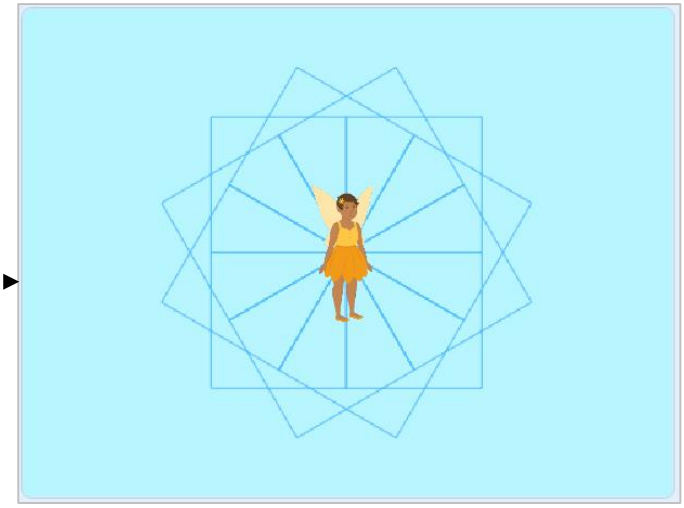
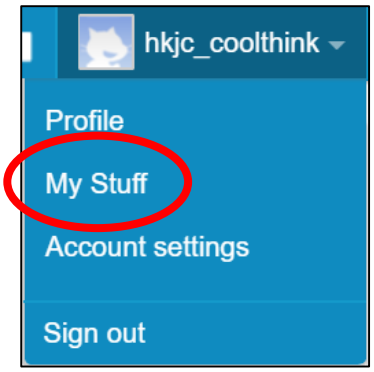
COMPUTATIONAL ARTS WITH SCRATCH

In this lesson, you will learn how to make a snowflake with multiple squares.

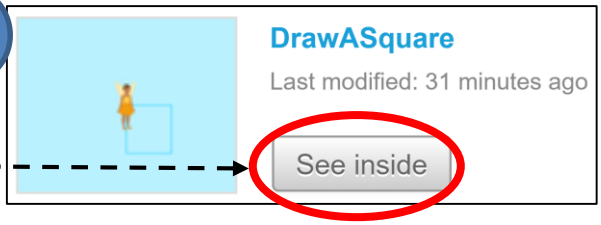


START HERE

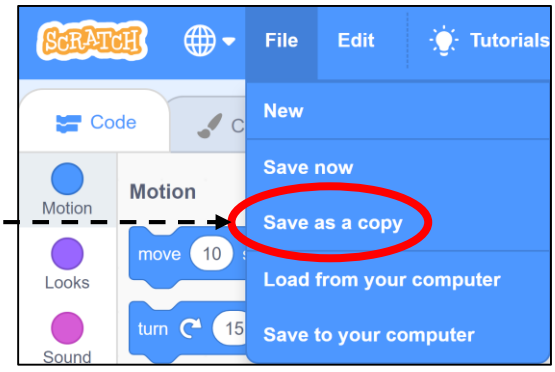
- ❑ Sign into your account at scratch.mit.edu. 1
- ❑ Go to **My Stuff** under your name at the right top of the screen. 2



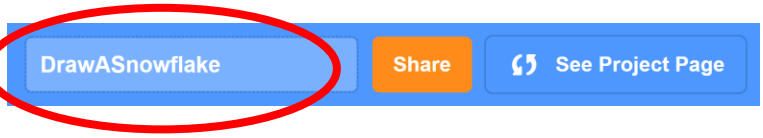
- ❑ Click on the **See inside** button to open your **DrawASquare** project. 3



