Task

Circumference Lab

The relationship between circumference of a circle and its diameter can be explored with the use of measurement of the outside of the circle with string and the diameter across the circle through the middle.

- Students are assigned to their cooperative groups (3 or 4). Each group has a string, ruler and 4 circular objects to measure in centimeters. The groups are instructed to measure the distance around the circle and the distance across the circle through the center with the string and then record the data on their worksheet. After they have recorded their result of each item, the students will use basic operations to determine if there are any relationships with circles and the measurements taken. Once the measurements are listed on their worksheets they then organize the data into a table format on the board. Students discuss within their group what they see, making conjectures, and then as a whole group interpret through guided discussion that Circumference (distance around the circle) divided by diameter (distance through the circle) always come to approximately 3.14, which is pi. Students formulate this and algebraically convert C=d* pi. Through organizing the data on the table the students evaluate that pi is consistent with circles. Through evaluative thinking and discussion, the circumference of a circle can also be found by using the formula C= 2*pi*r, where r represents radius of the circle, which is ½ the diameter.

- Circumference Computer Lab: the relationship between circumference of a circle and its diameter can be further explored as pi, by using The Geometer's Sketchpad. An in class worksheet is completed along with the lab.

Rubric for Circumference Lab

5 All of the objects measured and recorded with a formula or an idea.

3 Some of the objects measured and recorded with a formula or an idea.

0 None of the objects measured and no formula or idea.

⇒ Completion of all lab situations
⇒ Conclusions are drawn from data and are mathematically correct
⇒ Labeled measurements