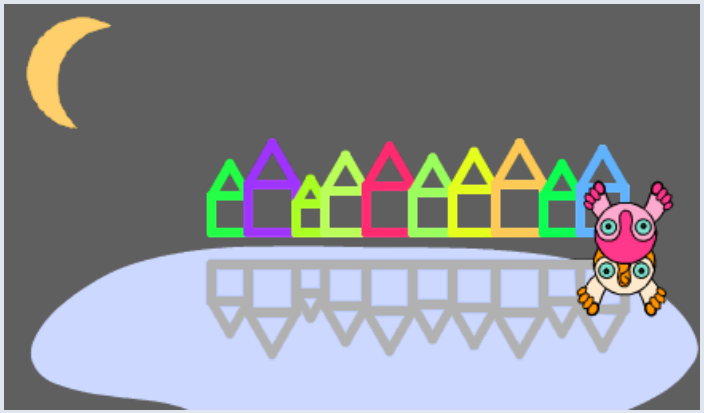
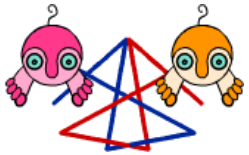
Transformations



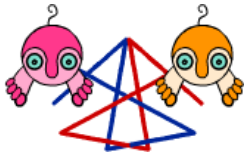


ACTIVITY 6.3.1

Mimic Meeeee

Module 6: Investigation 3

Activity 6.3.1 – Mimic Meeeee

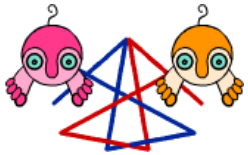


Open project **63-Mimic Meeeee**.

- Explore the project, its sprites **Fleeeee** and **Meeeee**, their costumes and their *setup scripts.*
- Run the project by clicking the ⚑. Envisage, explore and explain two **forever** scripts of **Fleeeee**.

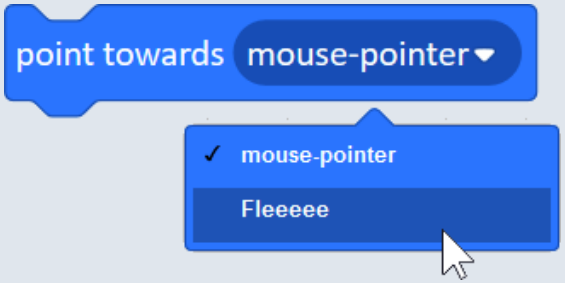
Module 6: Investigation 3

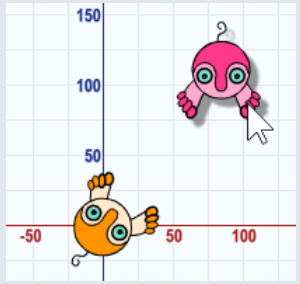
Activity 6.3.1 – Mimic Meeeee



- For **Meeeee** build a **when green flag clicked** script, which will make the sprite **forever** look towards **Fleeeee**.

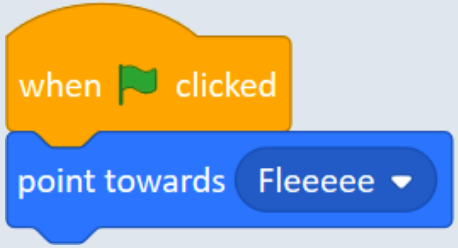
  Try it then by dragging **Fleeeee** around the stage… Explore and explain. **Try it also in the player mode.**

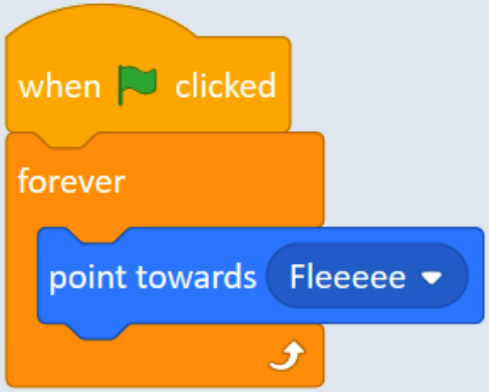




- Which of these two solutions is correct?

