Creating Circular Rose Patterns

ACTIVITY 1.3.1

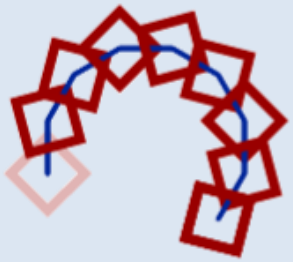
Moving Forwards and Backwards

Module 1: Investigation 3

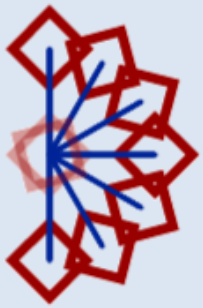
Activity 1.3.1 – Moving Forwards and Backwards

Watch the video **1-Pattern Algorithms**.

- What are the differences between the two algorithms? Step them through with your bodies, discuss and explain.



move
turn
stamp



move
stamp
move backwards
turn

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Activity 1.3.1 – Moving Forwards and Backwards

Open project **14-Rose Patterns**.

- Build a script to create a circular rose pattern below using the second algorithm (**move-stamp-move back-turn**).

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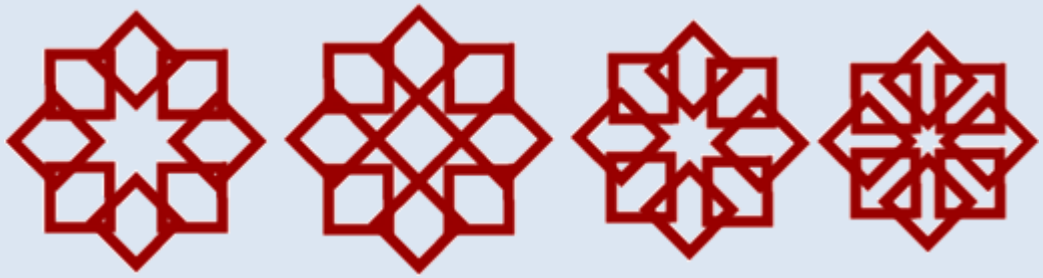
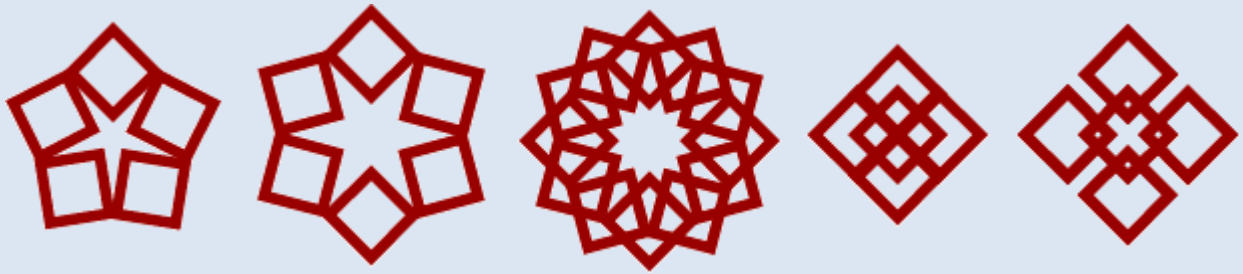
Activity 1.3.1 – Moving Forwards and Backwards

- Change the values in the **move**, **turn**, **move** and **repeat** blocks to create some of the patterns below.





