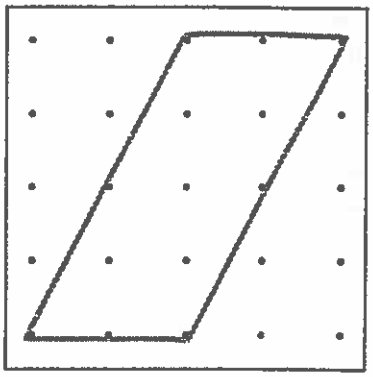
Geo-Exploration–Parallelograms

Name _____

You know how to find the area of any rectangle. How could you find the area of any parallelogram? A geoboard, a few rubber bands, and your mathematical thinking skills are really all you'll need to find out. A sheet of geodot paper, a pencil, and this activity page will help, too.



1. Create a parallelogram on your geoboard by stretching a rubber band over four appropriate pegs. Make five different parallelograms on your geoboard in this way.
2. Draw your parallelograms on your geodot paper, and number them from 1 to 5.
3. Use the chart to record the *base* and *height* of each of your parallelograms. Remember that *height* is different from *side*.

Parallelogram	Base	Height	Area
1			
2			
3			
4			
5			

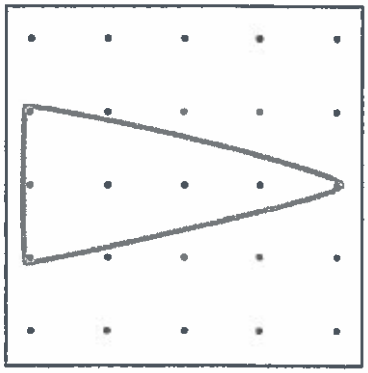
4. Count the squares covered by each parallelogram on your geoboard to find its area. Be sure to add whole squares and parts of squares. Record the areas of your parallelograms in the last column of your chart.
5. Look for patterns in your data. In the space below, explain how you would find the area of *any* parallelogram. Use words, pictures, or numbers to help explain your method.

6. Why do you think your method works? *Hint*: Think about the relationship between rectangles and parallelograms.

This activity is loosely based on ideas in Barson, Alan, "Geoboard Activity Cards–Intermediate" (Fort Collins, Colo.: Scott Resources, 1971).

Geo-Exploration–Triangles

Name _____



Imagine that you want to create a triangular banner that is similar to, but much larger than, the isosceles triangle shown here on a geoboard. The shortest side of your banner is 2 feet, and the distance from the middle of this side to the opposite tip is 4 feet. Can you calculate the area of the banner? To help you do the job, you'll create an assortment of triangles on a geoboard and find their areas. In the process, you'll discover a method for finding the area of any triangle, including the one for your banner.

1. Create a triangle on your geoboard by stretching a rubber band over three pegs. Make five different triangles on your geoboard in this way.
2. Draw your triangles on your geodot paper, and number them from 1 to 5.
3. Using the chart shown, record the measures of the base and height of each triangle. Remember that *height* is different from *side*.

Triangle	Base	Height	Area
1			
2			
3			
4			
5			

4. Count the squares covered by each triangle on the geoboard to find its area. Be sure to add whole squares and parts of squares. Record the areas of your triangles in the last column of your chart.
5. Look for patterns in your data. Explain how you would find the area of *any* triangle. Use words, pictures, or numbers to help explain your method.

6. Why do you think your method works? *Hint:* Think about the relationships among rectangles, parallelograms, and triangles.

7. What is the area of the banner?

This activity is loosely based on ideas in Barson, Alan, "Geoboard Activity Cards–Intermediate" (Fort Collins, Colo.: Scott Resources, 1971).