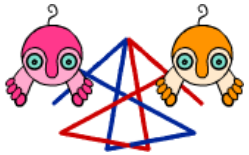
  Envisage, explore and explain the difference.



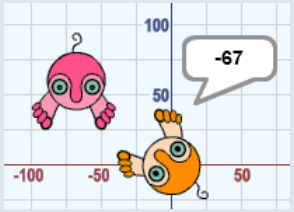


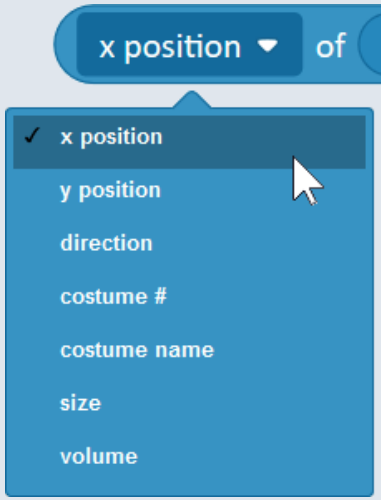
Module 6: Investigation 3

Activity 6.3.1 – Mimic Meeeee



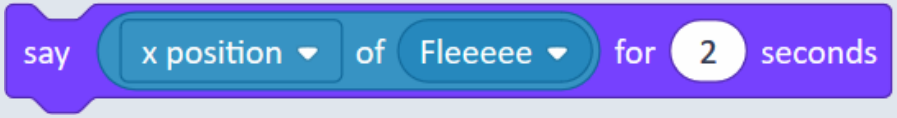
- Modify previous script so that **Meeeee** will always **say** the current **x position** of **Fleeeee**.
  Use a powerful **Sensing** blocks – *something* **of** *somebody*.

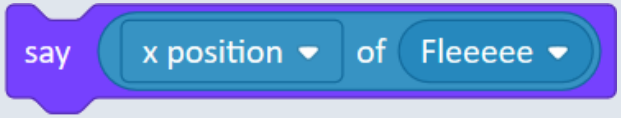




Drag **Fleeeee** around the stage in the **player mode** and observe **Meeeee**.

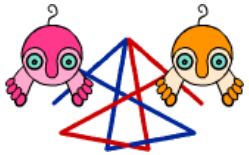
- Which of the two **say** blocks have you used? Which one is more useful in this situation? Envisage, explore and explain.





Module 6: Investigation 3

Activity 6.3.1 – Mimic Meeeee

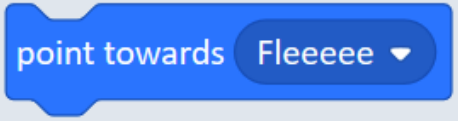


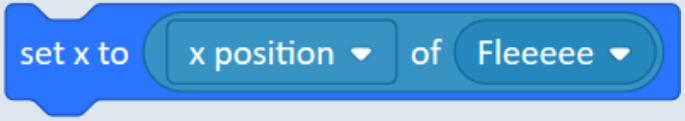
- Build a mimicking script for **Meeeee**, which will **forever** switch its costume to the current *costume #* **of** *Fleeeee*.

  Keep the previous script with **say**… , the script for switching costumes will be the fourth **when green flag clicked** script **Meeeee**.

- In the script of **Meeeee** with the **say** block, replace **say** by **set x to…** so that **Meeeee** will now move and mimic the actual *x position* **of** **Fleeeee**.

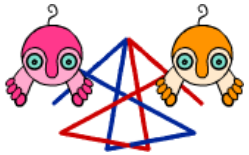
Drag **Fleeeee** around the stage in the **player mode** and observe **Meeeee**.





