# Sierpinski's Carpet Exploration Questions

Run several stages of the Sierpinski's Carpet Activity, and answer the following questions:

- Fill in the table:

| Iteration | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Number of Shaded Squares | | | | |
| Area of one Shaded Square | | | | |
| Total Shaded Area | | | | |

- What pattern do you see in the numbers for the number of shaded squares?  Can you build a formula for the area of one shaded square at the n-th stage?

- What pattern do you see in the numbers for the area of one shaded square?  Can you build a formula for the area of one shaded square at the n-th stage?

- What patterns do you see in the numbers for the total shaded area?  Can you build a formula for the total area at the n-th stage?

- What do you think happens to these numbers as the number of stages approaches infinity?

- Compare these results for the Sierpinski's Triangle.  Does the "three-ness" of a triangle the "four-ness" of a square seem to play a role in these numbers?