

Procedures in Scratch

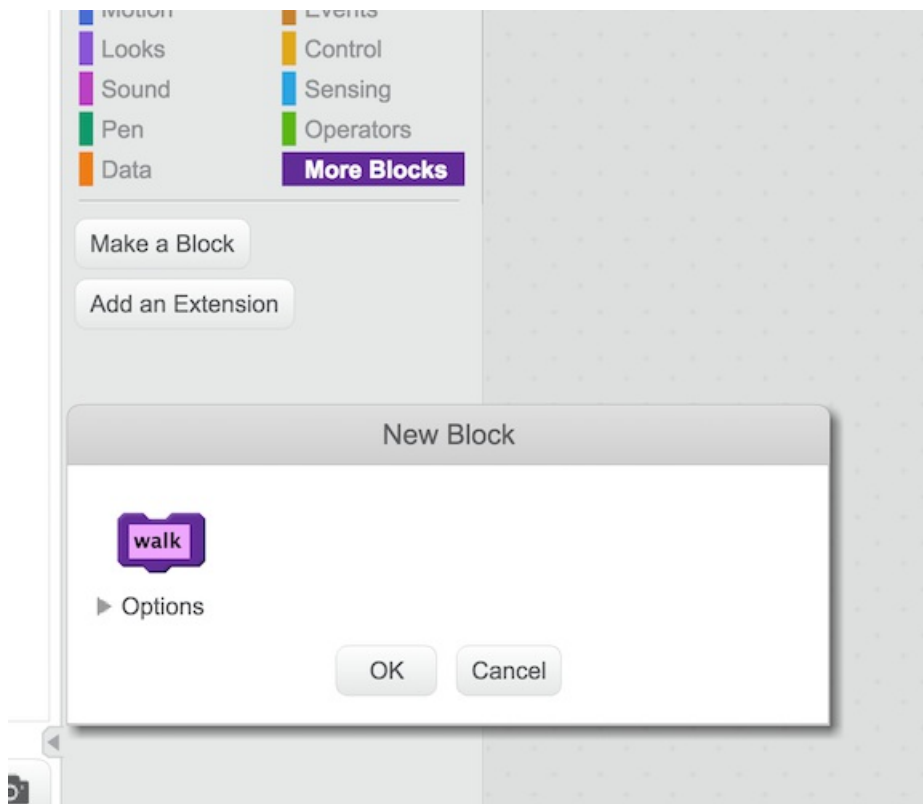
Scratch provides the means to create your blocks. These new blocks are the Scratch equivalent of procedures with parameters. To illustrate how to create blocks in Scratch, let's recreate the different `walk` procedures from the previous section in Scratch.

Example: `walk`

PROCEDURE `walk`

1. Lift left leg.
2. Move left leg forward.
3. Set left leg down.
4. Lift right leg.
5. Move right leg forward.
6. Set right leg down.

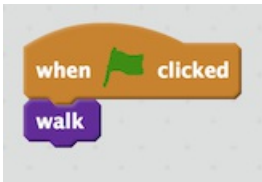
To create a block with the same functionality as `walk` in Scratch, first navigate to the *More Blocks* tab. Clicking *Make a Block* allows you to create and name a new block of your own:



Once you have created it, you can define *what it does*. To do this, create a block script as you would for any other event:



Using it is as simple as using any other pre-made block. Simply drag your block into a sprite's script pane:



Now, when the program is executed, the sprite takes a step!

Example: walk n steps

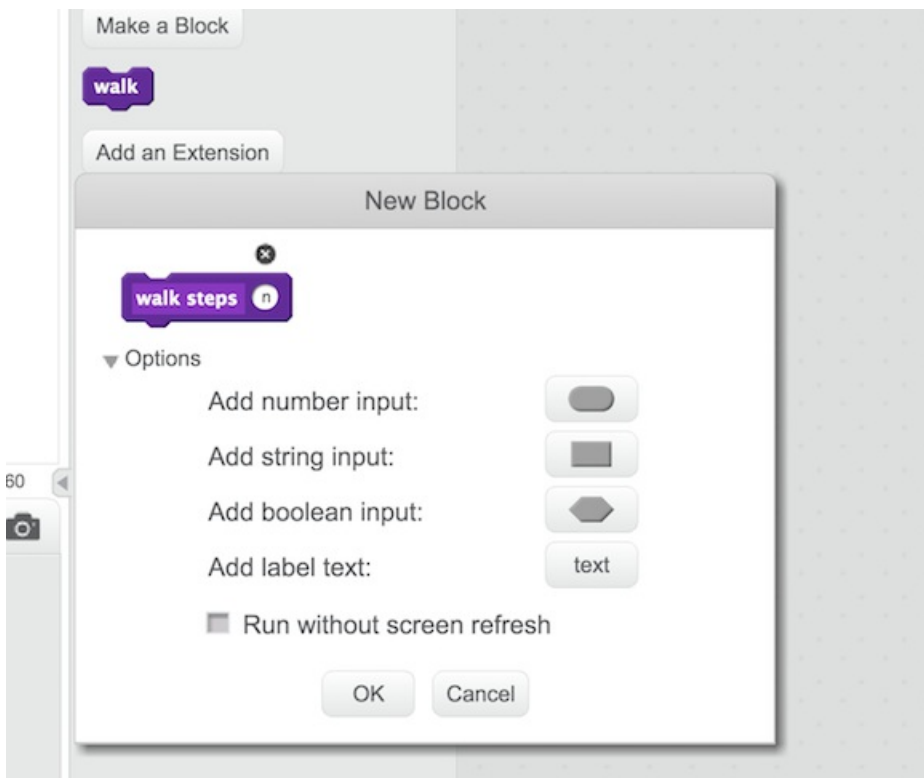
`walk` is a simple example of a procedure. Let's extend the idea to create the `take n steps` procedure from the last section:

```
PROCEDURE take n steps
```

```
  REPEAT n times
```

1. Lift left leg.
2. Move left leg forward.
3. Set left leg down.
4. Lift right leg.
5. Move right leg forward.
6. Set right leg down.

