Repetition and loops

What is a loop?

Sometimes you'll want the computer to **repeat** an instruction. You can use a **loop** to save having to write the same code over and over again. Loops can also be **nested** inside each other, to form more complex repetitions.

What you'll build

In *Level 4- Repetition and loops*, you'll use loops to make your code more efficient.

Use a loop to program the movements of garden bugs.

Use nested loops to drive a car around a track.

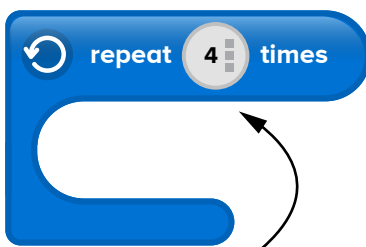Use infinite and conditional loops to make a rocket orbit the moon.

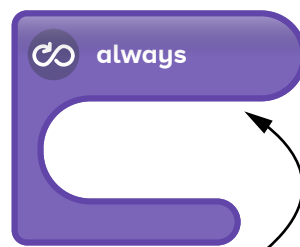Combine different types of loops to create a pattern in the sky.
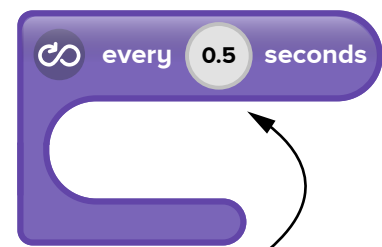
Your blocks

Repeat blocks are placed inside event blocks.

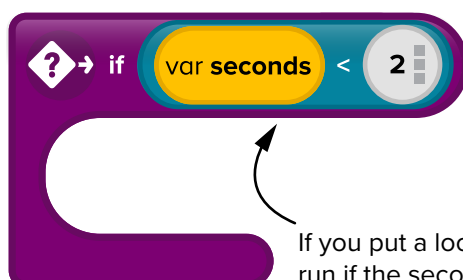| repeat 4 times	always	every 0.5 seconds
Loops can repeated for a set number of times	Repeated for as long as the program runs **infinite**	Or repeated at regular time intervals

? → if var **seconds** < 2

If you put a loop inside this event, it will only run if the seconds variable is less than two

Discovery EDUCATION | CODING

Repetition and loops

Match each word to its meaning

Loop　　　　　　Something which goes on for ever.

Nesting　　　　　To perform the same action more than once.

Infinite　　　　　A set of instructions which is repeated.

Repeat　　　　　Putting a loop inside another loop.

Free code challenge

You have used three different types of loops in these lessons:

- A counted loop, which lets you repeat something a set number of times, or at time intervals.

- An infinite loop, which lets you repeat something for as long as the program is running.

- A conditional loop, which lets you tell the loop when to stop.

Use the free code area to design an animation which uses **all three** kinds of loop. You could make some sea creatures move through the water, fly some planes through the air or choose characters and settings of your own. Use the space below to plan your app – then get coding!

Driving home

Use the pieces of code below to trace each car's route home. Which car arrives at which house?

a) _____

b) _____

c) _____

at the start
- repeat **12** times
  - step ⬇
- repeat **10** times
  - step ➡

at the start
- repeat **5** times
  - step ➡ step ⬆ step ➡

at the start
- repeat **2** times
  - repeat **5** times
    - step ➡
  - repeat **3** times
    - step ⬆