Lesson Plan

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Broad Topic: Algebra
Subtopic: Slope

Aim:
To introduce the concept of slope.

Specific Objective(s):
- Review use of coordinate grid.
- Review plotting of points and lines.
- Introduce vocabulary: slope, rise, run.
- Introduce slope as a description of a line.

Materials/Supplies:
- Transparencies with gridlines and coordinate grids
- Visual aid to show risers and runner on a stairway
- Small post-it notes, 2+ colors
- Lengths of yarn, 2+ colors
- 2 balloons or pictures of balloons, different colors
- 1 small kite or picture of a kite
- Copies of coordinate grid for students
- Overhead projector
- Copies of worksheets
- Rulers

Lesson:
- Introduce the lesson with a discussion of games played, using a grid, eg. Battleship, Knights and Queen search.
- Refer to earlier lessons and activities using a grid to locate a point and to plot a line.
- State the objective, to look at a way to describe a line of points.
- Show and discuss visual of a stairway with terms riser and run (tread, step)
- Present the scenario of balloons released on playgrounds (or soccer fields) and project a grid on a wall.
- As a large group, plot points, using small post-it notes, of the balloon moving across the playground and into the air. For example, with certain air conditions, it moves forward 2 feet and upward 4 feet. Connect the points with a length of yarn. Ask students if they know a way to describe that line.
- Repeat the plotting on the wall with a different balloon, using a different color balloon, post-its, and yarn. Have the balloon move farther but not as high as the 1st balloon. Elicit discussion, comparing the two lines.
- Introduce the term slope. Refer back to the stairway and introduce the terms rise and run.
- With one balloon’s pathway, guide the students in determining the run and rise. Model the form for writing the slope. Repeat for the other balloon. Elicit discussion comparing the 2 numbers.
- Distribute grid paper and a similar situation: a kite blowing up and across a field, with a run of 10 feet and a rise of 20 feet. Direct students to graph the kite’s path and determine the slope. This can be done individually or in pairs. (See pages 2 & 3)
- For closure, suggest situations where slope would be involved. AND/OR
- Present students with a grid that has several lines plotted. For evaluation, ask them to determine which has a \( \frac{\text{rise}}{\text{run}} \) of a given number, say 2, and explain.
KITE

PROBLEM

1. Graph the pathway of a kite moving across an open field. The kite moves across the field 10 feet for every 20 feet it rises in the air.

2. Run = ____  Rise = ____
   \[\frac{\text{Rise}}{\text{Run}} = ____\] (This is the slope of the kite’s pathway.)

3. EXTENSION: Plot the pathway of a different kite. What is its \(\frac{\text{Rise}}{\text{Run}}\)?

4. EXTENSION: Besides balloons and kites, what other slopes or sloping pathways might you plot on a graph?