

Jam Sandwich Algorithm Activity

In this activity, children will work in pairs to list instructions for making a jam sandwich. They will need to focus on using the key instructions and thinking about every little instruction that needs to be said. The teacher will be the 'jam sandwich robot' and must follow the children's instructions exactly as they say them.

What do I need?

- Jam, bread, butter,
- Plate, knife,
- A sponge to wipe down the inevitable mess at the end
- Whiteboards and pens

Teacher Background Information - Why are we doing this?

From the KS2 National Curriculum:

- design, write and debug programs that accomplish specific goals

One of the hardest parts of programming is not learning the 'code', but understanding the logic of how a computer thinks. How many times do we say to the computer 'What are you doing? Why are you doing that?' when in actual fact, it's doing exactly what you asked it to (it can't think, so therefore can't do anything else). However, our instructions weren't clear enough and therefore didn't get the desired result!

Setup

Watch: <https://www.youtube.com/watch?v=leBEFaVHIIE> for examples of how literal to be Table at the front with all the necessary equipment out.

What do I do?

5 minutes - introduce the task and explain they will be 'Logic Leaders' and program you aka the jam sandwich robot. Explain that you are going to model the 'correct' way to make a jam sandwich. They should make notes on their whiteboard for each step. You get bread, put it on the plate, spread the butter on to the bread, spread the jam on to the bread, fold sandwich in half. Introduce them to the limited instructions you understand - they can't use any other words, but they can use numbers.

After you've shown them, ask them what the first instruction would be and follow it. They will probably say 'pick up bread' - here you pick up the whole loaf and explain that they need to be really clear. What should we say instead? Pick up one slice bread (not full sentences!!).

10 minutes - children work together in pairs to write their instructions on the whiteboard. Encourage them to roleplay as they're going, so one says to the other partner 'pick up bread slice', 'butter bread slice' - but did you pick up the knife yet? etc. and the partner pretends to do that - this should help them find errors.

5 minutes - gather children around the table with their whiteboards and ask someone to read their instructions. Do what they say and see what you end up with!