

# Right Way Up!

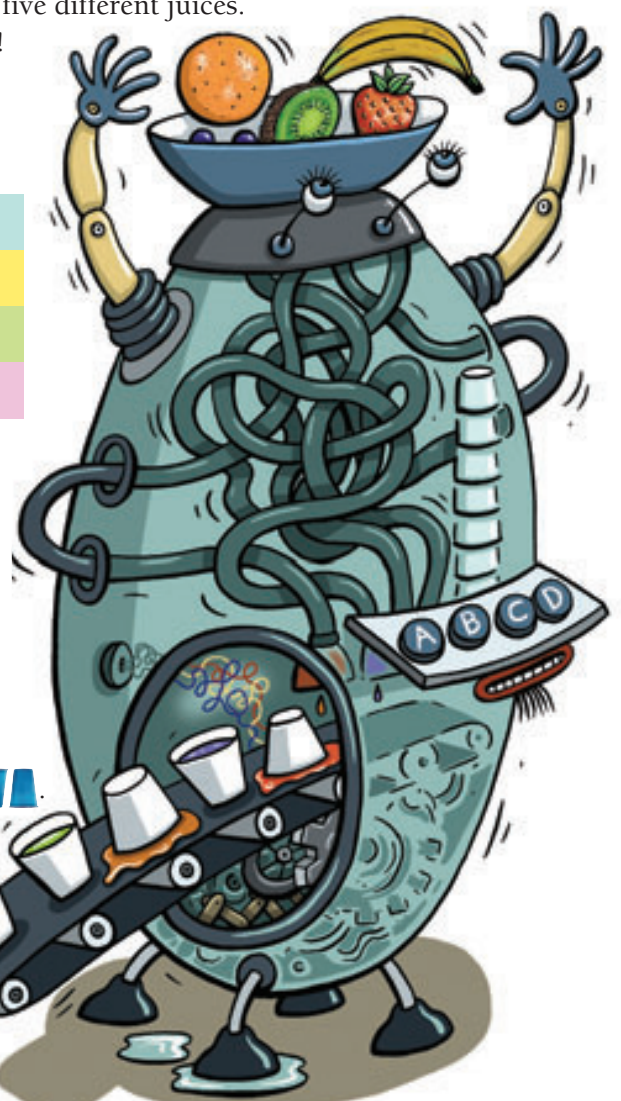
## TECHNOLOGY

Machines can break down or not work properly. At design stage, technicians test machines to make sure that they are reliable and perform as planned.

### Activity

Komal's Uncle Arun has invented a machine that serves five different juices. Unfortunately, some of the cups come out upside down! Komal is helping her uncle to reprogram the machine. The only instructions that the machine will accept (in any order) are:

- A** Turn the 1st and 5th cups over.
- B** Swap the positions of the 1st and 4th cups.
- C** Swap the positions of the 2nd and 4th cups.
- D** Swap the positions of the 2nd and 3rd cups.



At the moment, the 5 cups come out like this: **U U U U U**.

1. Komal presses D and gets **U U U U U**. She uses a table to record the moves.

Start	U U U U U
D	U U U U U

- a. Uncle Arun then tries B, then C, and then A. Draw Komal's table and show how the cups end up after each instruction.
- b. What 3 instructions should Komal use now to get all the cups the right way up?
- c. Starting with **U U U U U**, try to get all the cups the right way up using fewer steps than Uncle Arun and Komal.

2. Uncle Arun modifies his machine. This time, the cups come out **U U U U U**. Which instructions should Komal use now?

## Focus

Using problem-solving strategies