Math 6 - Act. 16: Trundle Wheel

Summary

Students will use a trundle wheel to measure the distance traveled outside after one minute of walking. After traveling a total of 10 minutes, students will return to the classroom to graph and analyze the data collected.

Main Core Tie

Mathematics Grade 6

Strand: RATIOS AND PROPORTIONAL RELATIONSHIPS (6.RP) Standard 6.RP.3

Materials

- Trundle wheel
- Recording sheet

Background for Teachers

This lesson will take three to five days to complete all parts, including extensions at the end of the lesson. Students should have knowledge of scientific variables, such as speed, length of legs, or wind velocity and be able to convert meters and decimeters into kilometers. They should also be able to convert the customary and metric systems.

Intended Learning Outcomes

3. Reason mathematically

Instructional Procedures

Invitation to Learn

Ask the students, “If each one of us were to walk for ten minutes, would we walk the same distance? What are some of the things that might cause a difference in the distance we walk?” (speed, length of legs, or wind velocity).

Instructional Procedures

- Take the students outside and establish a starting point. Have them estimate how far they could walk in one minute and in ten minutes. Have team members discuss this, place their markers, and explain their reasoning to the class.
- Have the students place their trundle wheel on the ground and, as a class, walk for one minute. Have students compare their distance to their first estimate, and allow teams to change their second estimate based on their first reading.
- Continue walking the remaining nine minutes. After each minute, have the students stop and record the distance they went. At the end they should compare the total distance they walked to a kilometer.
- Go back to the classroom and graph the information. Have the students find the mean, median, mode, and range for the distances recorded after each minute. Take the mean and times it by ten to see how close this distance is to a kilometer.

Curriculum Integration

Math/Science; Health—Have the students mark the outside field for either one mile or one kilometer. Over a five-week period, see if they can increase their distance in the same amount of time. A final activity would be to have a 5k race or a relay.

Science—Have students test different variables that may make them run faster or slower (arms out to sides, different shoes, breathing through their nose, etc.).

Extensions

Possible Extensions/Adaptations

Have the students convert the kilometers to miles. There is a conversion web site at www.texloc.com that lets the students put their conversions in. Then have the students figure out how many miles per hour they were walking.

Homework & Family Connections

Have students check out trundle wheels to take home and measure the following things:

- The distance around their block.
- The length or width of their bedroom.
- How far one mile is from their home. (Where would they end up?) This one should be done with parent supervision.

Assessment Plan

Have students write in journals during the last 5-10 minutes of each lesson. Have them include what has been easy, and what has been hard for them. Follow up with having markers placed outside, and have them measure to the most accurate centimeter, millimeter, decimeter, etc. Have them convert these measurements.

Authors

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