

Name:

**Lesson 1**

Over the next series of lessons we will be looking at the effect of computers and how they help to aspects of our everyday life. We will also be looking at the importance of having step-by-step instructions to achieve a specific task.

Remember, step-by-step instructions to achieve a specific task are known as algorithms! Here is an algorithm for brushing teeth...



Take toothbrush



Apply paste

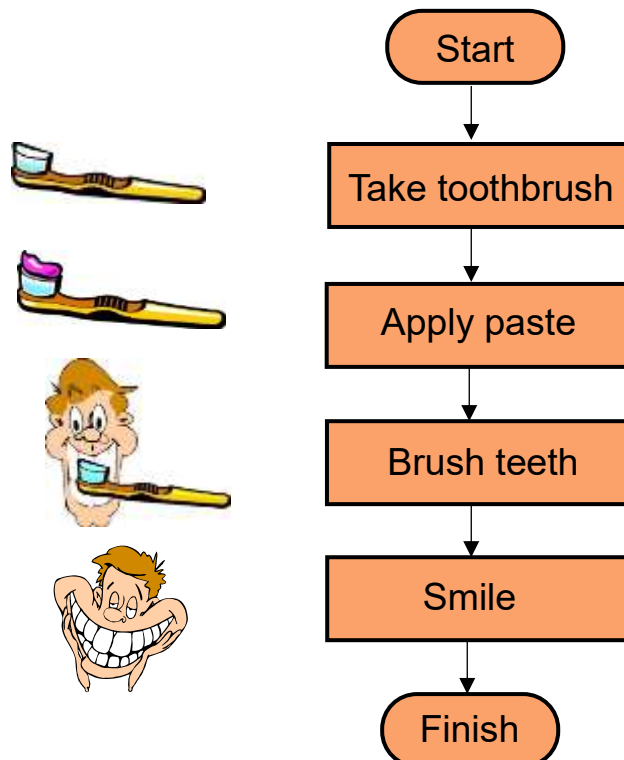


Brush teeth



Smile

**Flowcharts** are used to represent algorithms. Here is the same algorithm as a flowchart...



The symbols used in a flowchart have specific meaning. Let's now look at what they mean.

## Flowchart Symbols

In the 'brushing teeth flowchart, we see two symbols used:

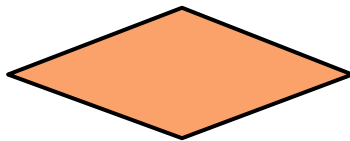


**Start and Finish** – so you always need 1 each of these!



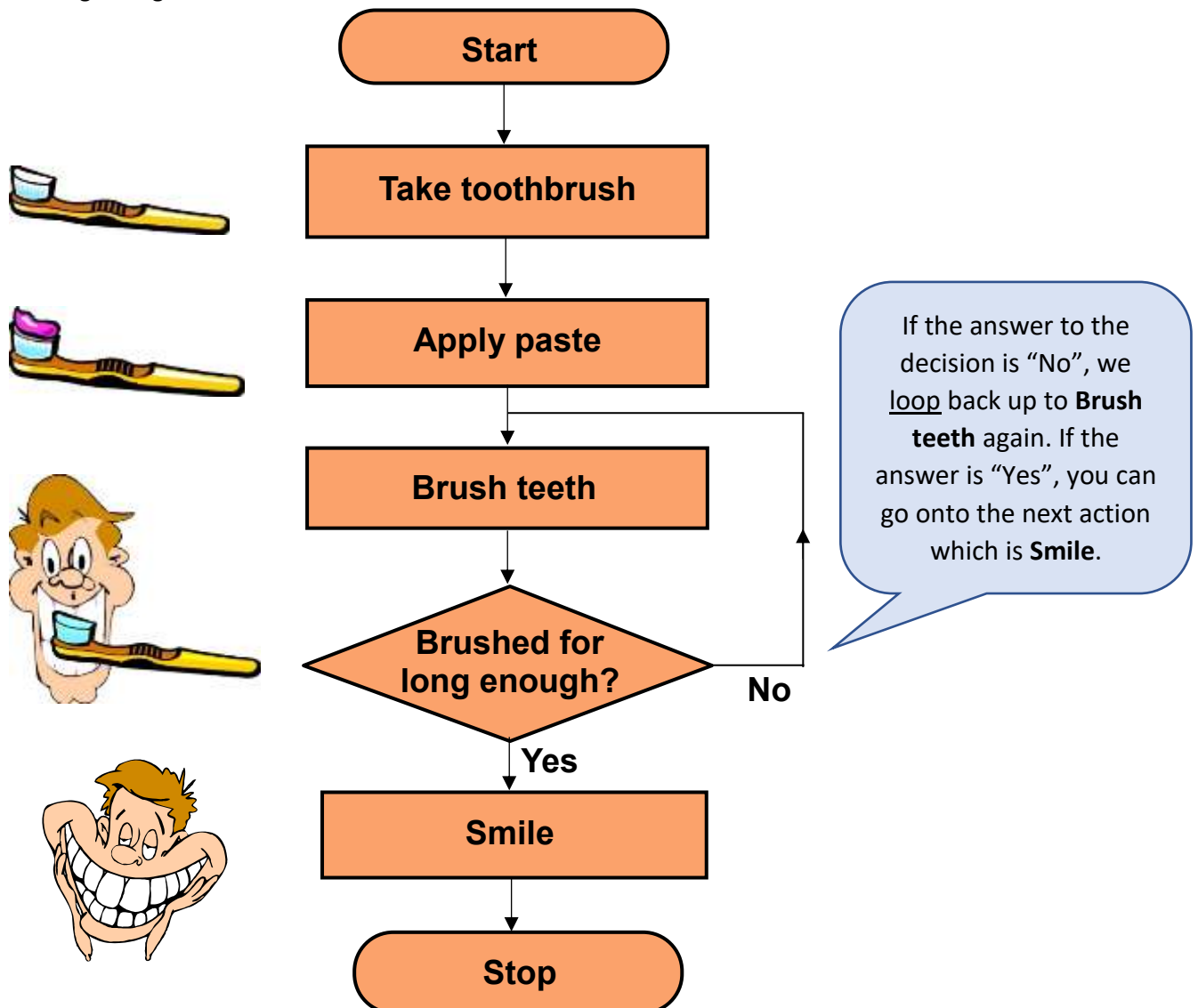
An **action** or **process** taking place.

