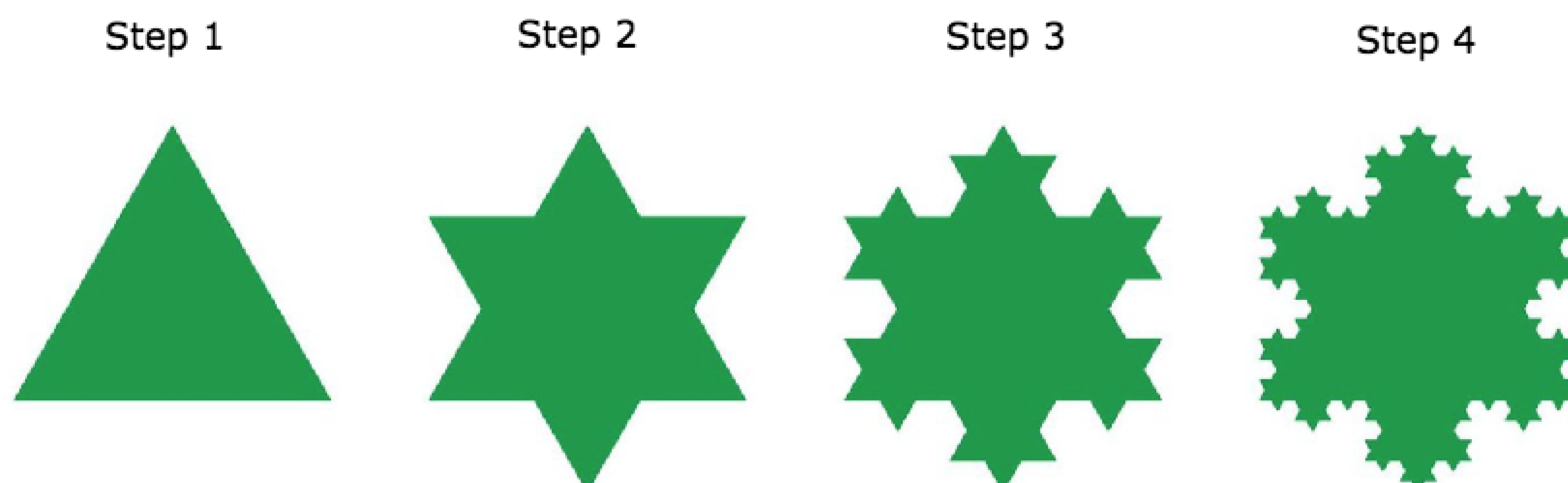


Math Department Problem of the Month

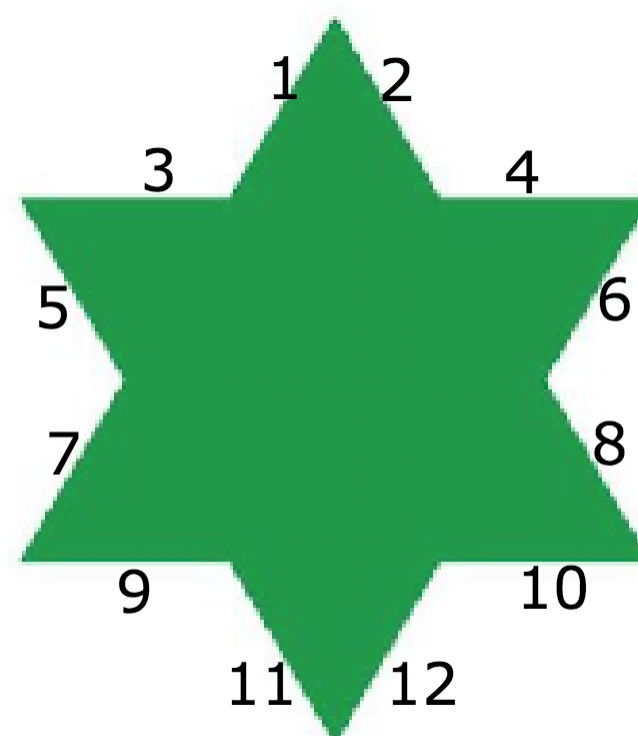
Alliance Marc and Eva Stern Math and Science School

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Koch's Snowflake is made by repeating the steps of the process shown below:



Notice that in Step 1 the shape only has three sides.
In Step 2 there are twelve sides, as you can see below:



QUESTION 1: How many sides will there be in Step 10? How many sides will there be in Step n ?

CHALLENGE QUESTION: Suppose that in Step 1 you make each side have length 1 inch. Then, the perimeter would be 3 inches (since there are 3 sides). In Step 2, the perimeter would be 4 inches, since there will be 12 sides and each will be $\frac{1}{3}$ of an inch long. What will be the perimeter of the snowflake in Step 10?