**Simple Flowcharts**

1. From looking at this flowchart, what do you think each of these symbols means?

Terminator (start/stop) [1]



Process/task [1]

1. What is the first thing that someone following this algorithm would need to do?

*Unlock the door* [1]

1. What is the last thing that they would need to do?

*Close the door behind them* [1]

1. Using the symbols you see above, use a pencil and ruler to draw your own flowchart showing how a person would brush their teeth.

Start

Put toothpaste on toothbrush

*Accept any reasonable answer that shows correct use of terminators and processes* [2]

Move brush back and forwards over teeth

Rinse mouth with water

Put toothpaste and brush away

End

**More Complex Flowcharts**

1. From looking at this, what do you think the diamond symbol means?



Decision / question [1]

1. What is the first thing that a person following this algorithm would have to do?

*Check whether the door is locked* [1]

1. Imagine the following: A door is closed but not locked. The room beyond the door is dark. Complete the list of steps that a person would need to take according to the algorithm:

Step 1: Check whether the door is locked

Step 2: *Check whether the door is closed* [1]

Step 3: *Open the door* [1]

Step 4: *Check whether the room is dark* [1]

Step 5: *Turn on the light* [1]

Step 6: Close door behind you

1. Complete the flowchart below to represent Miss Scott’s morning routine:

Step 1: Wake up

Step 2: Get out of bed

Step 3: Check if she’s running late

Step 4: If not running late, go to step 5. If running late, skip straight to step 6

Step 5: Have a cup of tea

Step 6: Check whether hair is messy

Step 7: If hair is messy, go to step 8. If hair is not messy, skip to step 9.

Step 8: Straighten hair

Step 9: Get dressed

Step 10: Brush teeth

Step 11: Eat breakfast

Start

Wake up

*Get out of bed* [1]

No

Running late?

Yes

*Have a cup of tea* [1]

*Is hair messy?* [1]

Yes

Straighten hair

No

Get dressed

*Brush teeth* [1]

*Eat breakfast* [1]

Stop

1. Have a look at this flowchart.



1. What does the arrow from “move forward 1cm” do? (Hint: this is called a loop).

*Goes back and repeats part of the algorithm* [1]

1. Complete the following to describe the algorithm:

“Stop” will be set to false at the start. If there is no obstacle, stop will remain *false* and the robot will move forward 1cm, then check again for an *obstacle*. This process will repeat until the robot comes to an *obstacle* when “stop” will be set to *true* and the robot will stop moving [4].



12. What does the symbol mean?

*Input or output* (1 mark)

**Extension Task**

Think of your own scenario. If you are feeling brave this might include decisions and/or loops, or input/output! Write it out below, first as a list of steps, then as a flowchart. When you are done, give it to a friend and ask them to write underneath what the algorithm will do. Is it the same as what you were planning?

*1 mark for appropriate list of steps*

*1 mark for flowchart processes which match list of steps*

*1 mark for correct use of terminators*

*1 mark for including a decision*

*1 mark for including a loop*

*1 mark for including input/output*

*1 mark for getting peer feedback*

Worksheet total: 30