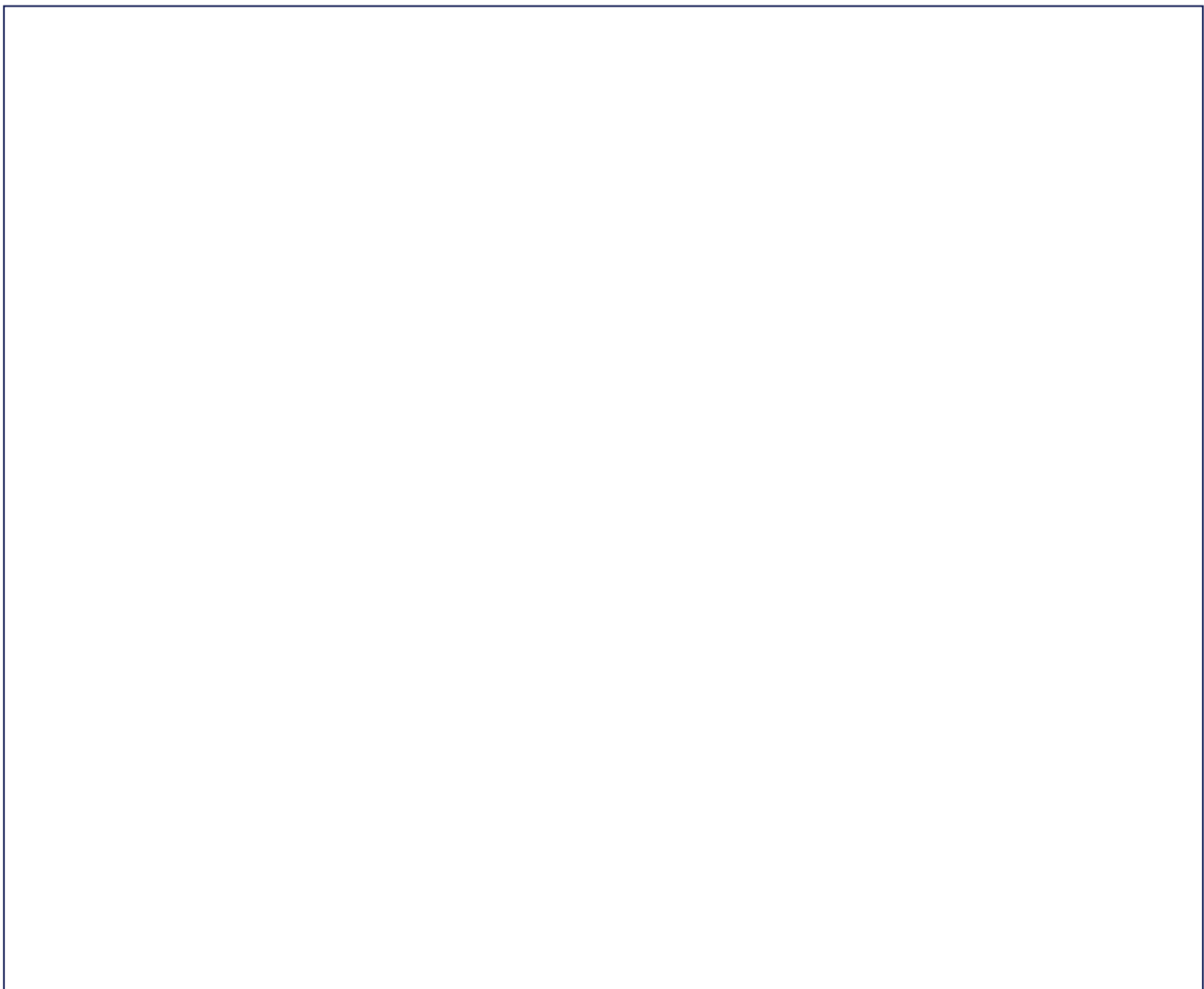


Kit's Clever Computing: Designing an Algorithm

Learning objective: To design and represent a precise, logical algorithm (a sequence of steps) to complete a specific task.

Kit the fox needs your help! He is building a robot that can make a jam sandwich. Below, you must draw the sequence of steps (the algorithm) for the robot to follow. Use the word bank to label your drawings to ensure the robot understands each instruction clearly.

Draw: Draw a storyboard with four empty boxes arranged in a line. In each box, illustrate a step of a robot making a jam sandwich (e.g., Box 1: Taking out bread, Box 2: Spreading the jam). Use a clean, technical drawing style with arrows connecting the boxes to show the flow of the algorithm. Ensure there is space above or below each box to add labels from the word bank.



Label words: Input · Algorithm · Sequence · Output · Loop · Debugging · Instruction

Steps:

1. Explain why the order of your instructions (the sequence) is vital for the robot to successfully make a sandwich.
2. What might happen if you forget to include a specific step in your algorithm? Use the term 'debugging' in your answer.

3. Compare and contrast a human making a sandwich with a robot following an algorithm. What makes the robot different?
4. Justify your choice of labels for your drawing. Why are these specific technical terms important in computing?
5. If you wanted the robot to make 10 sandwiches, how could you use a 'loop' to make your algorithm more efficient?
6. Creative Extension: Imagine your robot encounters an empty jar of jam. Write one 'if/then' condition (a selection) to help the robot decide what to do next.