## 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?