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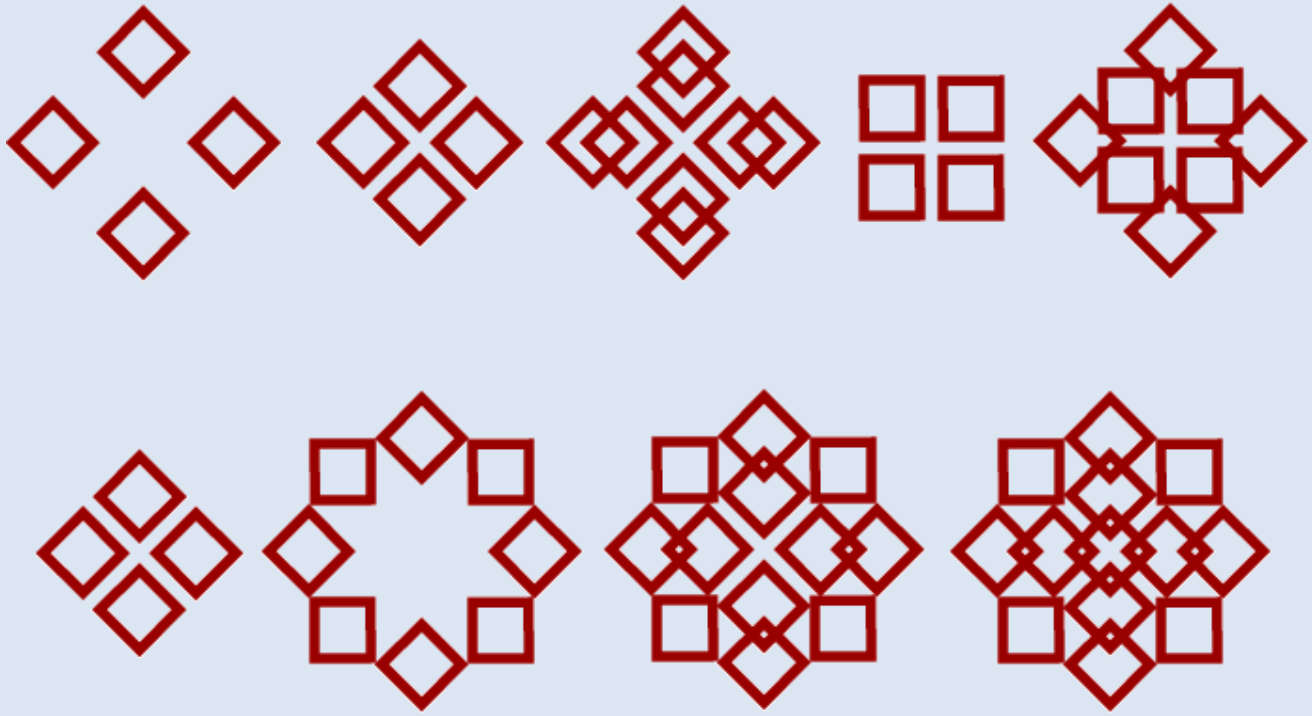
Activity 1.3.1 – [Extension] Moving Forwards and Backwards

- **[Extension]** Try combining two rose patterns together.



