

## Another FREE SAMPLE LAB from TOPS LEARNING SYSTEMS!

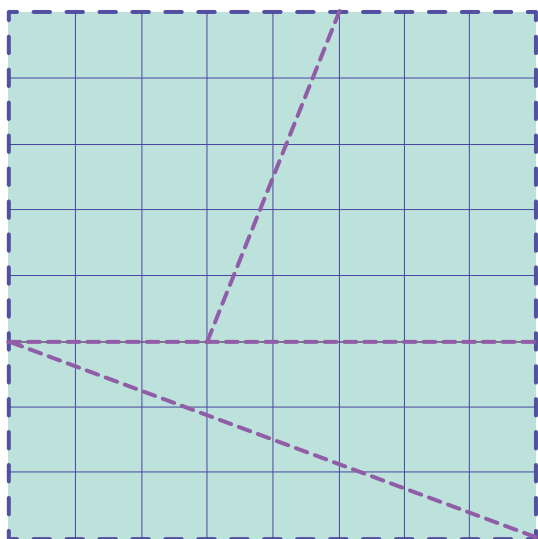
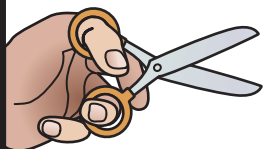
This TOPS Idea is taken from an original series of black-and-white line masters, adapted to stand alone as an independent mini-lesson. Please purchase our original book to get the whole in-depth program.

### go figure!

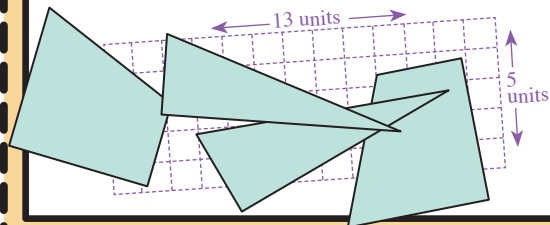
...adapted from **METRIC MEASURING #06**  
by TOPS Learning Systems

1. Each side of this square is 8 units. Calculate its area.

2. Cut out the whole square. Carefully cut on the dashed lines to make 2 trapezoids and 2 triangles.



3. Rearrange the pieces into a 5 x 13 unit rectangle:



4. What is the area of your new rectangle?

5. Can the same pieces really cover different areas? What's going wrong?

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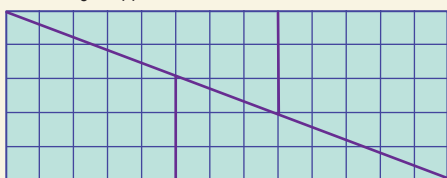
- 01 PENDULUMS (gr 8-12)
- 02 MEASURING LENGTH (gr 6-10)
- 03 GRAPHING (gr 6-10)
- 04 BALANCING (gr 6-11)
- 05 WEIGHING (gr 5-10)
- 06 METRIC MEASURE (gr 8-12)
- 07 MATH LAB (gr 7-12)
- 08 PROBABILITY (gr 6-10)
- 09 FLOATING & SINKING (gr 7-12)
- 10 ANALYSIS (gr 5-10)
- 11 OXIDATION (gr 6-10)
- 12 SOLUTIONS (gr 6-10)
- 13 COHESION/ADHESION (gr 6-10)
- 14 KINETIC MODEL (gr 7-12)
- 15 HEAT (gr 8-12)
- 16 PRESSURE (gr 7-12)
- 17 LIGHT (gr 6-11)
- 18 SOUND (gr 7-12)
- 19 ELECTRICITY (gr 8-12)
- 20 MAGNETISM (gr 8-12)
- 21 MOTION (gr 7-12)
- 22 MACHINES (gr 7-12)
- 23 ROCKS & MINERALS (gr 6-12)
- 31 PERFECT BALANCE (gr K-12)
- 32 ELECTRICITY (gr 3-8)
- 33 MAGNETISM (gr 3-8)
- 34 PENDULUMS (gr 4-9)
- 35 METRIC MEASURING (gr 5-9)
- 36 MORE METRICS (gr 6-10)
- 37 ANIMAL SURVIVAL (gr 3-8)
- 38 Green Thumbs: RADISHES (gr 3-8)
- 39 Green Thumbs: CORN & BEANS (gr 4-12)
- 40 EARTH, MOON & SUN (gr 7-12)
- 41 PLANETS & STARS (gr 7-12)
- 42 FOCUS POCUS (gr 5-10)
- 43 FAR OUT MATH (gr 9-12)
- 44 SCALE THE UNIVERSE (gr 5-12)
- 45 PI IN THE SKY (gr 5-12)
- 61 A SUMMER START (gr 1-8)
- 62 Intermediate ABC SOUP (gr 4-8)
- 63 PEACEFUL PROCEDURES (gr 1-8)
- 64 Primary ABC SOUP (gr 1-3)
- 71 Primary LENTIL SCIENCE (gr K-3)
- 72 Intermediate LENTIL SCIENCE (gr 3-6)
- 73 GET A GRIP Workstation (gr K-6)
- 91 GLOBAL TOPS (gr 3-10)
- 100 TRIPLE MAGNIFIER (gr 3-12)
- 200 CARTESIAN DIVER (adapts K-12)

#### OBJECTIVE

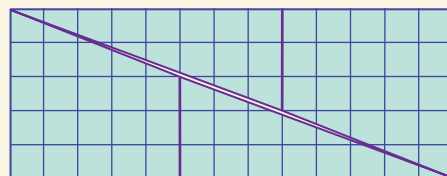
To explain the apparent discrepancy that the same puzzle pieces fit together to form figures with unequal areas.

#### ANSWERS

1. Square, *actual* area = 8 units x 8 units = 64 units<sup>2</sup>  
3-4. Rectangle, *apparent* area = 5 units x 13 units = 65 units<sup>2</sup>



5. If pieces are carefully aligned, a long diagonal gap becomes noticeable. Thus, the rectangle actually consists of 64 units<sup>2</sup> of paper *plus* 1 unit<sup>2</sup> space in the gap.



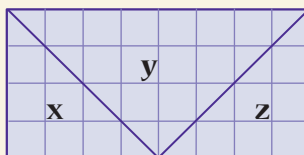
#### LAB NOTES

Copy the lab for each student or lab team to cut apart.

#### EVALUATION

Q: a. Count squares to determine the area of triangles x, y, and z.

b. Confirm that your answer is correct by finding the area of the whole rectangle.



- A: a. Triangle x = 8 squares  
Triangle y = 16 squares  
Triangle z = 8 squares

b. The sum of the 3 triangles' areas equals the area of the large rectangle:  
 $8 + 16 + 8 = 4 \times 8$ .

**MATERIALS:** Scissors

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