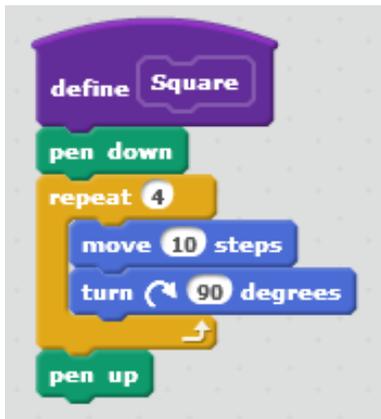# SCRATCH 2.0   MORE BLOCKS

Wouldn't it be cool if you could create your own blocks:

- To add things that Scratch doesn't do

- To simplify your code

- To create pieces of code that are easy to use from different places

In Scratch 2.0 you can do this using custom blocks. To get started, go to the More Blocks menu and click on "Make a Block". (Note – this is not available in Scratch 1.4).
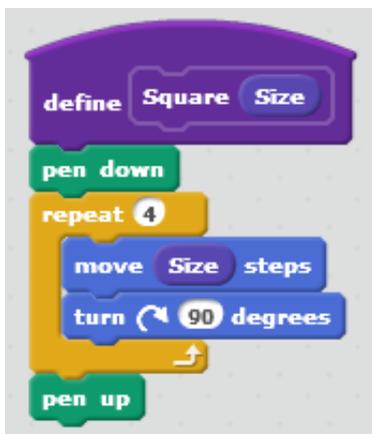
Let's start with a designing a block that draws a square of length 10. Design the code like this:

And use it like this:

Now let's try making a block that draws a square of any size we like. This time, after clicking on "Make a Block", click on the Options and select "Add number input".

And use it like this:

Challenge: Try making a block that will make a sprite jump. Think about the different actions involved – moving up suddenly and then falling down. What other types of blocks would be useful?

SCRATCH 2.0   RECURSION

On the other side of this page we looked at how to make your own blocks in Scratch 2.0.

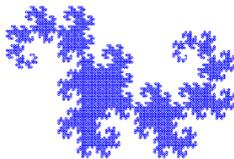Now we are going to make a block that sends an instruction to itself. This is known as <u>recursion</u>.

This is a cool photograph. How do you think it was made? In scratch code we would say something like:

Define Photo
- Hold framed print out of Photo in two hands.
- Take a snap and print.

Using recursion in Scratch 2.0 we can make lots of really interesting pictures – trees, snowflakes, even broccoli! You can also use recursion to solve difficult maths problems but we won't worry about that here.

For now, let's try drawing a "dragon curve". Enter the scripts below. When you have it working, see if you can understand what it does by testing what happens if you change a number.