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First choose roles

	<h3 style="margin: 0;">Designer</h3>	<p>Designer places the items on the grid and plans the route the Robot will take to get to them.</p>
	<h3 style="margin: 0;">Writer</h3>	<p>Writer records the steps on a whiteboard/piece of paper.</p>
	<h3 style="margin: 0;">Robot</h3>	<p>Robot follows the instructions as written down.</p>

How about swapping roles as you go, so that everyone has a turn?

1

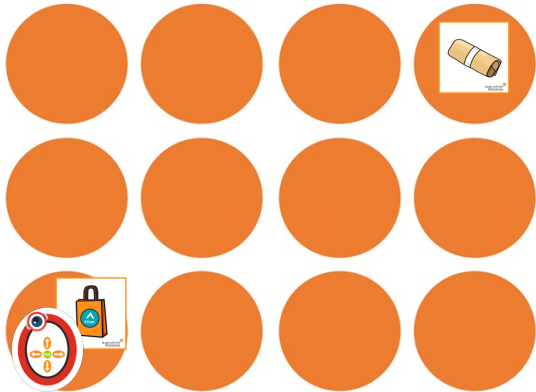
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Challenge 1 – collect the wraps!

Can you move across the kitchen to collect the wraps for today's lunch bag?

- 1. Designer:** Place the lunch bag for 'start' and the wrap for 'finish' anywhere on the grid. Use the practice robot to **plan or design** the route (**algorithm**) the Robot needs to follow to get across the kitchen to the wraps.
- 2. Writer:** Record the route (**algorithm**) the Robot needs to take on the whiteboard using forward, left and right arrows.
- 3. Robot:** Follow the instructions on the whiteboard to **test** the algorithm. You must follow the instructions exactly, even if you know they are wrong – you might go off the grid! If this happens, don't worry! Work with the Designer and Writer to adjust (**debug**) the **algorithm** and try again!

Example grid layout:



2

Challenge 2 – avoid items



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There are some items which we only want to eat as a treat every so often, so which aren't OK for today's healthy lunch. Can you program the Robot to miss these items?

- Designer:** Choose where to add in the 'not OK' items. Plan or design the algorithm as before, making sure to go around the 'not OK' items to get to the 'finish' item (the wrap).
- Writer:** Record the algorithm on the whiteboard using forward, left and right arrows. It will probably be a bit more complicated than last time!
- Robot:** Use the whiteboard to follow the algorithm to test it. Did you go wrong? Debug if needed and try again.

Example grid layout:



3

Challenge 3 – creative coding!



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Now, can you use your imaginations to think of some other things to include in your algorithm?

- Maybe you can add in some other food items for our healthy lunch today, and design a route for the Robot to collect them all?
- Could you create a specific instruction to 'pick up' items? What would this look like in the algorithm?
- Maybe the Robot can jump over 'avoid' items?
- Maybe they should do a happy dance when they've successfully collected the 'good' items?

What other creative coding can you think of?

- Designer:** Plan what steps to add in and where in the algorithm. You can use one of your blank squares to write/draw on, or cut up some paper.
- Writer:** Record the algorithm on the whiteboard – make up new pictures for the new actions.
- Robot:** Use the whiteboard to follow the algorithm to test it. Debug if needed and try again.

Example grid layout:



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