

In the following lesson, students will be able to make, measure, and evaluate data showing range, mean, median, and mode. This is an integrated lesson using math and science that allows students to participate in hands on activities.

Lesson Title: Range, Mean, Median, Mode

Grade Level: 3-4

Prior Knowledge:

The students will need to be able to make a record data and make a chart.

Objectives:

As a result of this activity the students will be able to make, measure, and evaluate data showing range, mean, median, and mode.

Materials:

- Box
- Flour or similar
- Cocoa mix or similar
- Marbles
- Ruler/Tape measure
- Paper
- Pens/Pencils

Activities and Procedures:

- Introduce impact craters to the students, or have this activity following or during a science lesson of a similar topic. Ask if they have heard of or seen them, also show pictures or articles about them. Provide students opportunities to figure out what they may be caused of, but give them information you have found.
- Ask students if they know what mean, median, and mode are.
- Explain range, mean, median, and mode to the class Range - difference between the greatest and least values Mean - sum of all of the measurements divided by the number of trials, also called average. Show examples.
- Median - middle number of a set of data when the measurements are listed from smallest to largest. If there are an odd number of measurements in the set, then it is the middle number when listed. If there are an even number of measurements in the set, then it is the mean of the middle two numbers. Mode - is the number in a set of data that occurs most frequently. Show examples.
Example: 1,3,4,5,7,7,9
Range: 8 Mean: 5.1 Median:5 Mode: 7
- Show students how to set up the experiment, do a test drop of the marble, measure the spread of the crater and splash, and record the data. The students will need to drop the same marble from the same distance for all of the tests in order to get more accurate data. Have one or two students come and try it out in front of the class, have them

model setting up, dropping, and recording data. While the students are setting up their own experiments be available for questions of to help out the students.

- -To set up the experiment, start with a fairly large box, fill the base with at least 2 inches of flour.
- -Then sprinkle cocoa on top until there is no white showing.
- -Hang a string from the ceiling or have a yardstick available for the students so they drop the marbles from the same height at each attempt. This is important to get an accurate sample.
- -Also show students how to make a chart, have example drawn on board or sheets copied for them to use.

Evaluation:

The students will turn in what they find for the range, mean, median, and mode along with the data they collected. They will be graded on how well their answers reflect their data.

Independent practice:

The students can do multiple things. One would be have them measure the shoes in their home and find the range, mean, median, and mode of the lengths.