- ❑ Select **Save as a copy** from the **File** menu. 4

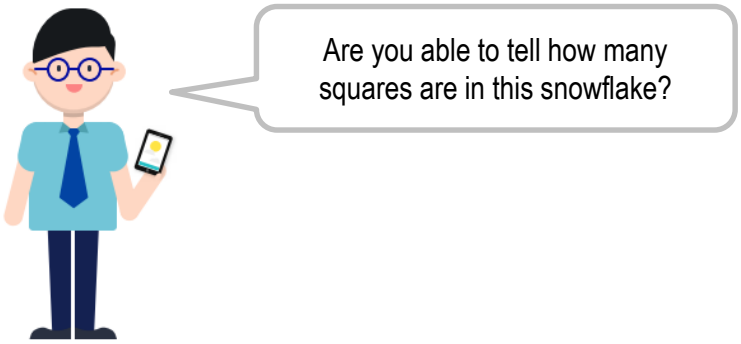


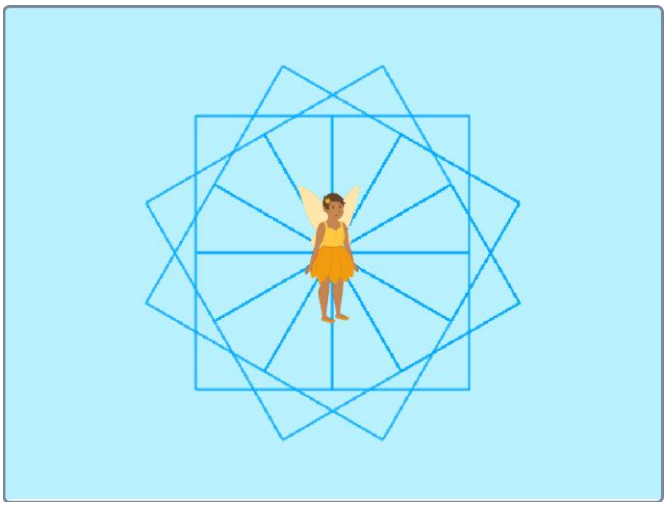
- ❑ Change the name to “DrawASnowflake” and **save** your project. 5



