Barefoot from Computing at School | BT

Human robot

Overview

In this activity, children will learn to create and sort a sequence of instructions (algorithms) to program their Human Robot to move.

Concepts:

Age group: 5 – 7

Duration: 15 – 45 minutes

Materials you will need:

- ☑ At least two humans!
- ☑ Printed direction cards or just use your voice to call out instructions
- ☑ Optional home-made robot hats or masks

What will your child/children learn?

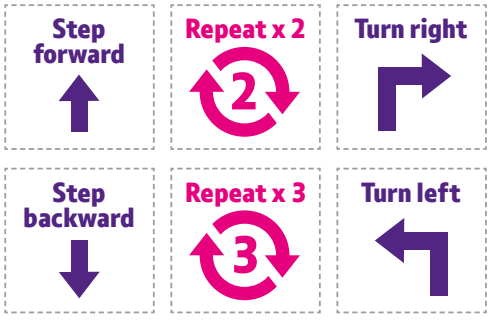
Algorithms – An algorithm is a precise sequence of instructions, or set of rules, for performing a task.

Debugging – Debugging is about finding out what is wrong in an algorithm or program and fixing it.

Programming – Programming is the process of designing and writing a set of instructions (a program) for a computer in a language it can understand. This can be simple, such as a program making a robot toy trace out a square, or incredibly sophisticated, such as those behind search engines and weather forecasting.

The behaviours **creating, persevering, collaborating** and **tinkering** (changing things to see what happens), are approaches to learning that are encouraged throughout our home activities.

Getting started



1) Explain to your child/children that they are going to be controlling a "robot" to move – and that robot is you! Firstly, you are going to control your child/children to move as if they are robots. If you are using hats or masks ask them to put them on.

2) Using the printed direction cards, show the forward arrow and ask what this arrow might mean. Model the action by stepping forwards one step and saying "forwards". Ask your child/children to copy you and repeat the word if they can.

3) Repeat with the other directional cards, emphasising that the right and the left turns are quarter turns on the spot.

4) Explain: An algorithm is a sequence of instructions to get something done.

Their turn

1) With hats or masks on, if you are using them, start at an object (e.g the kitchen table) and see if your child can program you to a specific item (e.g. the fridge).

2) Encourage them to say and show the direction card at the same time but that is the only time they can use their voice. Programmers are not allowed to talk whist the "robot" is working; this includes blurting out answers or pointing out when the "robot" has done something wrong.

...next

Take it in turns to be the "robot".

Time to talk

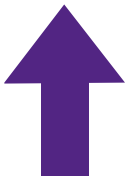
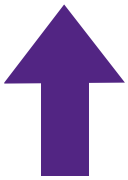
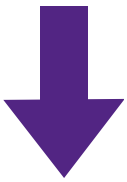
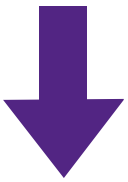
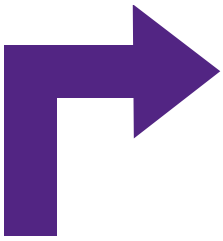
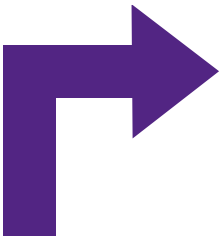
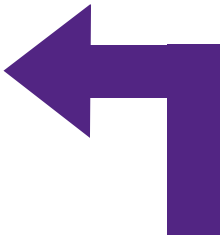
1) Explain that the instructions they have made are algorithms – a precise sequence of instructions for performing a task.

2) Explain that if the robot went in the wrong direction, they had to use their debugging skills to correct the robot.

More ideas

- Can your child make a sequence of instructions for the robot by sticking the arrow cards on the wall, floor or chalk board etc in the right order?
- If you have the space, you could use masking tape to create a grid. Place objects in the squares of the grid for your robot to find. You could add in objects that have to be avoided. You could also chalk a grid outside and use garden objects.
- Explore robots as a theme: create a robot outfit for a favourite toy, build a robot out of small building bricks or junk modelling, watch a film such a WAL-E or have a look at the Honda robot Asimo together on YouTube.

Human robot direction cards

Step forward 	Repeat x 2 	Step forward 
Step backward 	Repeat x 2 	Step backward 
Turn right 	Repeat x 3 	Turn right 
Turn left 	Repeat x 3 	Turn left