

INTERACTING SPRITES

MODULE 3: INVESTIGATION 2

Encountering Conditions



MODULE 3: INVESTIGATION 2

Activity 3.2.1 – Repeat Until...



ACTIVITY 3.2.1

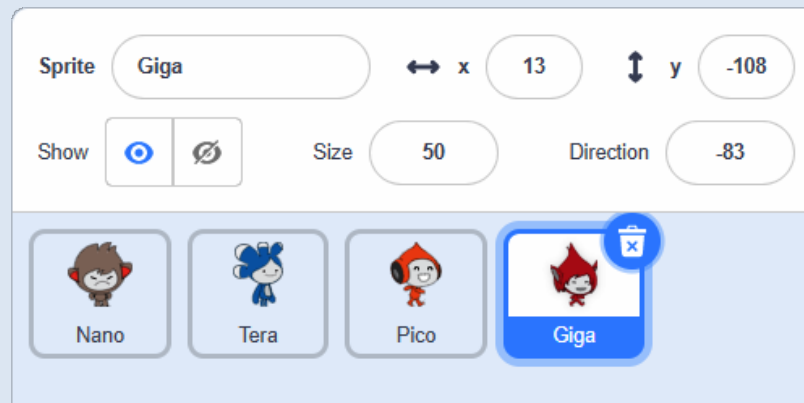
Repeat Until...

MODULE 3: INVESTIGATION 2

Activity 3.2.1 – Repeat Until...



Continue in your **31-Multiple Sprites** project
or start with the **32-Multiple Sprites** project.



- Select Giga and teach her to walk in the same way as Pico
 - either **build** the same script again, or
 - **copy** Pico's walking script to Giga.

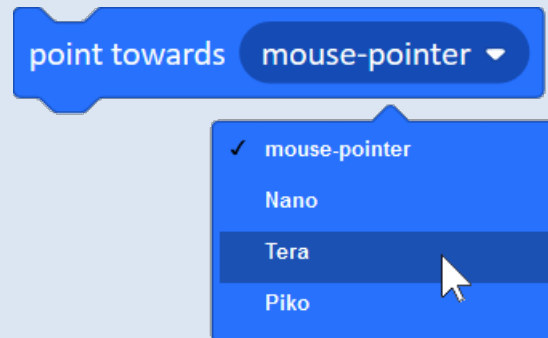
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Activity 3.2.1 – Repeat Until...



- Click the walking script of Giga and keep it running.

Then drag the **point towards** _ block in the scripts area, keep it isolated and explore (select and click).



select ... and click
to run

- What does the point towards Tera block do?
- What would happen if you change the value to Pico and click this block with the walking script still running? Or Nano? Explain.

?

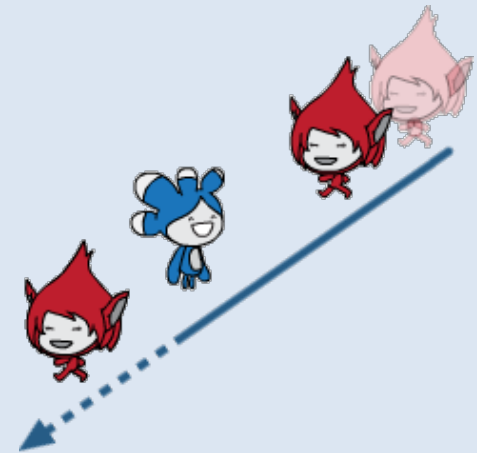
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Activity 3.2.1 – Repeat Until...



- When Giga is clicked, we want her to point towards Tera and start walking to her.

Add the **point towards Tera** block in front of the walking script of Giga and run the script.



- What happens when Giga reaches Tera?

?

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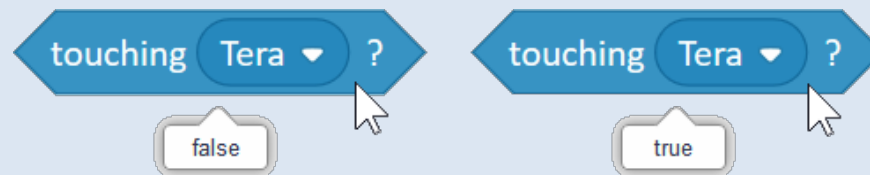
Activity 3.2.1 – Repeat Until...



- We want Giga to walk towards Tera and **stop there**. How will she know **when to stop**?

Drag the **touching _ ?** block from the **Sensing** group.

Keep it isolated and explore by clicking the block whilst dragging Giga away from or close to Tera.



This block is a **condition** – its value is always **true** or **false**.