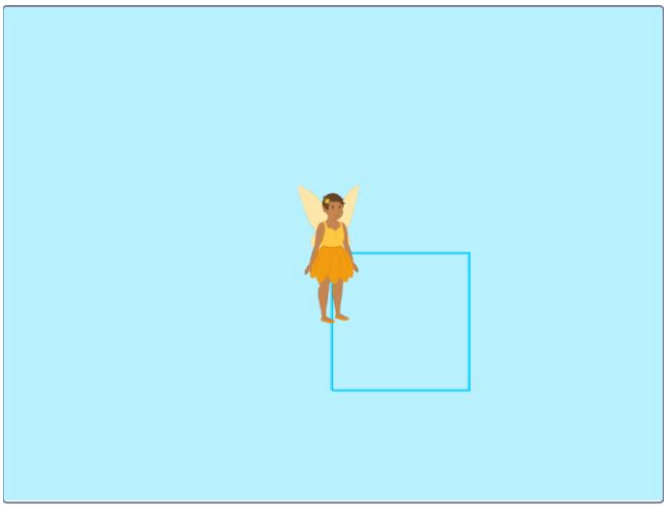
COMPUTATIONAL ARTS WITH SCRATCH

A SNOWFLAKE

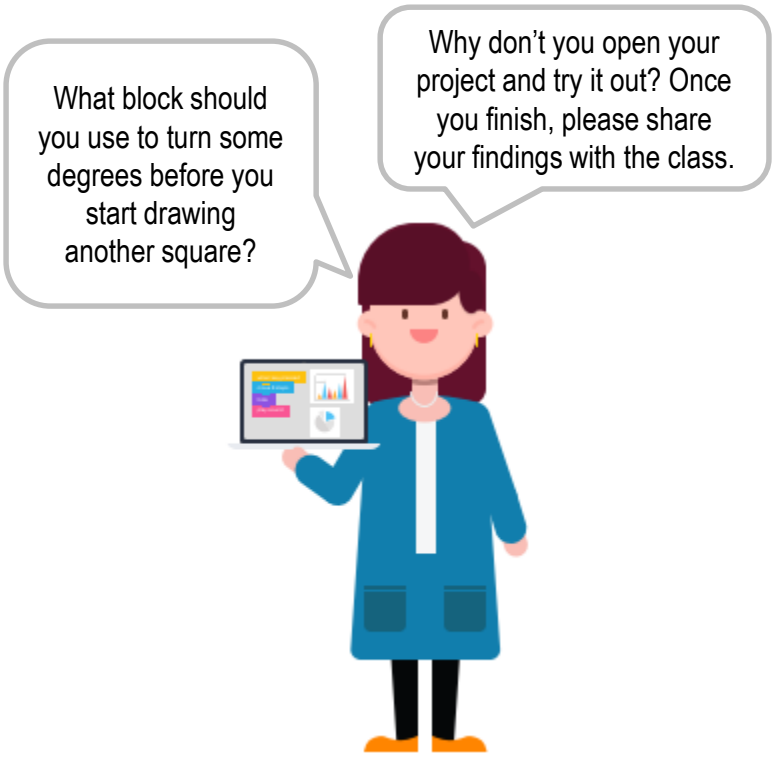


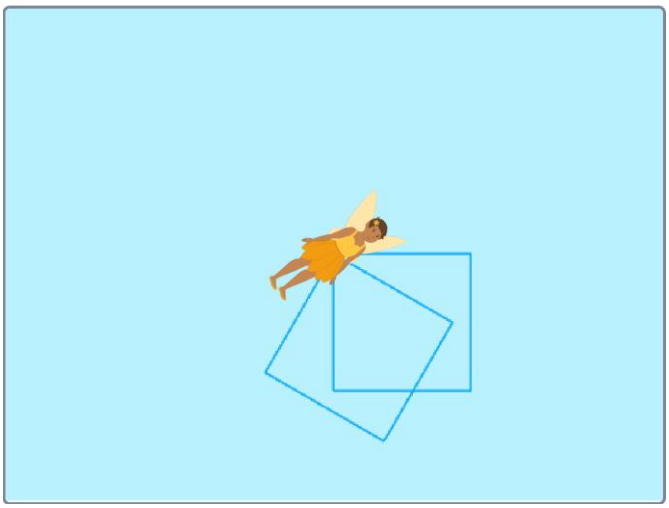


❑ The snowflake is composed of multiple squares. To draw it, you need to repeat the steps for creating a square.



❑ After you finish drawing a square, you need to turn some degrees before drawing another square, otherwise you will end up drawing multiple squares on the same spot.





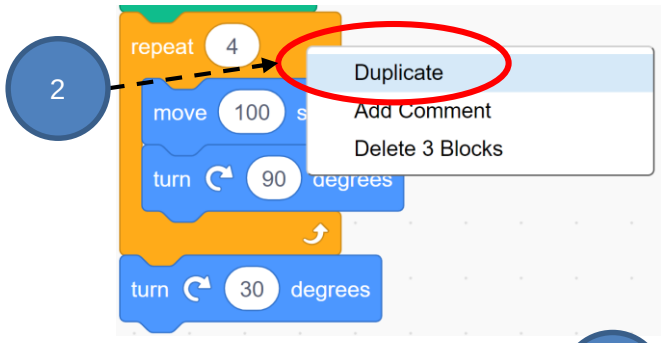
COMPUTATIONAL ARTS WITH SCRATCH

DRAWING MULTIPLE SQUARES

❑ To draw a snowflake with multiple squares, you need to:

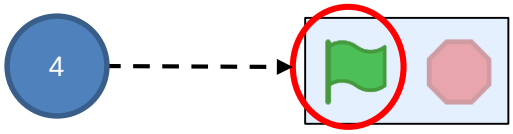
1. Drag the **turn right 15 degrees** block from the **Motion** drawer. Snap it below the **repeat** block and change it to **30** degrees.

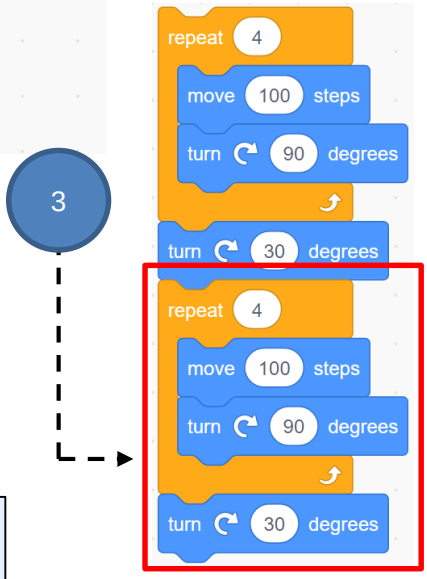
2. Duplicate the **repeat** and **turn right 30 degrees** blocks.

