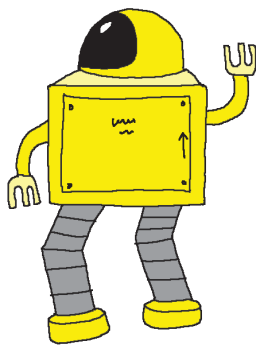


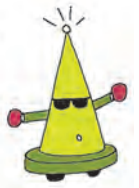
31. 'Robotics'

A robot is a complex man-made machine that can perform many of the tasks that human beings do, and some tasks that are too difficult or dangerous for human beings. Robots are built in such a way that they can perform these tasks automatically when they are started, or, on command. Robots may be operated by remote control.

A robot usually has three things. It has a built-in computer program. This program is like the robot's 'brain'. Only, a robot cannot think on its own like human beings do. It cannot decide whether to do something, whether something is 'good' or 'bad', on its own. It can learn and do only what the computer program makes it possible for the robot to learn and do. A robot does not have moods and feelings like human beings do. Like other machines, a robot can do boring tasks again and again and again without getting bored. It can work in dangerous places where human beings cannot go or live.



A robot has mechanical parts – or a 'body'. These parts enable the robot to move or perform certain actions in certain ways. These parts may have pipes, tubes, cylinders, wheels and gears joined in a particular way. There may be devices that scoop up or hold things, blow, suck, sweep etc. These parts are designed to suit the purpose for which the robot is built.



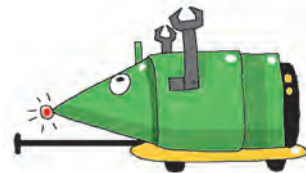
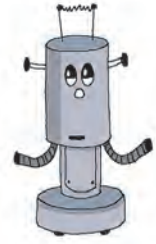
A robot also has 'sensors' or devices that inform it about its surroundings. These sensors are like the robot's eyes, ears, nose, skin, etc. Again, these devices are designed and fitted to the robot by experts who design and build the robot.

Some robots are designed to look like human beings, or other living things, or they may be given other suitable shapes. It requires a lot of hard work, skill and imagination to design and build robots. Would you like to design or build a real robot when you grow up ? For that, you will have to study the relevant subjects well and also develop a good imagination.

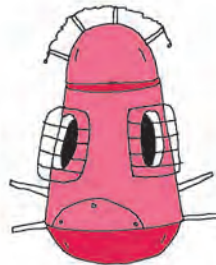
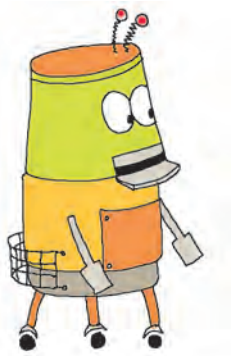
Design your own Robot!

Use the following points and make a design for your own robot.

- **Purpose** : What are you building the robot for ?
What work will it do when it is ready ?
- **Materials** : What materials will you use to build the robot ?
- Metal, plastic, glass, etc.
- **Size and Shape** : How big or small will the robot be ?
What shape would be most suitable ?
- **Parts** : What parts will the robot need to move or to do its work ?
Is it necessary to have bending, curling or stretching parts ?
- **Sensors** : What sensors will the robot need ?
Where will you fit the sensors ?
- **Energy** : Will your robot work on electricity –
do you need batteries,
solar cells, etc. ?
Where will they be fitted ?
- How to operate the robot - do you need buttons or a remote control or both ?
- **Safeguards** : What safeguards will the robot need to protect its parts ?



Now, draw a picture of the robot that you have designed. Label the picture. Describe, in short, what your robot can do. Choose a suitable name for your robot.



For the Teacher : Encourage children to think of different types of robots. Let them draw the robots on big sheets and describe its parts, what it does, etc. on the same sheet. Arrange a display or exhibition of these robot designs.