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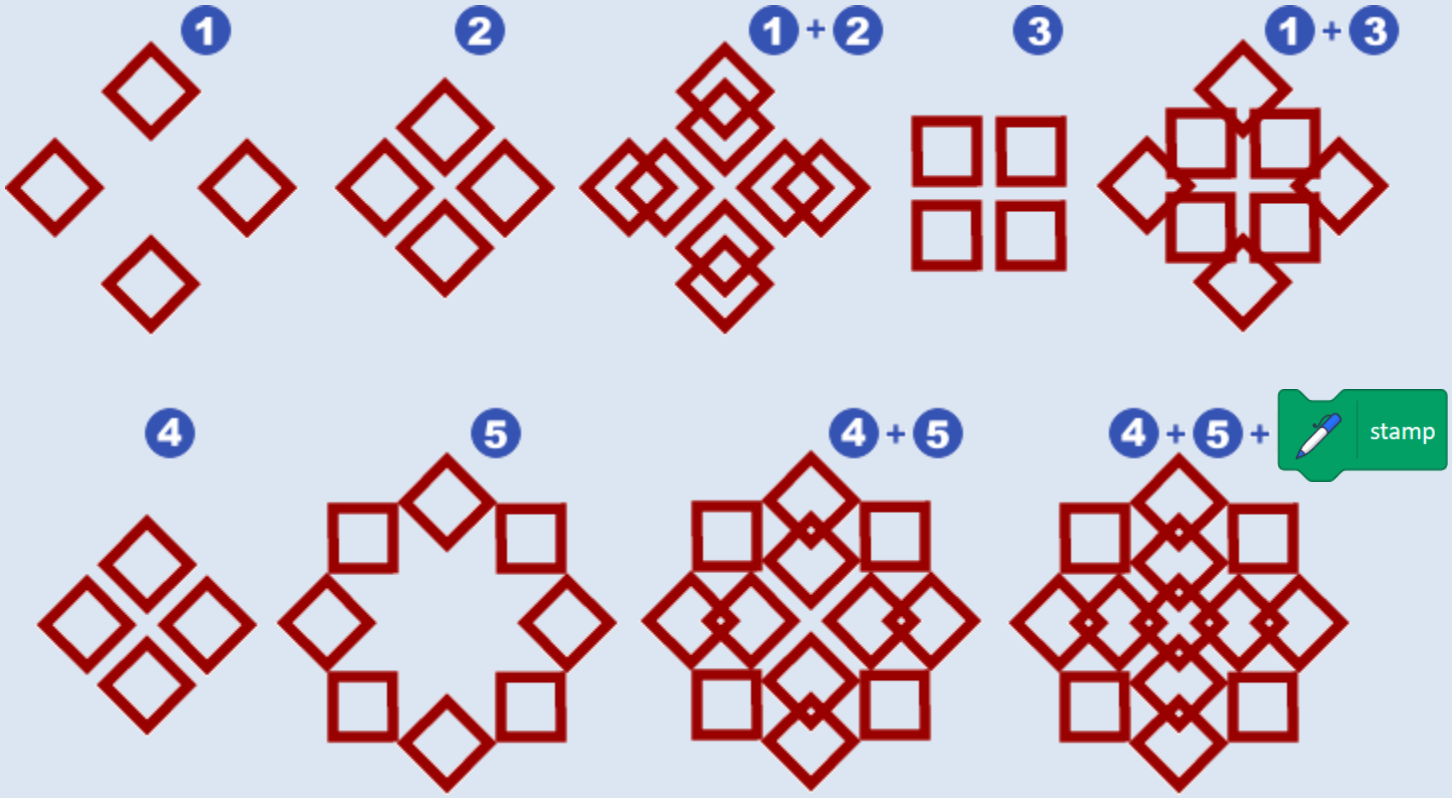
Activity 1.3.1 – [Extension] Moving Forwards and Backwards

[Extension] *Some hints…*



Discussion Questions

- If you **move 50 steps** from your current location, how do you get back to the same location?
- What is the relationship between the values needed to **move** forward and **move** backwards in this new algorithm?

ACTIVITY 1.3.2: UNPLUGGED

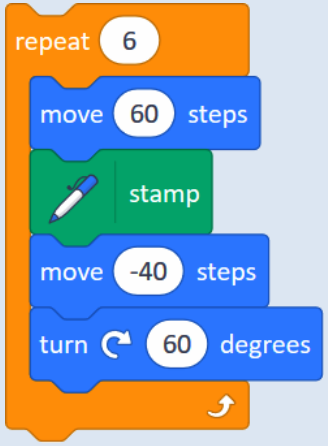
Predicting Patterns

Module 1: Investigation 3

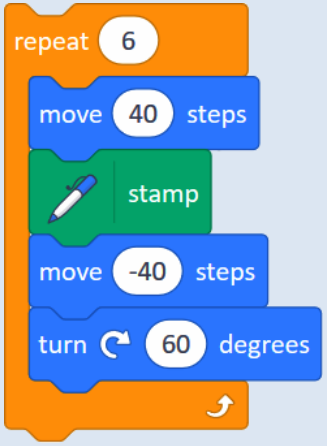
Activity 1.3.2 – Unplugged: Predicting Patterns

- Find the script that will correctly create the rose pattern on the right.

