

## Activity Sheet 6

### SIMILARITY

Students use marshmallows and toothpicks to explore the ratios of the perimeters and the ratios of the areas of similar figures.

1. Using at most 20 marshmallows and 20 toothpicks, construct two squares of different sizes.
2. Explain why the squares are similar. \_\_\_\_\_  
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3. Using the length of one toothpick as your unit of measure, find the lengths of sides, the perimeter, and the area of each square. \_\_\_\_\_  
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4. What is the ratio of the lengths of the corresponding sides of the two squares? \_\_\_\_\_
5. What is the ratio of the perimeters of the two squares? \_\_\_\_\_
6. What is the ratio of the areas of the two squares? \_\_\_\_\_
7. Using at most 36 marshmallows and 36 toothpicks, construct two similar rectangles.
8. Explain why the rectangles are similar. \_\_\_\_\_  
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9. Using the length of one toothpick as your unit of measure, find the lengths of the sides, the perimeter, and the area of each rectangle. \_\_\_\_\_  
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10. What is the ratio of the lengths of the corresponding sides of the two rectangles? \_\_\_\_\_
11. What is the ratio of the perimeters of the two rectangles? \_\_\_\_\_
12. What is the ratio of the areas of the two rectangles? \_\_\_\_\_

13. Using at most 45 marshmallows and 45 toothpicks, construct two similar triangles.
14. Explain why the triangles are similar. \_\_\_\_\_  
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15. Using the length of one toothpick as your unit of measure, find the lengths of the sides, the perimeter, and the area of each triangle. \_\_\_\_\_  
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16. What is the ratio of the lengths of the corresponding sides of the two triangles? \_\_\_\_\_
17. What is the ratio of the perimeters of the two triangles? \_\_\_\_\_
18. What is the ratio of the areas of the two triangles? \_\_\_\_\_
19. From your investigations in steps 1 – 18, make a conjecture about the relationship between the ratio of the lengths of the corresponding sides and the ratio of the perimeters of similar figures.  
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20. From your investigations in steps 1 – 18, make a conjecture about the relationship between the ratio of the lengths of the corresponding sides and the ratio of the areas of similar figures.  
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