

Peppy's Day in the Park

Objective:

To measure the perimeter and area of the park.

Key Concepts:

relationship between area, perimeter, and shape

TEKS:

Geometry and Spatial Reasoning: K-7b; 1-6c
Measurement: 3-11b, 11a, 13, 4-12; 5-11a

NCTM Standards:

Measurement, Geometry, Problem Solving

Real World Application:

These skills help you make decisions about how to design projects like a deck, clubhouse or model in order to make the most out of the space and materials available.

Target Age:

8 and up

Activity:

Materials:

40 flat square tiles

30 cm metric ruler-several rulers (4)
calculators

small plastic dog "Peppy"

tape measures (2)

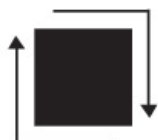
paper, pencils



Introduction:

What is PERIMETER?

Perimeter is the distance around something. The length of the perimeter is found by counting each outside edge of the tiles.



What is AREA?

Area is the amount of space something covers.



Activity:

Peppy is a black and white dog who loves to play in the park. Peppy loves to go to the park to play and walk. At the park, you are allowed to walk on the trail along the outside as long as Peppy has his leash. You may let Peppy play and run without a leash on the area inside the trail.

1. Arrange the tiles to make a park for Peppy.
2. Take Peppy for a walk on a trail around the outer edge of the park, what is the distance that he walked?
3. This distance is the PERIMETER. Record your results.
4. Peppy can't wait to run! If you let him off his leash, how much area would he have to run around inside the park? Measure the AREA, the amount of space inside the park. Record your results.
5. What would happen if you changed the shape of the park? You can make the park any shape you want— triangle, zigzag, even X-shaped. Measure the PERIMETER of the new park. Write down your answer. Is the PERIMETER of the new park the same as the first park? Why or why not?
6. Measure the AREA of the new park. Write down your answer. Is the AREA the same as the first park? Why or why not?

Hints/Sample Questions:

Which measurement would be bigger? Perimeter or area? Is this always true?

If you know only the perimeter, can you figure out the area?

If you know only the area, can you figure out the perimeter?

Which squares did you touch to get the area?

Which square did you touch to get the perimeter?

Terms:

measure, perimeter, area, shape, size, tiles, distance

Extensions

1. Make a park that will have the most PERIMETER for Peppy to walk around.
2. Make a park that will have the most AREA for Peppy to run around.

Differentiating for varied learners and settings:

Need more experience with this concept:

- Start with a small number of squares and practice as a group. Slowly increase the number of squares and change the shape of the park.
- Count the number of squares on the edge to determine the perimeter and count the total number of squares for the area.

Ready for More:

- Imagine that you doubled the size of the park. How would it affect the PERIMETER?
- How would it affect the AREA?

Supplemental Resources

Sir Cumference and the First Round Table: A Math Adventure by Cindy Neuschwander

Fusing geometry with Arthurian legend, this tale describes the origin of the famous Round Table after rectangular, square, diamond, and octagonal tables fail to please King Arthur and his knights, Sir Cumference, and his wife.

Spaghetti for All by Marilyn Burns

In this silly story written specifically to think about math, the table arrangements get all mixed up as more guests arrived and more tables and chairs are added.

Reference: "Using area representations to explore perimeter and area". Teaching Children Mathematics, September 2001.