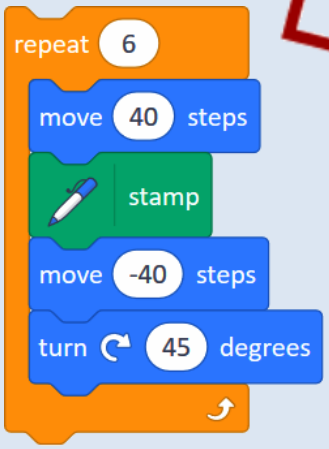
A



B



C



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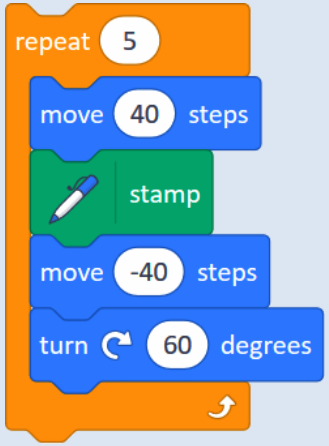
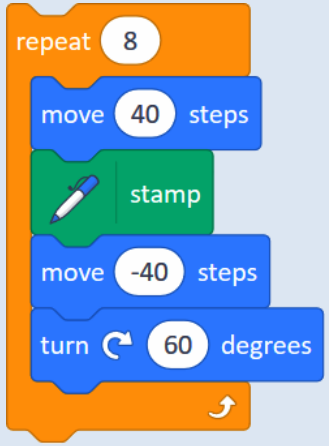


E



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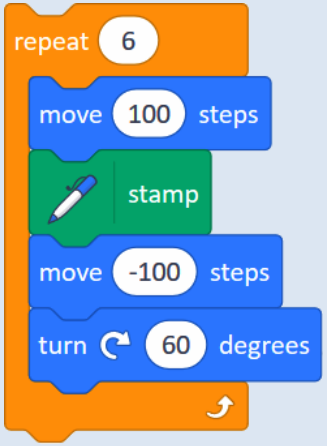

ACTIVITY 1.3.3

Combining Different Costumes

Module 1: Investigation 3

Activity 1.3.3 – Combining Different Costumes

Continue in your project **14-Rose Patterns**.

- Go to the **Costumes** tab and look at the different costumes the Tile sprite has.

  Notice how each costume has its own name.

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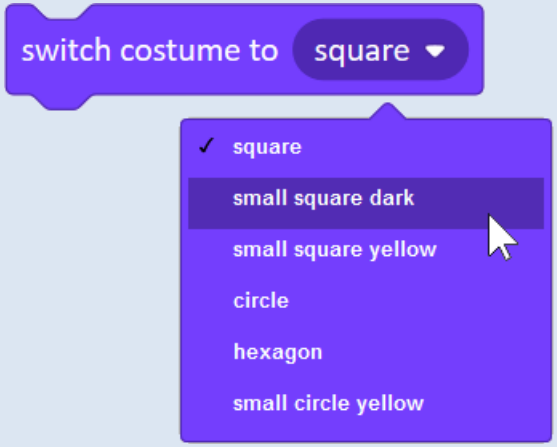
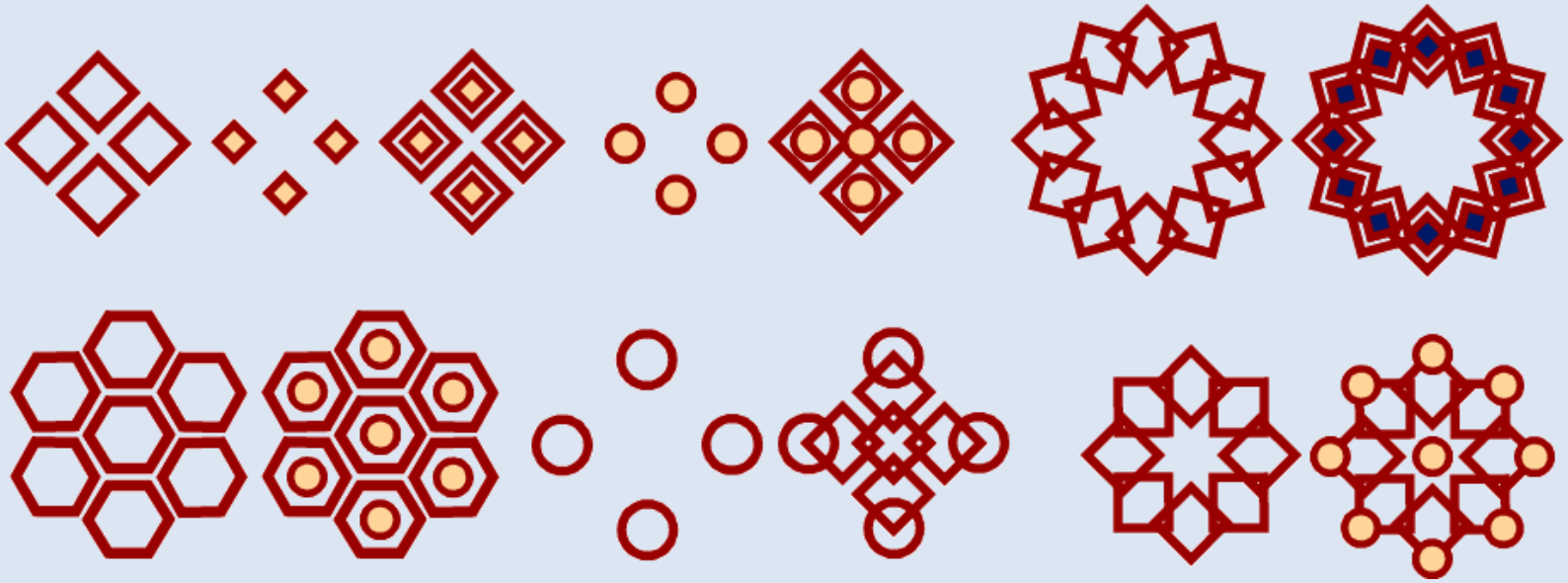
Activity 1.3.3 – Combining Different Costumes