In most algorithms, certain actions only take place when something else happens. For example, when we are brushing our teeth, we must decide if we have brushed for long enough. The symbol we use for this decision is a diamond.



A **decision** that is needed

So now we can change our flowchart to include a decision on whether the teeth have been brushed for long enough...



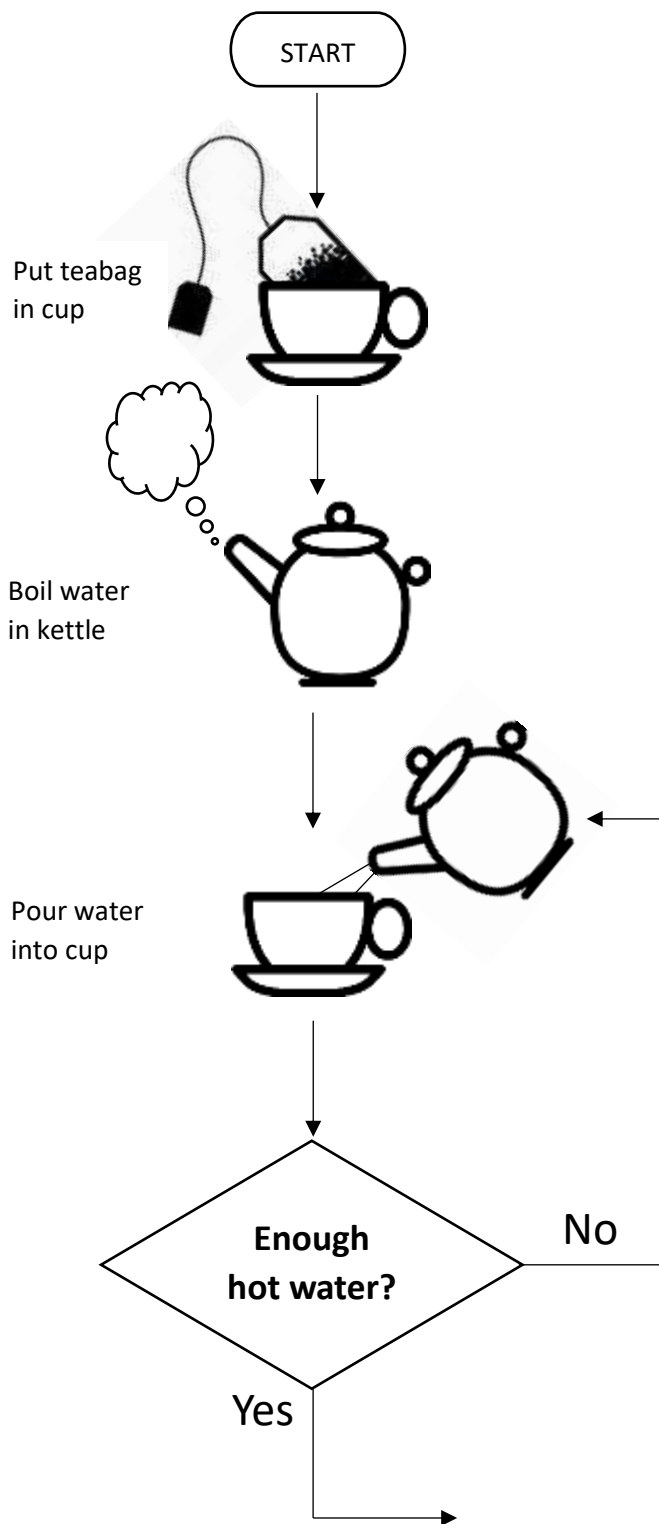
## Challenge

Think of the algorithm for washing your hands. Have a go at drawing a flowchart to represent the step-by-step instructions in this algorithm. You can draw pictures to go with it (like in the example) if it helps you!