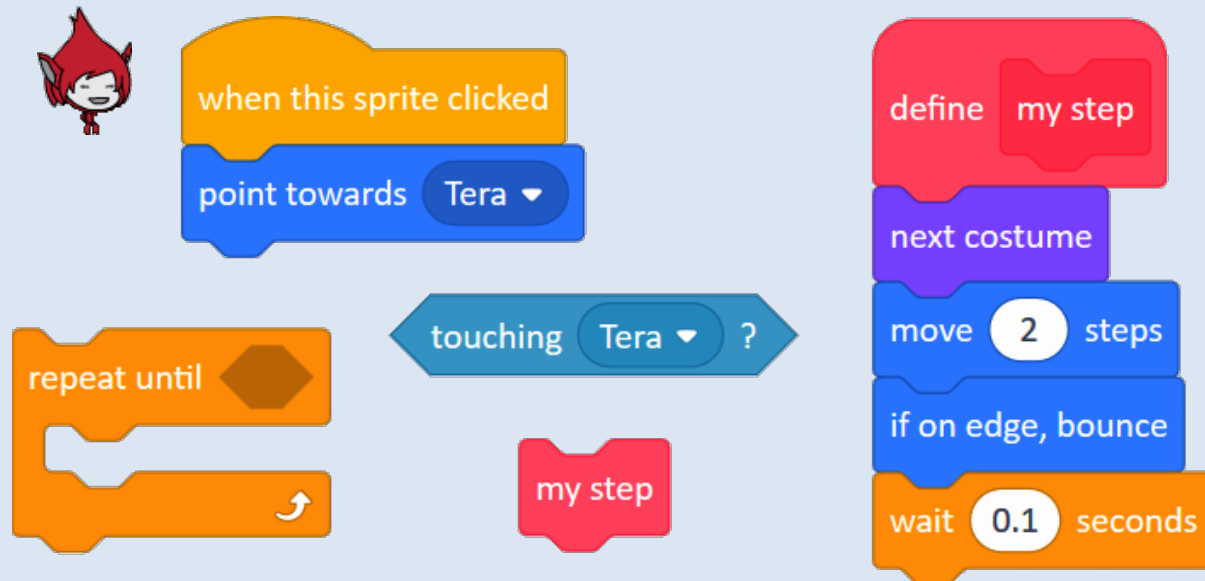
MODULE 3: INVESTIGATION 2

Activity 3.2.1 – Repeat Until...



- Some blocks know how to react to conditions.

Drag the **repeat until ...** block from the **Control** group and use it **instead of forever** in Giga's walking script.



- [Extension]** Modify Giga's walking script so that when clicked she will walk towards Nano and stop there.

MODULE 3: INVESTIGATION 2

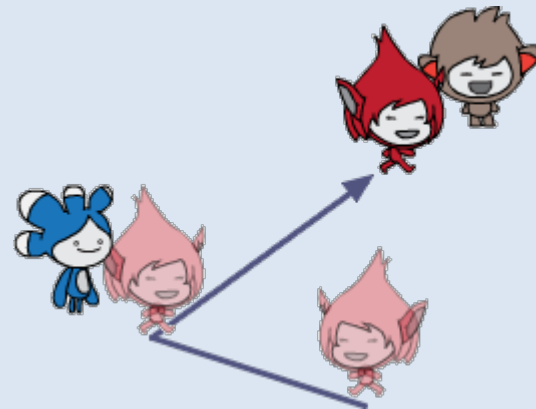
Activity 3.2.1 – Repeat Until...



- How exactly does the repeat until ... block work? When does it stop repeating the blocks inside it?
- We now know three different ways to repeat blocks. Can you explain the three ways? What makes them different?

?

- **[Extension]** Modify the script so that when clicked, Giga will first walk to Tera, and then to Nano and stay there.



MODULE 3: INVESTIGATION 2

Activity 3.2.2 – Touching Colour?



ACTIVITY 3.2.2

Touching Colour?

MODULE 3: INVESTIGATION 2

Activity 3.2.2 – Touching Colour?

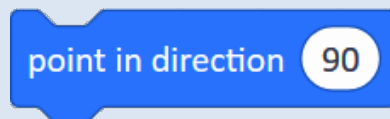


Continue in your **31-Multiple Sprites** project.

- Select Pico. When clicked so far he always walks forever horizontally.



Insert the **point in direction ...** block in front of his **forever** block. Instead of **point in direction 90** set Pico to point in a **random direction** (e.g. between 60 and 120). Run the script.



- Why did we change the direction the sprite is pointing from 90 to random?