The `take n steps` procedure uses a *parameter*, so when the block is created, you can add a *number input* as an optional component, and call it `n` :



When you define *what it does*, you can use the `n` parameter within the block the same way you would use any other block:



Using the block with a parameter of `1` duplicates the original `walk` block:

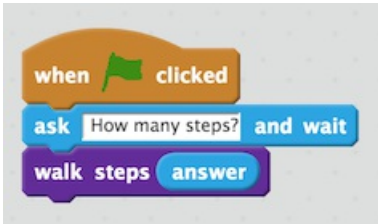


Using the block with a parameter of `8` causes the sprite to take eight steps:

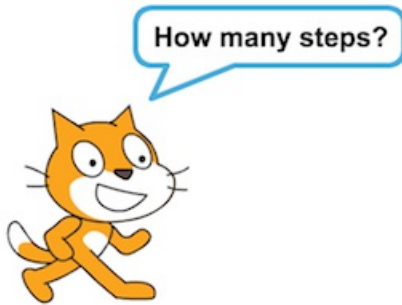


However, you are not limited to using pre-determined values in your blocks! As with any of the pre-defined blocks you have

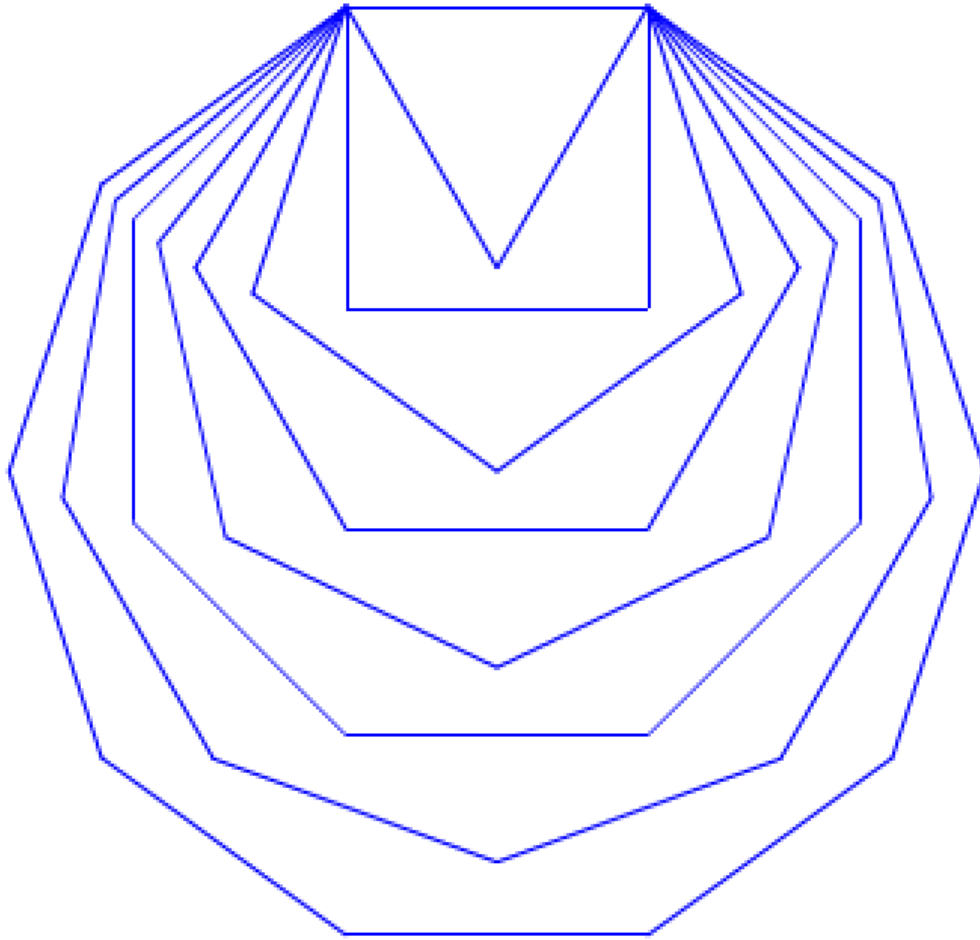
used, you may also include variable parameters. The following code asks the user how many steps to take,



and then behaves accordingly:

 A text input field with a blue border and a blue checkmark icon on the right. The number '23' is entered in the field.

Assignment: Regular Polygon Generator Revisited



Remix the Scratch program you created in [Regular Polygon Generator](#) to work for a variable number of sides.

1. Create a procedure that will define a parameter `sides`, and draw the polygon with that many `sides`. Your block should be



named `DrawRegularPolygon`. Example:

2. The procedure's script should draw the regular polygon matching the given parameter `sides`. In other words, `DrawRegularPolygon 3` will draw a triangle, and `DrawRegularPolygon 4` will draw a square. Your procedure should draw all regular polygons with number of sides in the range 3–10. *For an extra challenge, ensure that your procedure works for any number of sides ≥ 3 .*
3. Include an `ask` block, so that the user may direct which shapes the program draws.