Module 6: Investigation 3

Activity 6.3.1 – Mimic Meeeee

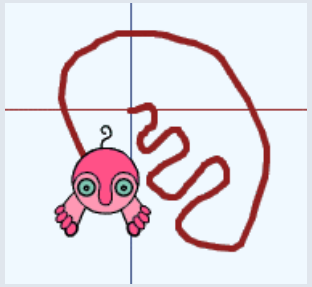


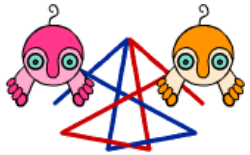
- Modify the same script by replacing **set x to …** and *x position* **of** *Fleeeee* by **set y to …** and *y position* **of** *Fleeeee*.
  Envisage and explore.

Drag **Fleeeee** around the stage in the **player mode** and observe **Meeeee**.

- Modify the initial position of **Fleeeee** to be **x: 0 y: 0**.
  Modify the *setup script* of **Meeeee** so that:
  - its initial position is **x: 0 y: 0**, with **pen down**,
  - instead of **set x to …** or **set y to …** use **go to x:… y:…** for x and y positions of **Fleeeee**.
  - Remove the **point towards** block.

Drag **Fleeeee** in the **player mode** and observe.



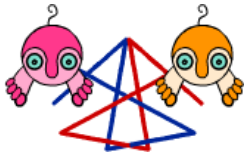


ACTIVITY 6.3.2

Shadows, Translations and Reflections

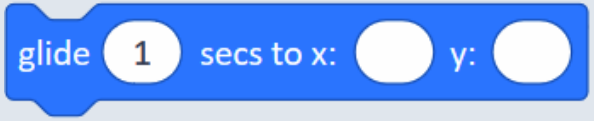
Module 6: Investigation 3

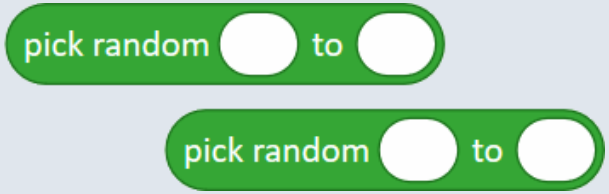
Activity 6.3.2 – Translations



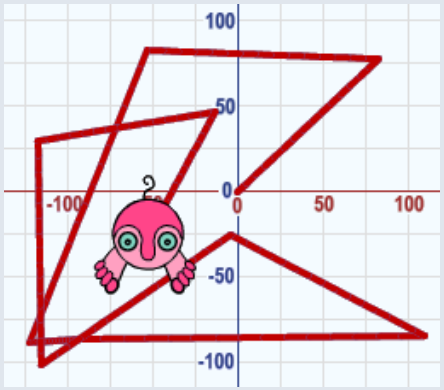
Continue in your **63-Mimic Meeeee** project.

- Click the so that **Meeeee** will start mimicking **Fleeeee**.
  For **Fleeeee** build an isolated **glide** block with **random x:** and **y:** positions.



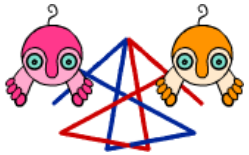


- Turn the **glide** block into the **when this sprite clicked** script, with **repeat 10** around **glide**.



Module 6: Investigation 3

Activity 6.3.2 – Translations



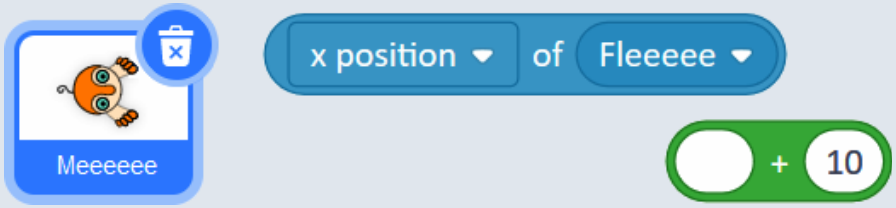
- What colour are the lines? Who draws them?

