Kit’s Computing Blueprint: Designing an Algorithm

Learning objective: I can design and represent a clear algorithm using flowcharts and logical symbols.

About 15 minutes. Grown-up tip: Encourage your child to 'act out' their flowchart to see if the robot would actually reach the destination.

Kit the fox is building a program to help a robot navigate a garden path to a hedgehog home. To design an algorithm, we use specific shapes: an Oval for the Start/End, a Rectangle for an Action (e.g., 'Move forward'), and a Diamond for a Decision (e.g., 'Is there an obstacle?'). Example: If you need the robot to move, draw a Rectangle and write 'Move 5cm' inside it.

Draw: In the centre of the page, draw a clean flowchart for a robot. Use a ruler to ensure your boxes are neat. Start at the top, include at least one Decision diamond, and draw connecting arrows between each step. Ensure your labels from the word bank are clearly written next to the correct shapes.

Label words: Start · End · Action · Decision · Input · Output · Loop

Steps:

1. Draw an Oval at the top of your page. Inside, write 'Start'. This represents the beginning of your program.

2. Below your 'Start', draw a Rectangle. Write 'Move forward 20cm' inside it. What is the technical term for this type of instruction?

3. Draw a Diamond shape below your rectangle. Write 'Is path clear?' inside. Why is a Diamond used for this specific step?

4. From the 'No' side of your Diamond, draw an arrow pointing back to an Action box that says 'Wait 5 seconds'. What is this repeating structure called?

5. Add an 'End' block at the bottom of your flowchart. If you wanted to run this program 10 times, what programming feature would you add to your code?



I did it! Name: _____ Date: _____

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