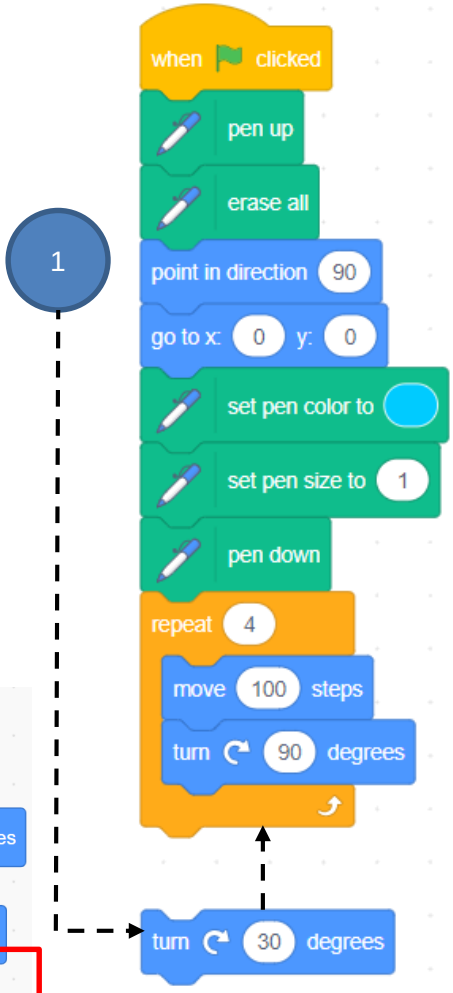


3. Snap the duplicate blocks to the **turn right 30 degrees** block.

4. Click on the **green flag** and see what is drawn.







5. Repeat the steps until you make a snowflake.

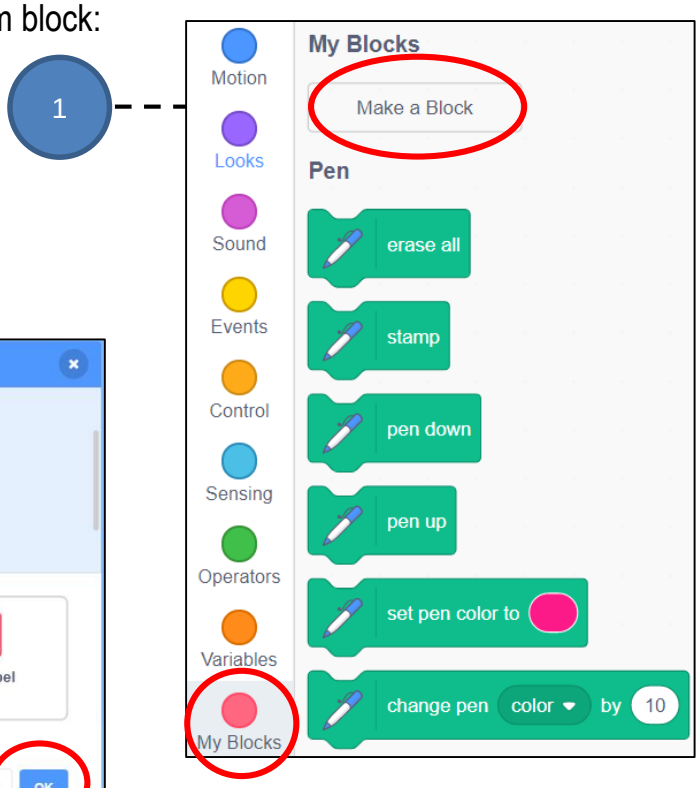
COMPUTATIONAL ARTS WITH SCRATCH

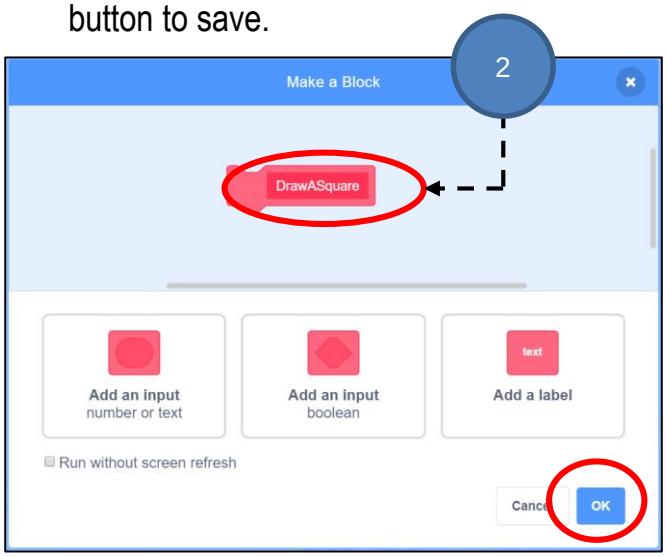
The blocks used to create a square are repeated multiple times.
To make our code clearer and shorter, we can make our own block to make a square.

