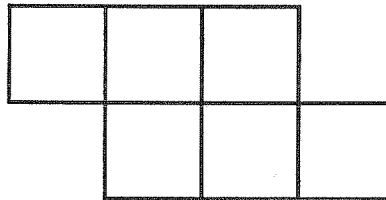


Tile Piles
Activity Six

Supplies: graph paper
tiles or paper squares
marking pens

In your group, make a shape like this one with six square tiles. This is a hexomino. every tile touches at least one other tile and when tiles touch, a full side touches. The area of this shape is six square units. The perimeter is 12 units.



As a group, investigate what happens as you add tiles to this basic three on three shape. Below are three questions you could answer. But do not restrict yourselves to just these questions. On your group report, record questions, answers, observations and conjectures considered by the group

What is the **smallest** number of tiles you can add to this shape to get a new shape with a perimeter of 18? Sketch an arrangement.

What is the **largest** number of tiles you can add to this shape to get a new shape with a perimeter of 18? Sketch an arrangement.

Is it possible to get a new shape with perimeter 18 using the number of tiles between the **smallest** and the **largest** numbers above? How can you prove your claim?

Tile Piles
Activity Six

Name: _____ Date: _____

Group: _____

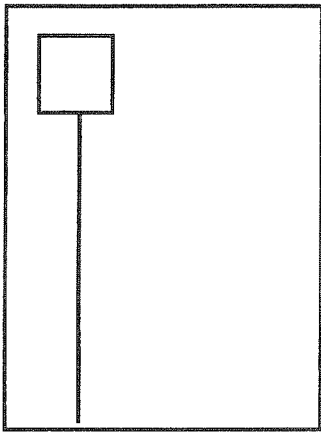
Write a paragraph or two explaining what you learned in this activity.

Same Areas
Activity Five

Supplies: Scissors
construction paper
string
tape or glue

Cut out 5 squares that measure five centimeters on each side . What is the area of each square?

Find and record the perimeter of one of the squares. Cut a string the length of the perimeter. Attach the square and the string to the Group Record.



Cut the other squares into two pieces. Create new shapes by putting together the two pieces. Give names to the new shapes.

Find the perimeter of your new shapes and record their perimeter. What do you notice about these shapes and their perimeters? Write down your observations and ideas. Attach your written observations to the group chart.

Post your group chart.

Same Areas
Activity Five

Name: _____

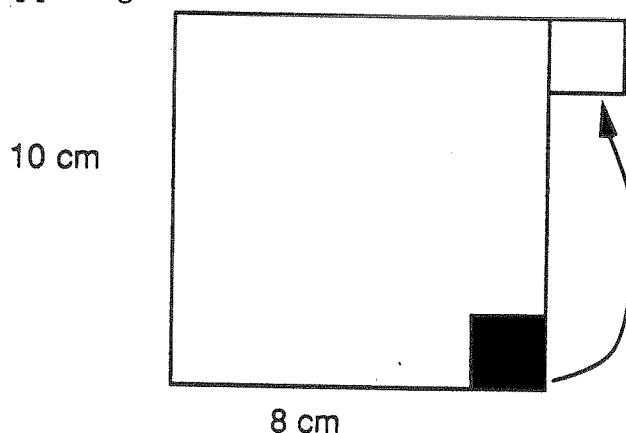
Date: _____

Group: _____

In what ways did you contribute to your group during this activity?
List some abilities you think were used in this activity.

For each of the questions that follow EXPLAIN YOUR REASONING

A small square (2 cm by 2 cm) is cut out of the lower right corner of a larger square (10 cm by 10 cm) and then the small square is attached to the remaining part of the larger square in the upper right as shown:



Write all the dimensions you can figure out on the polygon above.

Find the area of the new polygon.

Is the area of the new polygon the same as the area of the original 10 cm by 10 cm square

Find the perimeter of the new polygon.

Is the perimeter of the new polygon the same as the perimeter of the original 10 cm by 10 cm square

Same Perimeters
Activity Four

Supplies: scissors
 2 envelopes
 centimeter graph paper

Each member of the group, cut out from graph paper four different shapes which have a perimeter of 24.

Figure out and write the areas on the shapes.

Exchange shapes. Confirm that each has a perimeter of 24 cm. and has the correct number of square cm. listed for its area.

As a group, examine and describe the shapes with large areas. How do they compare to the shapes with small areas?

Write at least two summary statements which are either observations or conjectures.

Save for posting on the class chart, the four shapes with the most area and the four shapes with the least area

**Same Perimeters
Activity Four**

Name: _____ Date: _____

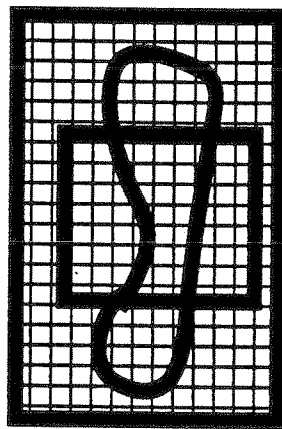
How did you determine that the perimeter of each shape was 24. You may want to use a sketch in your answer.

Describe the shapes with large areas. How do they compare with the shapes with small areas?

Lots of Socks Activity Three

Supplies: scissors
 centimeter grid paper (large sheets if possible)
 string
 tape
 marking pens

Your group will make a record of individual predictions and findings as well as a report of observations and conjectures you make together.



Each of you choose either your left or right foot.
Trace the outline of your foot on centimeter grid paper.
Carefully, estimate and record the area of your foot.
Cut a string equal to the perimeter of your foot.
Record the perimeter.
Tape the string to the grid paper in the shape of a square.
Without more measuring, record your estimate of the square's area.
Accurately figure out the area of your square.
How does the area of your foot compare to the area of the square? Why?

As a group, gather, organize, and record everyone's data. Discuss how you all would explain the relationship between the area of your feet and your squares?

**Lots of Socks
Activity Three**

Names: _____ Date: _____

_____ Group: _____

- I. Organize and display the data the group collected while doing this activity.
- II. How would you explain the relationship between your feet and your squares?
- III. Discuss how you all figured out the areas of your feet and your squares.