Rubbish robots

Years 3-4
Years 5-6

Groups of 3

15 minutes

Pens/paper
A4 graph paper
3 coloured counters
Handful of hole punch chads

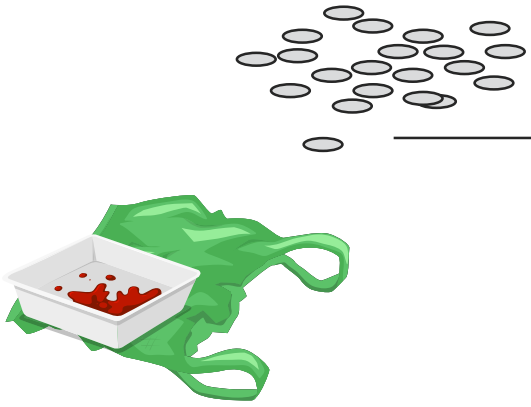
Student Instructions

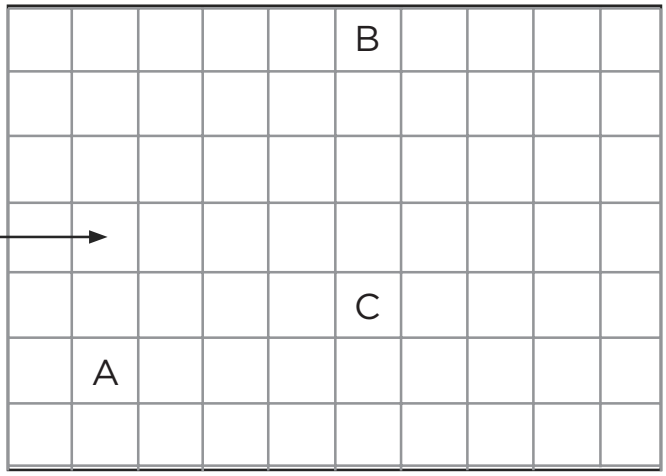
Write a single algorithm that can move three robots at the same time to pick up the maximum amount of rubbish.

Robot Instructions	Rubbish Robots	Algorithm
	Represented by the 3 coloured counters A B C	You can only make one algorithm and you can only use 10 instructions 

Rubbish

Randomly sprinkle the hole punch chads onto your grid.





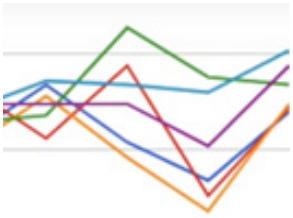
1. Sprinkle the hole punch chads randomly onto your grid paper (this represents the rubbish)
2. Choose the starting point for each robot and place the counter at this point
3. Write the algorithm to move all three robots
4. Move the robots one instruction at a time, collecting rubbish as you go
5. Count the total rubbish collected
6. Repeat this for each student
7. Compare to see which algorithm collected the most rubbish

Rubbish robots: extension

Anna's algorithm

Check out **annadu.org**

Anna Du was 12-years-old when she built a robot to find microplastics in the ocean. The idea came to her after walking along a beach near her house and realising there were too many pieces of plastic for her to collect alone.



After doing some research and finding out how much plastic ends up in the oceans each year, she got to work on a remote-operated vehicle to spot plastics on the ocean floor. Anna's robot takes photos of the microplastics underwater and uses an algorithm to identify what is plastic and what isn't using infrared light. This algorithm calculates if a photo has plastic in it by looking for the wavelength returned by the infrared light.

Want to know more about robots helping to solve the ocean plastic problem?

For more information and the latest news on plastic pollution solutions, visit:

www.digitalcareers.csiro.au/links

Design a rubbish robot to tackle plastic waste in your schoolyard.

Use a design thinking process to create your own robot

EXAMINE → **PLAN** → **PRODUCE** → **EVALUATE**

Submit your design to YICTE!

www.youngictexplorers.net.au