- Find the **switch costume to …** block and use it to create your own rose patterns.





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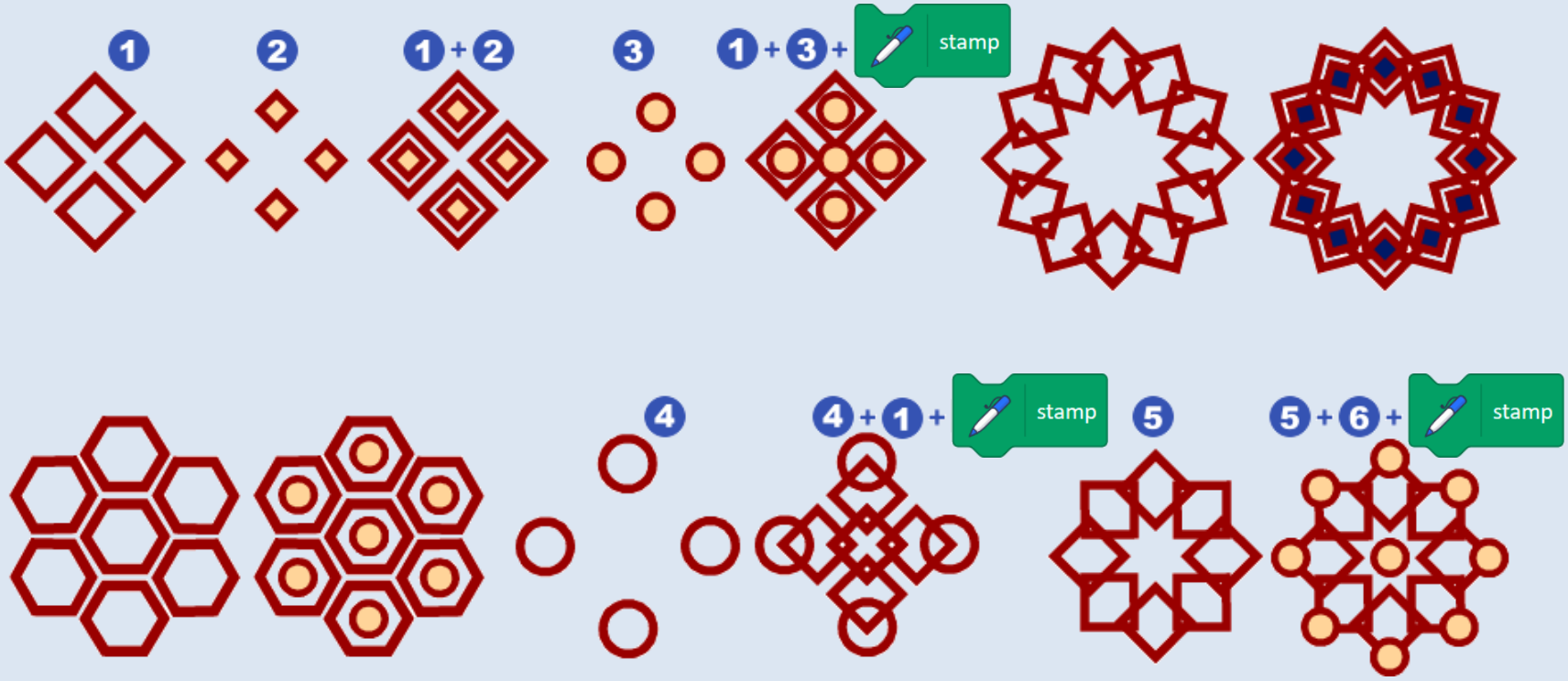
Activity 1.3.3 – Combining Different Costumes