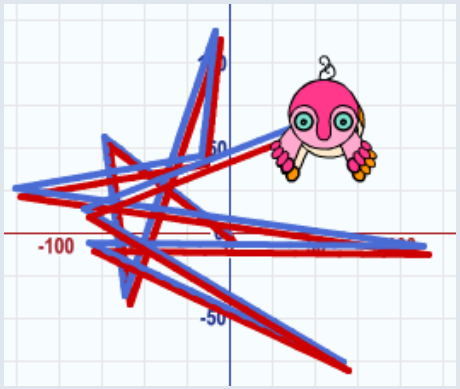
- Replace **pen up** of Fleeeee by **pen down** and click the sprite again. Did it help?

  Envisage, explore and explain the difference.

- When **Fleeee** has its **pen down** why are all the lines red?

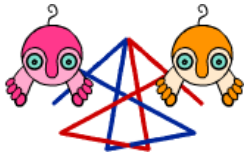
- To see lines for both **Fleeeee** and **Meeeee,** modify the mimicking script of **Meeeee** to move 10 pixels to the right.





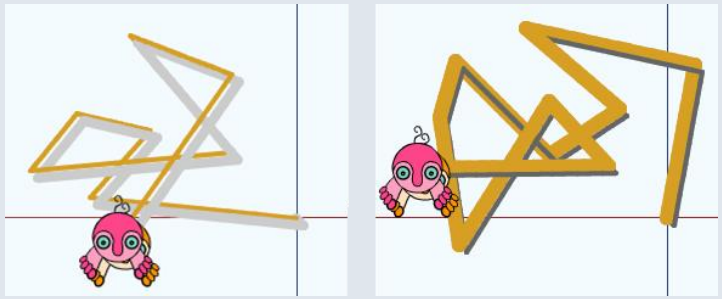
Module 6: Investigation 3

Activity 6.3.2 – Translations



- In the mimicking script of **Meeeee,** use an operator to add a small value to the *y position* **of** Fleeeee.

  Explore the images created using small values of translation, different pen sizes and pen colours.

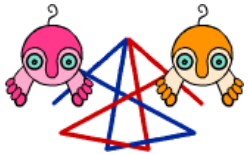


- Restrict **Fleeeee**'s gliding within the upper left quadrant. Make **Meeeee** mimic the same glide doodle translated:

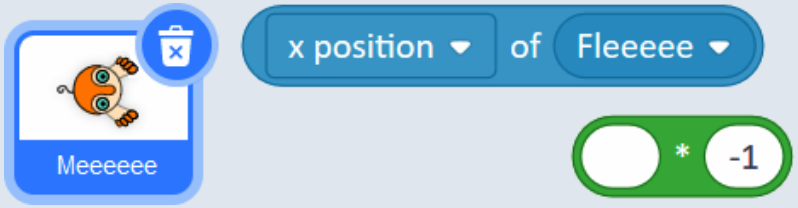
  - **right 200**
  - **down 150**
  - **right 50 down 50**

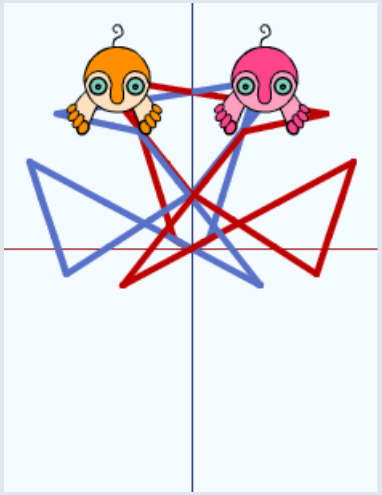
Module 6: Investigation 3

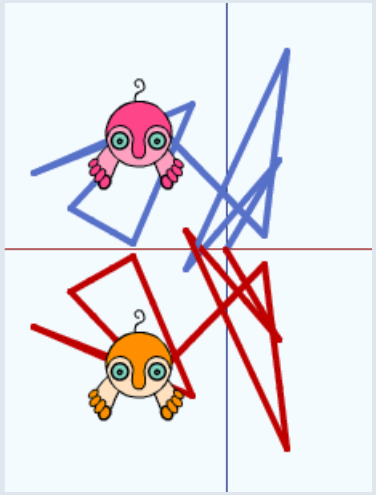
Activity 6.3.2 – Translations



- Instead of using (+) in the mimicking script of **Meeeee**, use multiply by -1 on the *x position* **of** Fleeeee or *y position* of Fleeeee or both!

