

Activity 2 – Navigate



Aim:

Learn about one of the driving modes and practice steering the robot.

Materials:

- Built, working robots
- Activity 2 video (approx. 7 mins)
- Pupil worksheet
- Objects to make a driving course (e.g. books, boxes, water bottles, etc.)

Location:

Working out the nine switch options can be done on a classroom desk. Driving around obstacles needs a larger floor area.

Background:

- Robots can work in two different ways:
 1. Many robots are connected to a controller by a wire or a wireless link; a person sends commands to the robot through this link. Good examples are the underwater robots used in the North Sea – here, a person on a ship directs the robot through a long cable. A more complex example is the Mars Rover vehicle – this time the link is by radio rather than cable, and engineers on earth work out a set of moves and then send them to the robot on Mars.
 2. Newer robots are being designed that can be much more independent and can ‘think’ for themselves. These are called autonomous robots. A simple example is the robot vacuum cleaner – it plans its own pattern of cleaning independent of a person.
- Activity 2 is an example of a cable-connected robot that needs to be told what to do. Some of the later activities will use the robot as an autonomous robot.
- The practical aim is to become familiar with the robot and how to use the switches to put the robot into different modes. The pupils will also see how the robot tells them that its batteries need recharging. If they get the switches wrong, tell them to switch it off and start again.

Running the Activity:

- Form teams (suggest three pupils per team) and show Activity 2 video (approx. 7 mins). The video demonstrates the process step-by-step; may need to be shown twice.
 - <https://www.youtube.com/watch?v=4tMVZoCSOi8>
- Hand out Activity 2 worksheet to guide pupils through the tasks.
 - This shows three of the nine possible switch controller positions.
- Practise steering the robot: get the teams to make up their own obstacle course and work together to become competent at driving the robot. (The obstacle course should not include tunnels because of the cable.)