Some hints…



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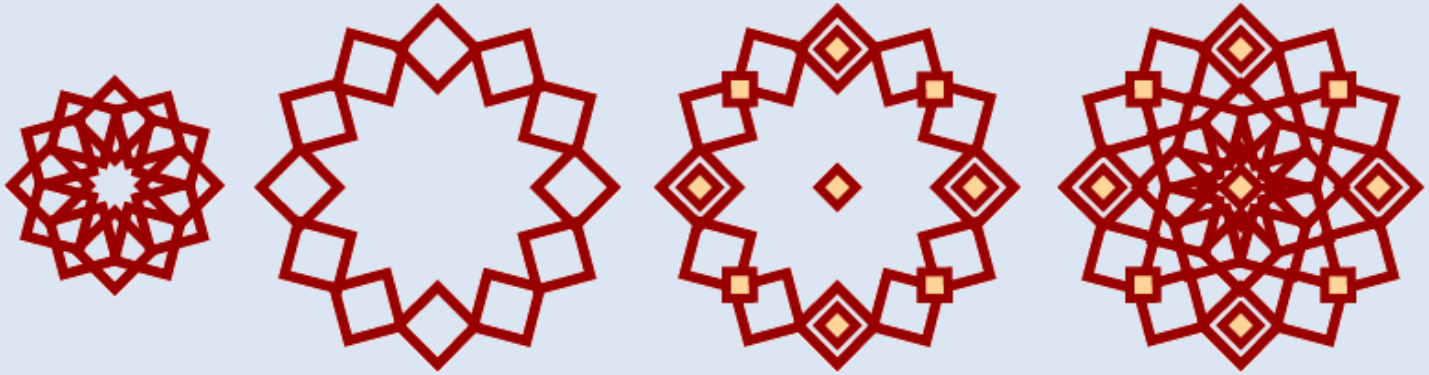
Activity 1.3.3 – [Extension] Combining Different Costumes

- **[Extension]** Try combining two rose patterns together.



Discussion Questions

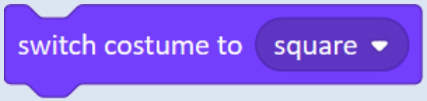
- How many different costumes did you use in each of your patterns?
- Why might you use the **switch costume to …** block instead of **next costume**?
- Where in your script did you place the **switch costume to …** block? Did you move it – if so what happened?
- How many lines of symmetry can you identify in your patterns?

MODULE 1: INVESTIGATION 3

My Investigation 3 check list:

- ☐ I made my Tile sprite move both forwards and backwards.
- ☐ I created different circular patterns from the central point.
- ☐ **[Extension]** I combined different rose patterns together.
- ☐ I could read a script and reason why it would or would not create a specific rose pattern.
- ☐ I created rose patterns with different costumes.
- ☐ I used **switch costume to …** in my scripts.

Module 1 Investigation 3: Key Vocabulary

- **algorithm** — is a precise set of instructions for solving a problem
- **logical reasoning** — means to reason correctly and systematically, apply rules in a systematic way to complete a task (e.g. apply knowledge about what each block does to predict the outcome of a script)
- 

a command which allows us to pick another costume from the list of the sprite's costumes