## Lesson 2

Last lesson, we looked at how to use a flowchart to represent algorithms. We learnt that most algorithms will include decisions that determine the next action that will be taken. The shape used for a decision is a diamond.

Below is the start of an algorithm for making a cup of tea. Can you finish it to add milk and sugar? You will need to include decisions to check if enough milk and sugar has been added!



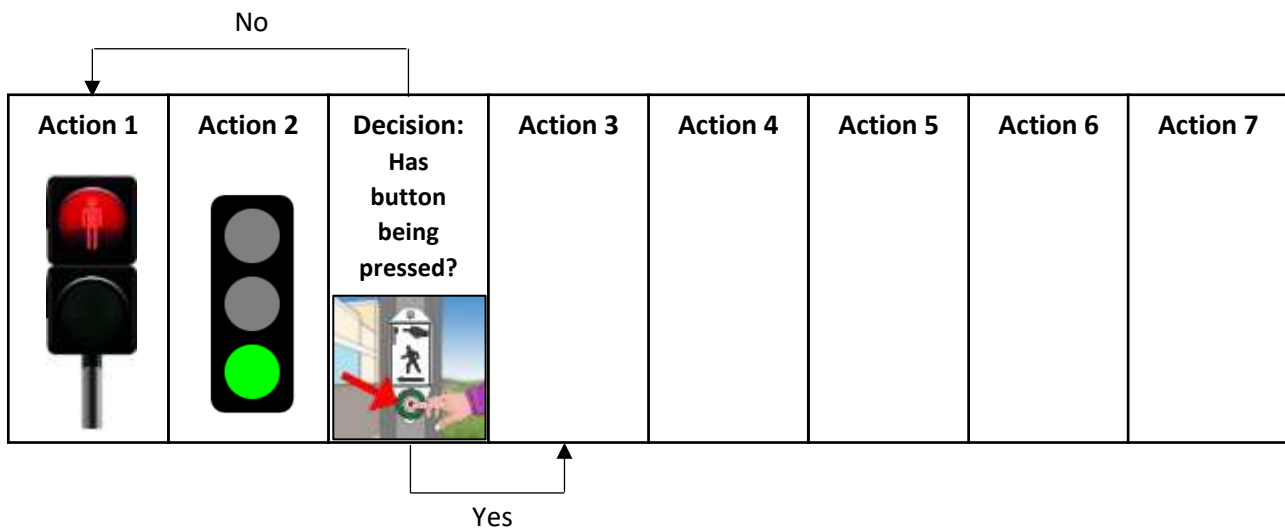
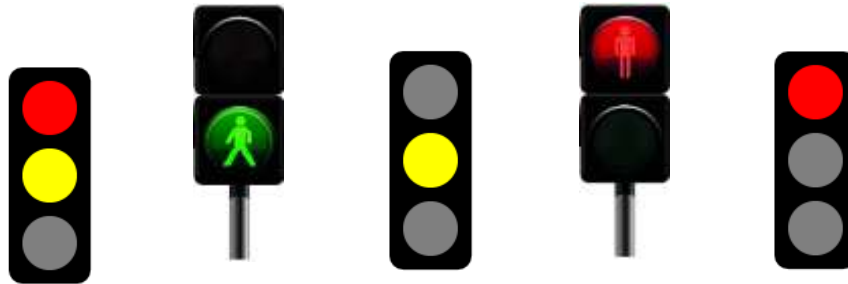
### Lesson 3

Today, we're going to look at the lights that are used to control our traffic.

Imagine you're at pedestrian crossing. You want to cross the road. What do you have to do next? Press the button! The action of pressing the button kick starts the changing of the lights. You will know that traffic lights use the colours red, amber and green. But do you know that they are changed in a specific order, called a **sequence**?

### Challenge

Draw the 5 lights below into the 'Action' boxes in the correct order - you may need an adult to help! Remember that after the button has been pressed, the sequence of actions should stop the traffic, allow pedestrians to cross the road, before allowing the traffic to go again.



### Challenge

On the next page, have a go at drawing a flowchart to represent the step-by-step instructions in the traffic lights algorithm. You must include a 'decision' shape which is used to check if the button has been pressed. Good luck!