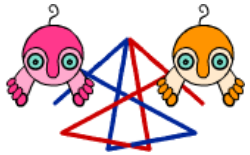






- **[Extension]** Multiply
  x or y positions (or both)
  in the mimicking script of **Meeeee** by 0.5 or -0.5.

  Envisage, explore and explain.

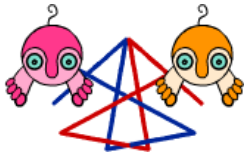


ACTIVITY 6.3.3

Through the Looking Glass

Module 6: Investigation 3

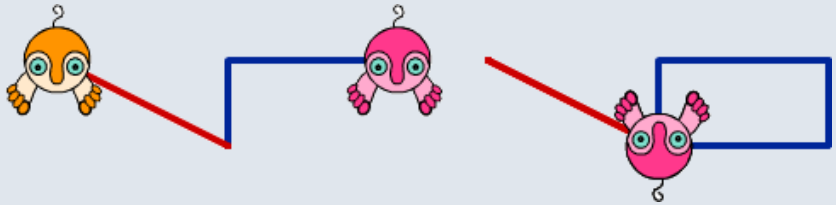
Activity 6.3.3 – Through the Looking Glass

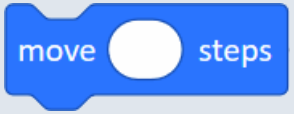


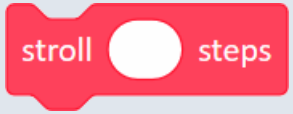
Open project **63-Looking Glass**.

- Click the ⚑ and explore how **Meeeee** imitates **Fleeeee**.
  Click the **move …** and **turn …** script of **Fleeeee** and explain.
  Make regular polygons: equilateral triangle, square, hexagon etc.

- Extend the **move…** and **turn…** script so that it draws a rectangle.
  Run it and explore. Discuss the problem.



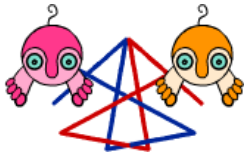
Replace each 

block by 

which is a slower version of move defined for you.

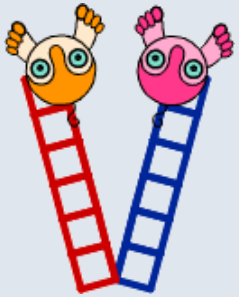
Module 6: Investigation 3

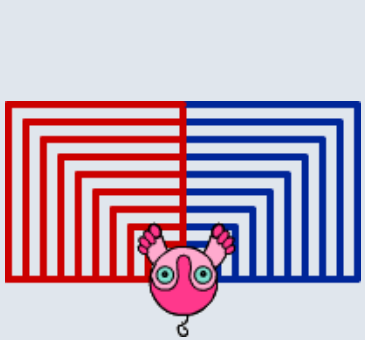
Activity 6.3.3 – Through the Looking Glass

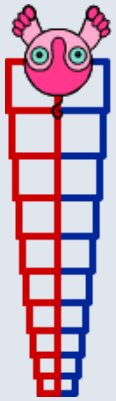


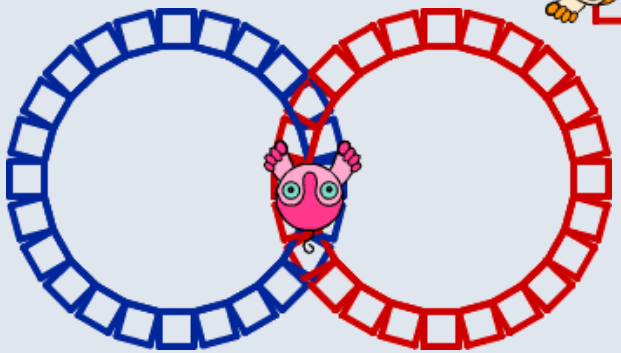
- Make variable **side length** and use it in the **stroll … steps** block to define your own **square** block for **Fleeeee**.

