

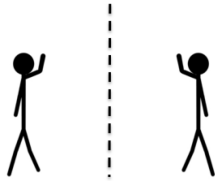
COMMAND THE ROBOT 1



What do you know about robots? What are drones? Are driver-less cars actually robots?

What do you think about robots that move around warehouses to pick up and carry loads from place to place and about robots that control complicated machinery in factories?

What do you think about robots that mow lawns and clean floors?



What happens when you look in a mirror? If you touch your right ear what does your mirror image do? Try it.

If you wink with your left eye does your image seem to wink with his left eye or his right eye? Try it?

Try some other actions and describe what you did and what your image did.

REFLECTIONS

Work with a partner and face each other. Make 3 different actions and your partner must copy you as if he or she is your image in a mirror. If you touch your nose with your right hand then your partner must do the action of a mirror image, but with which hand?

Then your partner must do 3 different actions and you must copy them as if you are the image in a mirror.

GROUP ACTIVITY

The group can be a whole class or a smaller group.

You will learn something about how people write codes to program computers to control robots. To start with you have to pretend to be a robot yourself and you must follow commands. These are commands in the Logo language which is one of many programming languages.

The group will need to be in a space outdoors, in a wide corridor or in a big room such as the school hall.

Your teacher, group leader or another learner will give the following commands one by one, but not in this order, and you must obey the commands.

ROTATIONS

RIGHT 360 tells you to TURN through a WHOLE turn 360° clockwise (to your right) and to end up facing the direction you faced at the start.

LEFT 360 tells you to TURN through a WHOLE turn 360° anti-clockwise (to your left) and to end up facing the direction you faced at the start.

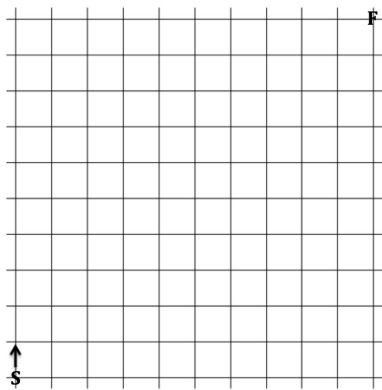
RIGHT 180 tells you to TURN through a HALF turn 180° clockwise (to your right) and to end up with your back to the direction you faced at the start.

LEFT 180 tells you to TURN through a HALF turn 180° anti-clockwise (to your left) and to end up with your back to the direction you faced at the start.

RIGHT 90 tells you to TURN through a QUARTER TURN 90° to your right (clockwise).

LEFT 90 tells you to TURN through a QUARTER TURN 90° to your left (anti-clockwise).

TRANSLATIONS



These are translations:

FORWARD 7 BACK 2 tells you to take 7 steps forward and 2 steps back.

RIGHT 90 FORWARD 5 LEFT 90 tells you: make a quarter turn clockwise, take 5 steps forward then make a quarter turn anticlockwise so you face the same way as at the start.

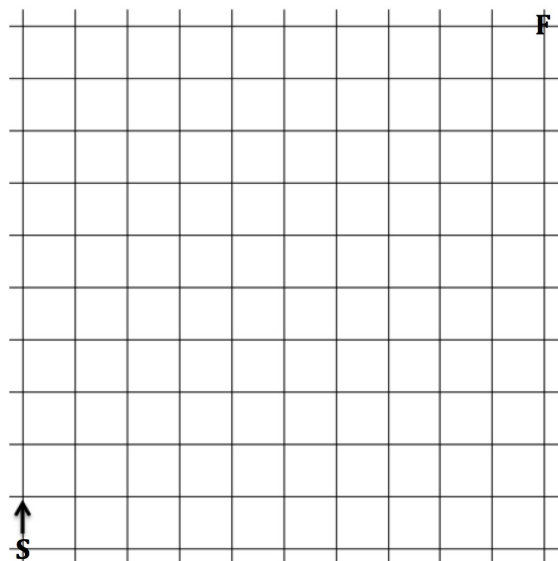
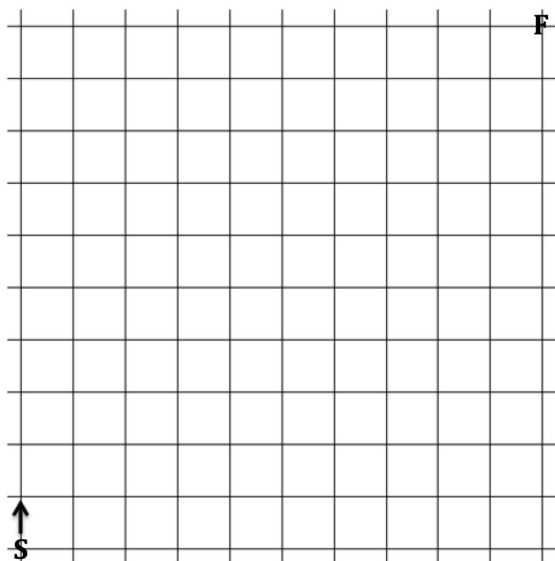
COMMAND THE ROBOT

Imagine you have a robot at point S of this grid facing in the direction of the arrow and that each square represents one step.

Draw a path on a copy of this grid to go from S to F making 5 turns on the way and describe this journey.

Write a list of commands to make your robot go from S to F making 5 turns on the way and then write the code.

Then draw his path to go from S to F making 9 turns on a copy of this grid, describe his journey and write the code.



HELP

The 4 commands FORWARD, BACK, RIGHT and LEFT enable you to write code to make the robot move along the gridlines.

You might find it easier to start by drawing a path on the grid to get from S to F making exactly 2 turns on the way and then make a list of commands to make the robot go along your path. After that try a route with 5 turns.

NEXT

Draw a pattern of connecting straight line segments on the grid and write the code for a robot to start at S and walk along all the lines in your pattern.

Resources: Have a photocopy of the grid or draw your own copy using squared paper if you have it available,

You can download MSW Logo free software from the internet.

either FMSLogo for Microsoft Windows from <http://fmslogo.sourceforge.net/>

or ACSLogo for Mac OS X from <http://www.alancsmith.co.uk/logo/>

Both come with a Tutorial to help you to get started.