

## COMPUTATIONAL THINKING ACTIVITY

You are going to be a superhero computer scientist who has developed an AI system in a human-like robot. To make your robot believable it needs to be able to recognise human emotions and mimic facial expressions. You are going to use the steps below to break down the task and solve the problem.

- Step 1) Decompose** – Break down the big problem into smaller simple ones.
- Step 2) Patterns** – Look for patterns in the smaller problems to see if they have anything in common. If they have similarities, you may have solved the problems before and understanding them gets much easier.
- Step 3) Abstraction** – Once you recognise a pattern, you can “abstract out” (ignore) the details that make things different and use the general framework to find a solution that works for more than one problem.
- Step 4) Algorithms** – When your solution is complete, you can write it up in a way that allows it to be processed step by step, so that the results are easy to achieve.

You have an Emotions Library. Each face needs to be categorised based on the information that you are given in their library entry. Look at the faces to see what they all have in common, then abstract out the differences to create a list of instructions that anyone can use to re-create one of the faces in the library.

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Test your algorithm by getting someone else (your “robot”) to draw the face and see if it draws the correct picture.

Try writing algorithms for the other faces or draw your own faces to write algorithms for. These could then be used to programme your “robot” to mimic human emotions!