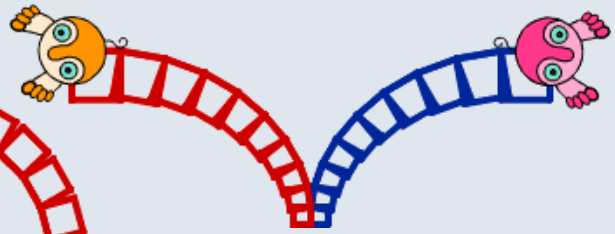
Use your own new **square** block in more complex scripts to draw pictures similar to these. Note that **Meeeee** is always mimicking **Fleeeee** in its own way.





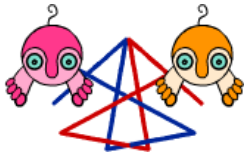




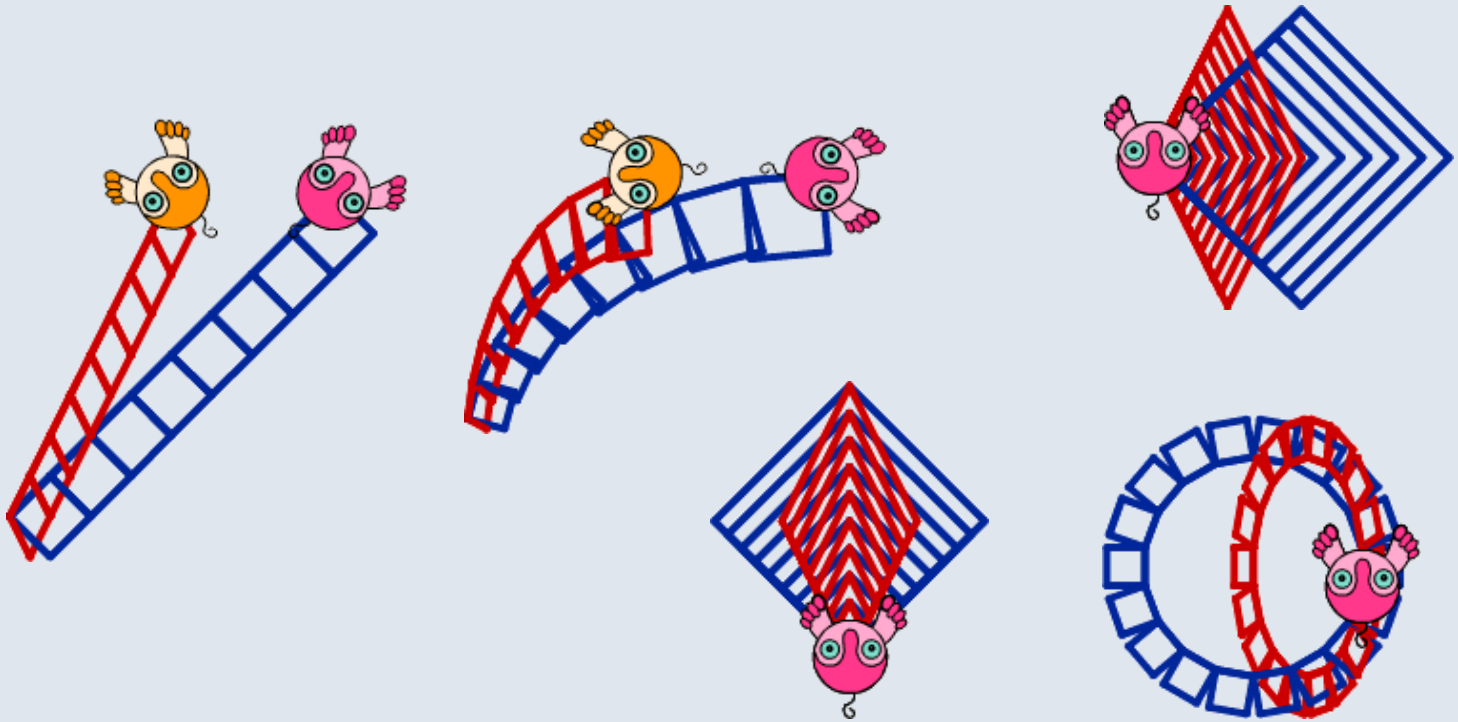


Module 6: Investigation 3

[Extension] Activity 6.3.3 – Through the Looking Glass

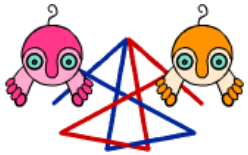


- **[Extension]** Modify the mimicking script of **Meeeee** so that it reflects the *x