

Lesson 4: Colour (Greyscale)

Lesson aim:

To introduce colour and the colour function: `fill()`, and to show how to describe colours in code.

Why:

We will be using colour throughout the course. We will building on these foundations to add full colour in later classes.

Using colour

In this lesson we introduce the `fill()` function. Using this function **fills every shape drawn from that point on in a certain colour.**

In processing colours go from **0** to **255**. For example, when dealing with greyscale **0 is black** (no white) and **255 is white** (100% white). This is shown in the following diagram:



Examples to try out!

```
size(200,200);
fill(100);      //←set the colour of shapes below to 100 (dark grey)
ellipse(150,50,100,100);
ellipse(50,150,75,75);
```

Type this in and run it. You get two circles, both dark grey (why is 100 dark grey?)

- Now try putting the fill between the two circles, like this:

```
size(200,200);
ellipse(150,50,100,100);
fill(0);        //← set the colour of shapes below to 0 (black)
ellipse(50,150,75,75);
```

Run this - the first circle will be white (default) and the second black. We can also use the fill more than once. Let's go back to the target and make every second circle black:

```
fill(0);          //← set colour below to 0 (black)
ellipse(200,200,325,325); //← draw outer circle
fill(255);        //← set colour below to 255 (white)
ellipse(200,200,250,250); //← draw inner circle
fill(0);          //← set colour below to 0 (black)
ellipse(200,200,175,175); //← draw further inner circle
...
```

Tasks:

1. Create two new programs, starting the file name with “**Lesson4Target**”
2. Using the code above as a starting point, produce the image on the near right.
3. Use `fill()` to add colour to your picture (rabbit/person) from lesson 3 (if you did that task).
4. Use fill to make a circle that uses different coloured circles inside it to go from white at the outside to black at the middle. (See far right).