"DRAWASQUARE" BLOCK

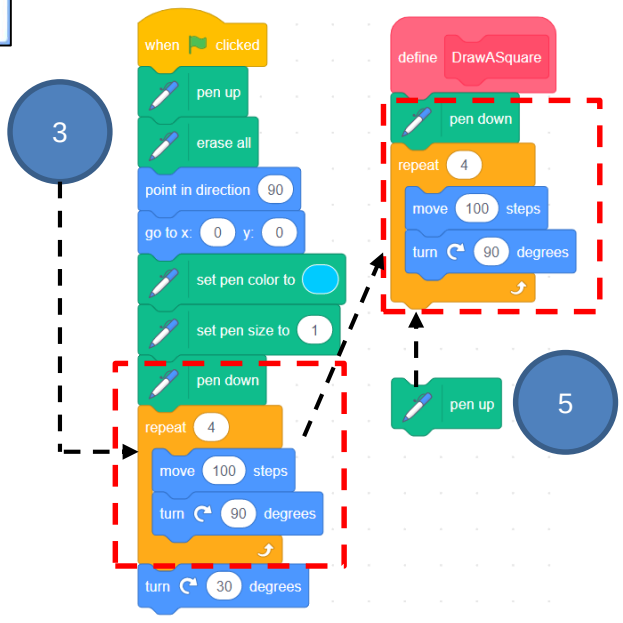
❑ To make **DrawASquare**, your own custom block:

1. Click on the **Make a Block** button in the **My Blocks** drawer.
2. Type **DrawASquare** as the name of the block and click the **OK** button to save.





3. Drag the blocks that draw a square and snap them to the **DrawASquare** block.
4. Remove the remaining sets of **repeat** and **turn right 30 degrees** blocks.
5. Drag a **pen up** block from the **Pen** drawer and snap it to the bottom of the blocks. This makes sure after you draw a square, the pen is up.