position* **of** Fleeeee multiplied by positive 0.5. Run your previous scripts (or similar) with the **square** block again.

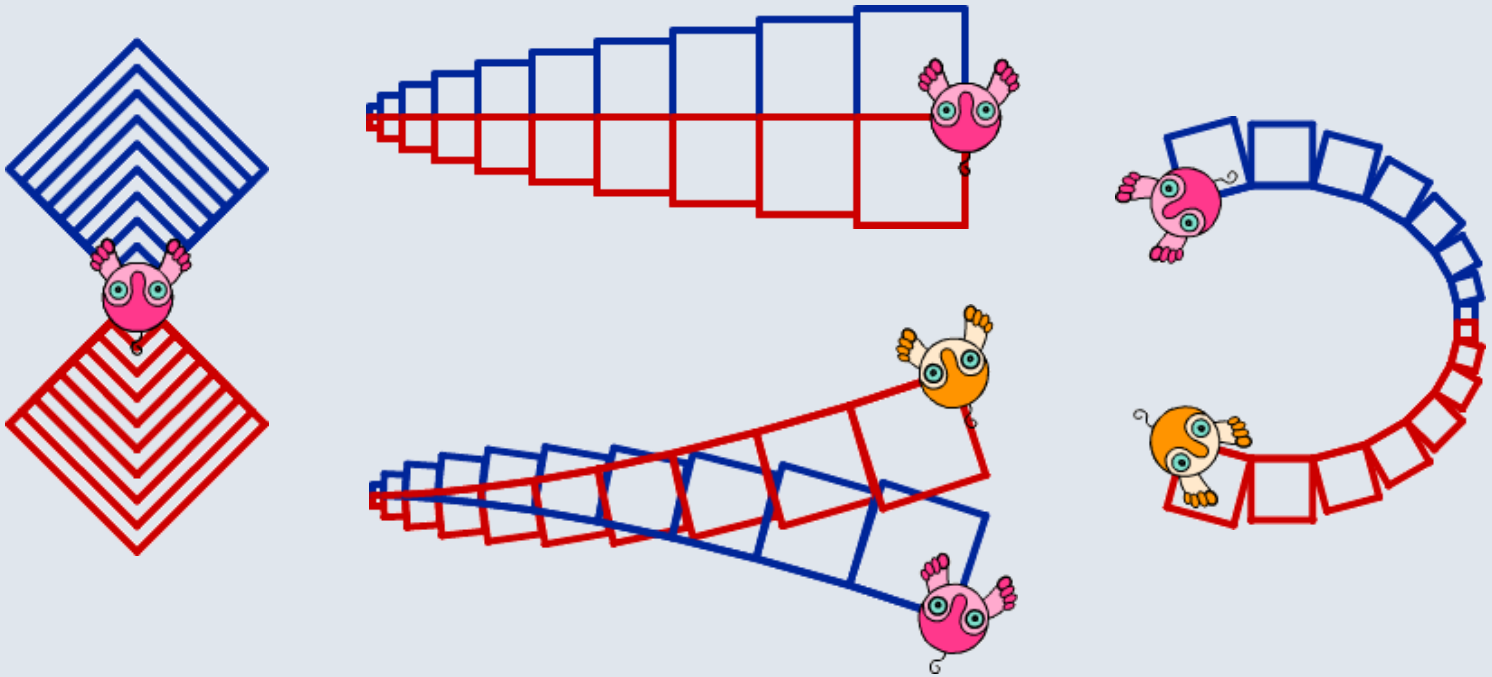


Module 6: Investigation 3

[Extension] Activity 6.3.3 – Through the Looking Glass

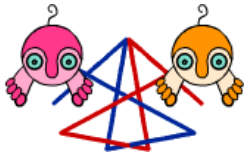


- **[Extension]** Modify the mimicking script of **Meeeee** so that it reflects only the *y position* **of** Fleeeee multiplied by -1.
  Run your previous scripts (or similar) with the **square** block again.



