Stepping for Miles

Materials:

- Orange cord marked 10ft, 20ft & 30ft
- Data collection chart
- Graphing paper
- Colored pencils

Set up:

Work with another person. Layout the string and tape it down. Determine which end you will start on. Mark the orange cord with tape, the first piece of tape is 10ft, the second 20ft, and the end of the cord is 30ft. These marks will be your check points.

Questions to get you thinking:

Think about the number of steps you take to go from your front door to the end of your driveway. How many steps do you think that is? How far do you think that is? When runners participate in marathons, they run 26.2 miles to complete the race. Based on your response to the previous question what is a method you could use to figure out how many steps you would take if you ran a marathon?

On a recent trip to New York City, a teacher and her class walked all around the city. The teacher wore a pedometer. She knows that she takes 2000 steps in 1 mile. On the 3rd day of the trip the pedometer informed the students that they had taken 28,376 steps. How far did the students walk? Write at least one sentence explaining how you could solve the problem. Create an equation to solve the problem and solve it.

Activity 1

Step 1: Line up at the start.

Step 2: Walk to the 30ft line counting aloud the number of steps you take. **A step is anytime a foot touches the ground**. Your partner will record the number of steps in the table as you pass each checkpoint. Return to the starting line.

Step 3: Repeat step 2, this time jogging from the starting line to the finish line. Return to the starting line.

Step 4: Repeat step 2, this time running from the starting line to the finish line. It is helpful to work with another pair of students to accurately record the steps of the runner. One person will run and one person will be at each check point recording the number of steps it takes the runner to get to that checkpoint.

Switch roles with your partner. Repeat steps 1 through 4.

Create a graph for your set of data.

- Label your **x-axis**, "**feet"** and your **y-axis "number of steps"**
- With your partner, determine a scale that allows all of your data to fit on the graph.
- Use three different colors to draw your graphs: **one color for walking**, **one for jogging**, and **one for running**. Include a key.
- What do you notice about your graphs? Think about how fast you moved to create each one.

Compare your graphs with your partner's graphs. What do you notice?

Without measuring directly, decide how many steps you would take in 40ft.

Use your graphs and table to determine equations for each of your lines.

Activity 2 and extension challenge ideas are include inside binder