MODULE 3: INVESTIGATION 2

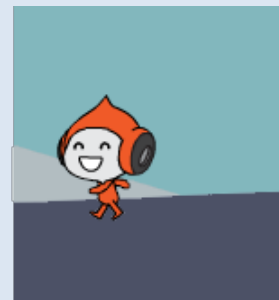
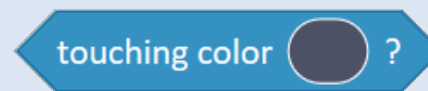
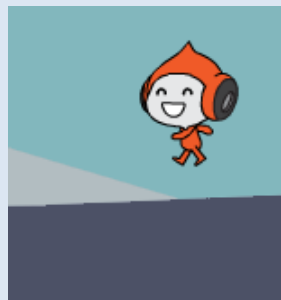
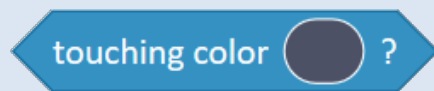
Activity 3.2.2 – Touching Colour?



- Pico doesn't walk horizontally any more. What direction does he walk when he bounces off the edge of the stage? What is special about this direction?

?

- Run Pico's walking script and drag one **touching color _ ?** block to the scripts area, keep it isolated.
Explore this block by setting the colour and clicking the block.



MODULE 3: INVESTIGATION 2

Activity 3.2.2 – Touching Colour?



- We want Pico to walk forever, bouncing from the edges, but also **turning back** when he steps on a certain colour of the stage, e.g. on the dark grey at the bottom.

Click the walking script and keep it running. Build a separate **if** script:



- What will happen when Pico is walking and the separate **if** script is clicked while he is touching the dark grey colour?



MODULE 3: INVESTIGATION 2

Activity 3.2.2 – Touching Colour?

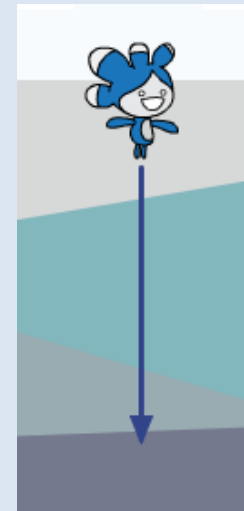


- Insert the **if** script inside the **forever** walking script so that the condition is checked for each step of Pico, again and again.
- Experiment with other colours of the stage in your **if** condition block in Pico's walking script.

● When exactly does Pico turn around?



- **[Extension]** Change Tera's jumping behaviour so that she jumps high, then floats down until she reaches certain colour, e.g. dark grey.





ACTIVITY 3.2.3

Walking in the Air

MODULE 3: INVESTIGATION 2

Activity 3.2.3 – Walking in the Air



Continue in your **31-Multiple Sprites** project.

- Select Pico. Extend his walking script so that he does not walk 'in the air' – i.e. above the 'planet' into the white sky.

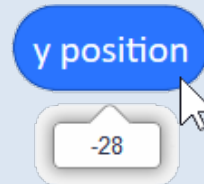


- Did you use another **if** structure and the condition touching color ... ? with the colour of the sky? Why does Pico turns back so early?
- What else changes when Pico walks? What else – instead of colour – could be checked?

?



- What happens with Pico's y coordinate when he walks around? Drag in the scripts area the **y position** reporter block, keep Pico walking and explore the isolated block.



- Find the highest **y position** of Pico before he starts 'walking in the air'. Build a condition to check whether his current **y position** is not higher than this position.



- What does the ... > ... block check for? What would happen if the > sign was switched around?
- What does the y position block report? When would the reported value change?



MODULE 3: INVESTIGATION 2

Activity 3.2.3 – Walking in the Air



- Replace the **touching colour _ ?** condition to keep Pico from walking in the air by the new condition which checks its **y position**.

Whenever (i.e. **forever if ...**) **y position** is bigger than e.g. 75, Pico turns back.

MODULE 3: INVESTIGATION 2

Activity 3.2.4 – Unplugged: True or False?



ACTIVITY 3.2.4

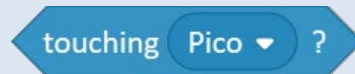
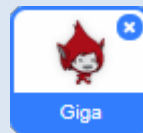
Unplugged: True or False?

MODULE 3: INVESTIGATION 2

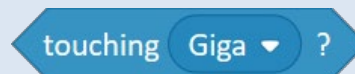
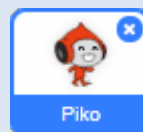
Activity 3.2.4 – Unplugged: True or False?



Use the picture to decide whether a condition is **True** or **False**.
Explain why.