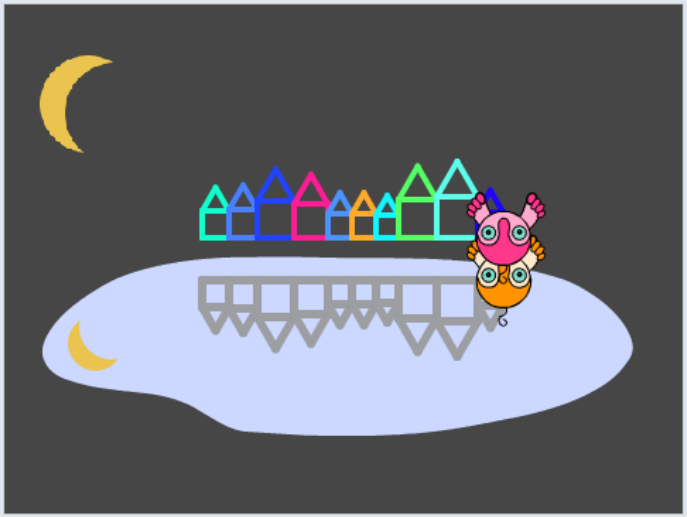
Module 6: Investigation 3

[Extension] Activity 6.3.3 – Through the Looking Glass

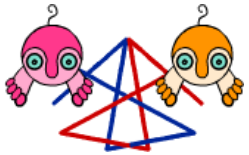


- **[Extension]** Use the **stroll … steps** block with variable **side length**. Define the **triangle** block for **Fleeeee**. Use **square** and **triangle** to define your own **house** and a **row of houses**.
  Let **Meeeee** draw a night reflection in the pond.

  Switch the backdrop to *in the day* or *in the night*, explore and create your own scenes.



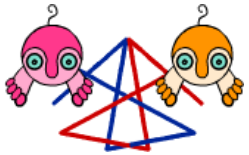
MODULE 6 INVESTIGATION 3: Check List



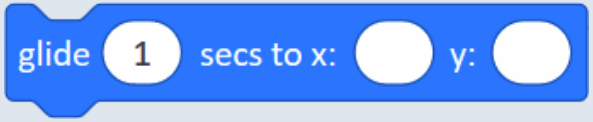
My Investigation 3 check list:

- ☐ I explored **forever** scripts to make **Fleeeee** **blink** or **nod** at randomly.
- ☐ I explored and used the *something* **of** *somebody* block.
- ☐ I built scripts for **Meeeee** to mimic **Fleeeee** in different ways e.g. its position, heading, and costume.
- ☐ I built a **glide** doodle for **Fleeeee** and explored how to translate it in different ways using **Meeeee** .
- ☐ I replaced the **move** block with the **stroll … steps** block to enable **Meeeee** to mimic all of **Fleeeee's** movements.
- ☐ **[Extension]** I used **stroll** to draw complex drawings with the reflections.
- ☐ **[Extension]** I created a complex scene for **Fleeeee**, mirrored in water by **Meeeee**.

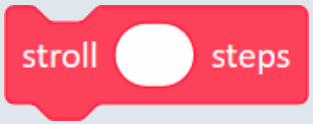
Module 6 Investigation 3: Key Vocabulary



Is a sensing block that reports different values of the specified sprite



Similar to **go to x: … y: …** block, it makes the sprite smoothly glide to specified x and y positions in specified time



Our own block to replace **move …** steps in certain situations. It makes a sprite move and wait a bit