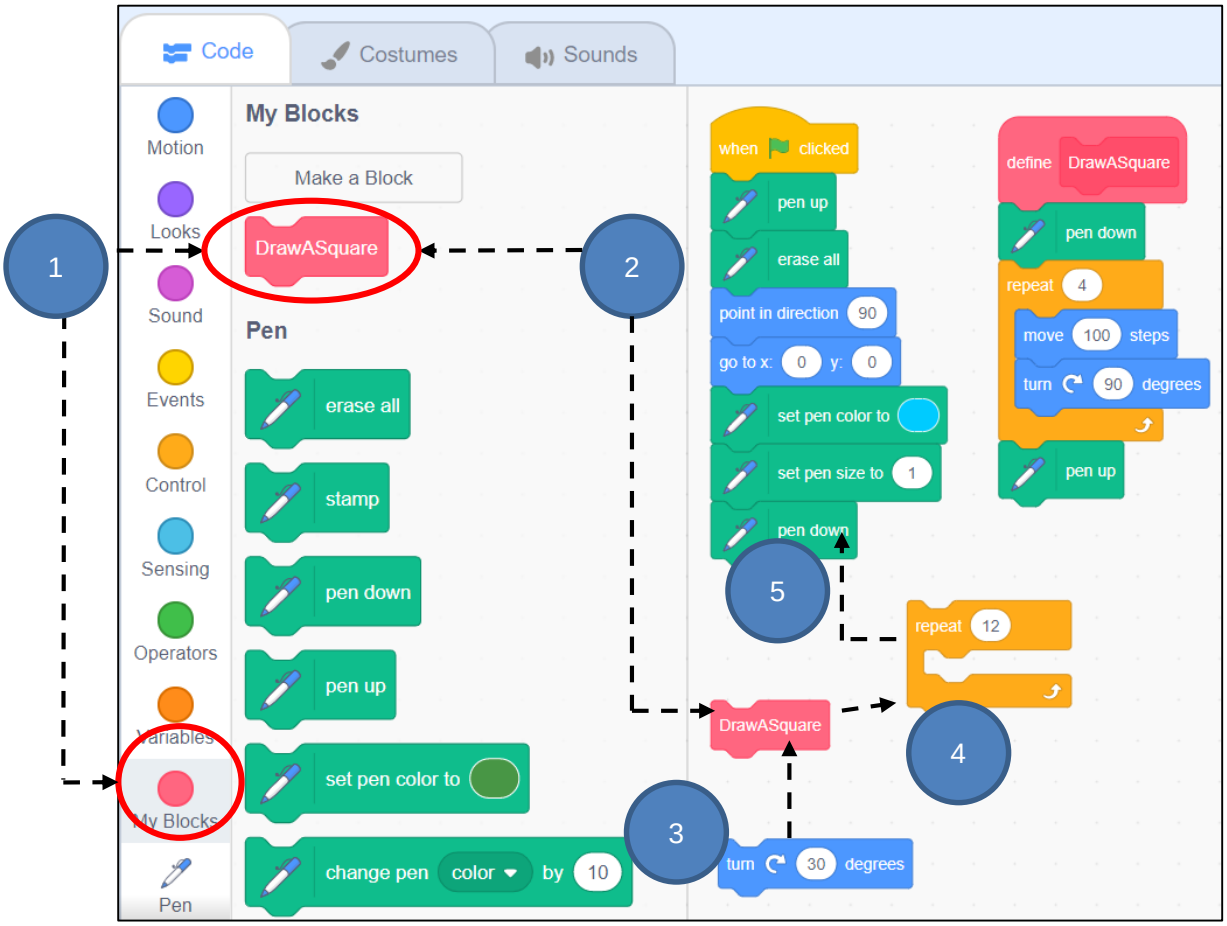
COMPUTATIONAL ARTS WITH SCRATCH

CT Tips
The blocks used to create a square are repeated multiple times. To make the code shorter, we can make our own custom block (**procedure)** to make the square.

USING THE CUSTOM BLOCK

- Creating a custom block does not mean that it will run by itself; therefore we need to call it.
  Let's look at how we use the custom block we created:

1. In the **My Blocks** drawer, you should now see the **DrawASquare** block.
2. Drag the **DrawASquare** block out.



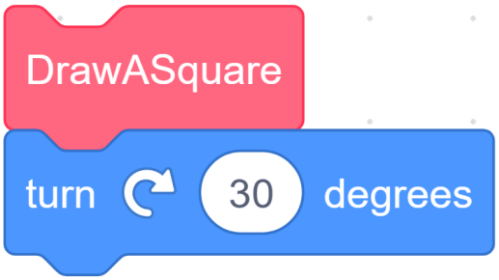
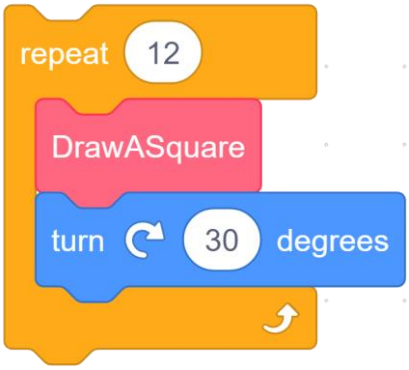
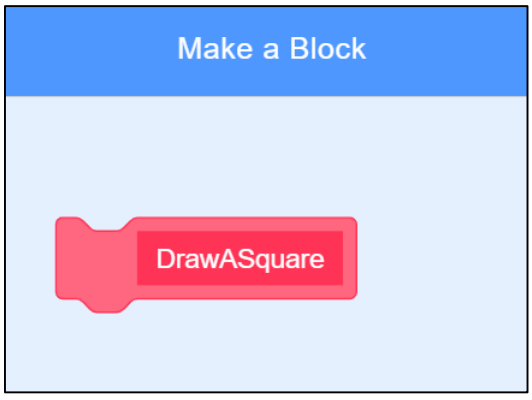
12 squares form a snowflake.

3. Before you draw a new square, the sprite needs to turn 30 degrees. So, snap the **turn right 30 degrees** block in the **DrawASquare** block.
4. And you need to draw 12 squares to form a snowflake. So, drag a **repeat** block from the **Control** drawer and snap the **DrawASquare** and **turn right 30 degrees** blocks in. Remember to change the number to **12** to draw 12 squares.
5. Finally, drag the **repeat** block under the **set pen size to 1** block.
6. Click on the green flag and see if a snowflake is drawn using the **DrawASquare** custom block.

COMPUTATIONAL ARTS WITH SCRATCH

COMPUTATIONAL THINKING CONCEPTS

The following are the computational thinking concepts learnt in Lesson 2.

L1U8.7 -8.8 Computational Arts with Scratch
1. Sequences: 
2. Repetition: 
3. Naming: 

COMPUTATIONAL ARTS WITH SCRATCH

COMPUTATIONAL THINKING PRACTICES

The following is the computational thinking practice used in lesson 2.

L1U8.7-8.8 Computational Arts with Scratch
1. Abstracting and modularizing: The blocks used to create a square are repeated multiple times. To make the code shorter, we can make our own custom block (procedure) to draw the square.