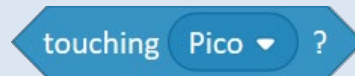
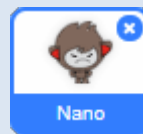
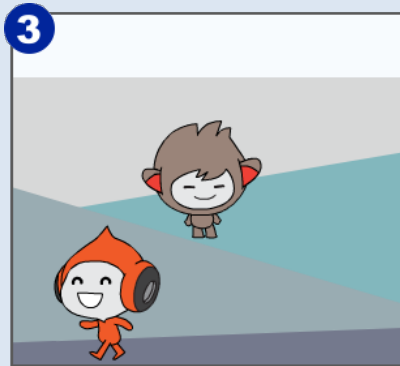
Is Giga touching Pico?
True or **false**?
Explain why.



Is Pico touching Giga?
True or **false**?
Explain why.

MODULE 3: INVESTIGATION 2

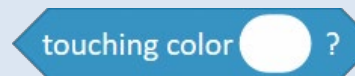
Activity 3.2.4 – Unplugged: True or False?



Is Nano touching Pico?

True or false?

Explain why.



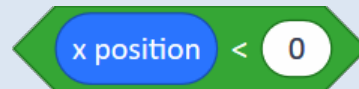
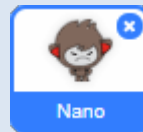
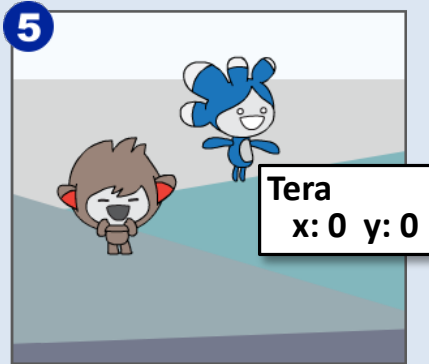
Is Tera touching the white colour?

True or false?

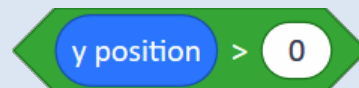
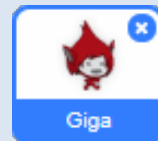
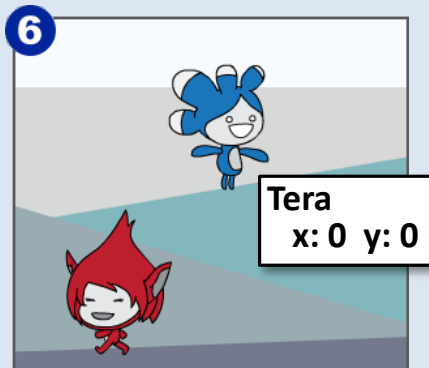
Explain why.

MODULE 3: INVESTIGATION 2

Activity 3.2.4 – Unplugged: True or False?



Tera stands in the centre.
Is Nano's **x position** smaller than 0?
True or **false**?
Explain why.



Tera stands in the centre.
Is Giga's **y position** bigger than 0?
True or **false**?
Explain why.

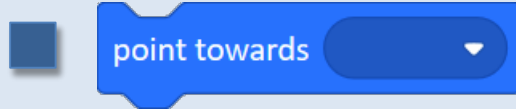
MODULE 3: INVESTIGATION 2



My Investigation 2 check list:

- ☐ I made Giga point towards a sprite before starting walking.
- ☐ I used the *condition* block to check if touching another sprite.
- ☐ I used the **repeat until** block with a *condition* to make Giga stop walking.
- ☐ I used the *condition* block to check touching a specific colour.
- ☐ I used the **if** block to make Giga turn back if she touches a selected colour.
- ☐ I made Pico turn back whenever his **y position** becomes bigger than certain value.
- ☐ I envisaged if a *condition* block would say true or false using the current position of the sprites on the stage.

MODULE 3 INVESTIGATION 2: Key Vocabulary



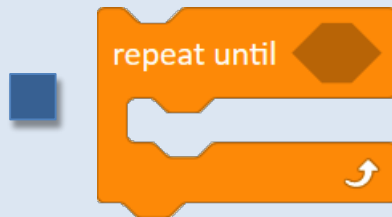
makes the sprite set its direction towards another sprite (selected from the drop down menu)



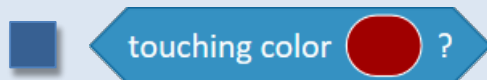
is a block reporting whether something is **true** or **false**



reports **true** if the sprite is touching another sprite (selected from the drop down menu)



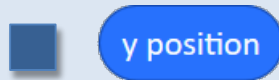
repeats the blocks inside it until its condition is **true**



reports **true** if the sprite is touching the specified colour



if the condition is **true**, runs the blocks inside



reports the current **y position** of a sprite



reports **true** if the first value is greater than the second