

# Lesson 14: Random, Showing Text on the Screen

## Lesson aim:

To learn two new functions - to make random numbers and show text on the screen.

## Why:

We often need to show **text** to the user in programs. Can you think of where that would be? See if they are the same or different to our examples below:

- show score in games
- show instructions
- game over messages
- name a program
- show data (websites etc)
- show entered text (like in the processing app)

We also often need **random numbers**. Again try to think of when this might be, and compare below:

- random position of enemies etc in games.
- random speeds of enemies/objects in games and animation
- random card number etc.
- random colours in animated scenes
- random sizes of objects.

We will be using two new functions `random()` and `text()`. What do you think each of them do?

## Task:

- Use the reference guide to get a more accurate description of what `random()` and `text()` do. Remember how to use the reference guide? It's in lesson 7.

## text()

See some example code snippets (you need to add the rest of the code around this snippet):

```
text("Hello! this is some text", 50,100);
```

Finding that a bit small?

`textSize()`; changes the size of the following text. try

```
textSize(40);
text("The Academy of Code", 50,100);
```

As with shape functions, `fill()` changes the colour of text.

**Tasks;** playing with the `text()` function:

1. We need to put the text exactly where we want - the two numbers are the horizontal and vertical position of the text. Change the position of the text to test this!
2. We also need to show more than one line of information! Make two lines of text on the screen. One above the other (use the position variables to do this.)
3. In the above make each line:
  - a. Different size to each other
  - b. Different colours.

## random()

The `random()` function gives a random number between the given minimum and maximum parameters.

See the below code snippet, **run it a couple of times**:

```
text("between 0 and 5: "+ random(0, 5), 50, 100);
```

`random()` is a number, and can be used anywhere you would type a number. so try using it for:

1. the **width** position position of a ellipse.
2. the **height** position position of a ellipse.
3. the **width** of a rectangle.

As you can see from the above - `random()` makes a new number each time it is called, so if you used `random()` in the `draw()` **{code block}** - it will be calculated 30 times a second.

We can have fun with that. Lets make a shape that changes colour randomly!

1. Make a shape (ellipse or rectangle) in the `draw()` **{code block}**.
  - a. add a fill command above it.
  - b. use random r,g and b values in the `fill()` function(see below):

```
fill(random(0, 255), random(0, 255), random(0, 255));
```

We need **three different** `random()` functions to get **three different** random numbers