WALKING GRAPHS
Teaching Guidelines

Subject: Mathematics

Topics: Statistics (charts and graphs), Algebra (functions)

Grades: 5 - 8

Knowledge and Skills:

- Can represent and interpret numerical data in chart and graph form
- Can plot a point in a two-dimensional coordinate system, given the coordinates.

Materials (for each team):

- piece of string 100 meters long
- 10 pieces of ribbon
- measuring tape 10 meters long (or a meter stick)
- watch with second hand

Procedure:

The activity is best done in teams of three.

Distribute the handout and discuss it. Make sure that students understand what they are going to do.

Have each team measure off 10-meter intervals on their string and tie the ribbons at those points.

(As an alternative to using string, if a marked football field is available you can have the students walk along the sideline of the field and call out every time they pass a 10 yard marker. Or, if you want to complete the activity a little faster, then you can reduce the distance walked to 50 meters or yards.)

Take the class outside and have the teams carry out the activity, as you circulate and assist as needed. Make sure that the strings are straight, and remind the walkers to try to keep the same speed as they walk.

Each team is to do the experiment at least twice, with the walker going a little faster the second time.

Back in class, ff your students have not graphed ordered pairs before, explain how this is done.

When the graphs are made, be sure that students use the same horizontal and vertical scale in both graphs (so they can be compared easily).

Both graphs should have a straight line pattern in their data points, with the line in the second case a little steeper than in the first case.

Discuss the fact that the graphs show how the distance walked is related to the speed. If you wish, you may use this to introduce the concept of a function, but you may also choose to let the discussion serve as an informal idea to this concept without introducing the nomenclature.

As an extension, you may wish to have the teams do the activity a third time, with the person running as fast as they can go. In this case when the graphs are made, students may notice that the line connecting the data points isn't as straight as in the first two graphs. Ask the students to try to explain this, and guide them to the realization that this means the person running did not always have the same speed.

Walking Graphs

You can make a graph that shows how fast someone walks.

Take a piece of string 100 meters long and tie a ribbon on it every 10 meters.

Lay the string in a straight line on the ground outside. Have someone walk along the string and call out every time they pass a ribbon. This person should try to walk at the same speed all of the time.

Another person on your team should tell you how many seconds have gone by each time the walking person calls out. Record the information in this chart:

Number of meters	Number of seconds
0	0
10	
20	
30	
40	
50	
60	
70	
80	
90	
100	

Repeat the experiment, but this time have the person walk a little faster.

Make graphs for both times the person walked. Compare the two graphs. What do you notice?