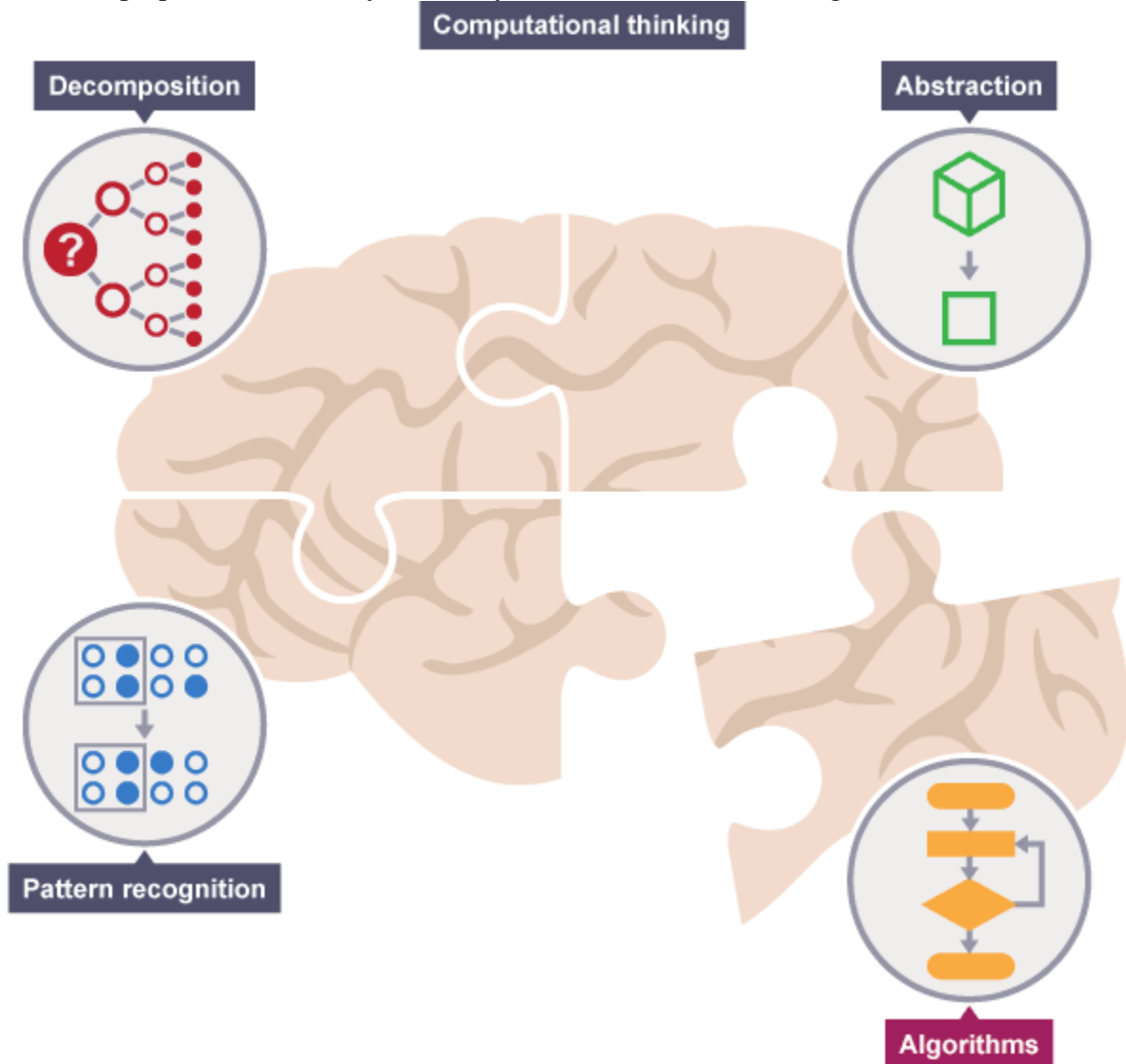# What is an algorithm?

Algorithms are one of the four cornerstones of Computer Science. **An algorithm is a plan, a set of step-by-step instructions to solve a problem.** If you can tie shoelaces, make a cup of tea, get dressed or prepare a meal then you already know how to follow an algorithm.

In an algorithm, each instruction is identified and the order in which they should be carried out is planned. Algorithms are often used as a starting point for creating a computer program, and they are sometimes written as a flowchart or in pseudocode.

If we want to tell a computer to do something, we have to write a computer program that will tell the computer, step-by-step, exactly what we want it to do and how we want it to do it. **This step-by-step program will need planning, and to do this we use an algorithm.**

Computers are only as good as the algorithms they are given. If you give a computer a poor algorithm, you will get a poor result – hence the phrase: 'Garbage in, garbage out.'

Algorithms are used for many different things including calculations, data processing and automation.

Making a plan

It is important to plan out the solution to a problem to make sure that it will be correct. Using computational thinking and decomposition we can break down the problem into smaller parts and then we can plan out how they fit back together in a suitable order to solve the problem.

This order can be represented as an algorithm. An algorithm must be clear. It must have a starting point, a finishing point and a set of clear instructions in between.

Reference: https://www.bbc.co.uk/bitesize/guides/zpp49j6/revision/1

Watch These 2 Videos:

1. Computer Science Basics: Algorithms

2. (103) What exactly is an algorithm? Algorithms explained | BBC Ideas - YouTube

Examples:

Example of an Algorithm to Make a Cup of Coffee

1. Pour water in a kettle.
2. Boil water on the stove.
3. Scoop out 2 tablespoons of coffee.
4. Place in a French Press.
5. After water has boiled, pour hot water in French Press.
6. Place lid on French Press but do not press down on the plunger.
7. Wait 4 minutes.
8. Press down on plunger.
9. Pour coffee in a cup.
10. Add ¼ cup milk and stir.

Example of an Algorithm to Make a Pizza

1. Roll out pizza dough.
2. Open jar of pizza sauce.
3. Pour pizza sauce on dough.
4. Spread pizza sauce.
5. Cut meat.
6. Place meat on pizza.
7. Shred cheese.
8. Sprinkle cheese on pizza.
9. Turn oven to 400 degrees.
10. Place pizza in oven.
11. Cook for 15 minutes.
12. Take pizza out of oven.
13. Cut pizza.