plotted correctly and are easy to see. | All points are plotted correctly. | Points are not plotted correctly OR extra points were included. |
| Labeling of Y axis | The Y axis has a clear, neat label that describes the units and the dependent variable (e.g, % of dogfood eaten; degree of satisfaction). | The Y axis has a clear label that describes the units and the dependent variable (e.g, % of dogfood eaten; degree of satisfaction). | The Y axis has a label. | The Y axis is not labeled. |
| Labeling of X axis | The X axis has a clear, neat label that describes the units used for the independent variable (e.g, days, months, participants' names). | The X axis has a clear label that describes the units used for the independent variable. | The X axis has a label. | The X axis is not labeled. |