What is a Robot?

There are many different kinds of robots, from ones designed to build cars to ones that vacuum to ones that explore other planets. To be a robot, a machine must meet certain criteria. A machine is only a robot if it has all the elements listed below:

Body

The body is a physical substance and shape of some type. The body will be designed based on the function—some look like vehicles, some like an arm, and some like a person. If you can touch it, that's the body.

Control

Control is a program to control the robot. Robots must be told what to do. To control a robot we need:

Input

Input is the information that comes from the robot's sensors. Robots have sensors that they use to get information from the robot's environment. For example, a smoke detector can detect smoke. (In other words, sensing the robot's environment). Robots typically have external and internal sensors.

Programmable

The program is a set of instructions or rules that the programmer gives the robot. For example, a smoke detector has a program to make a sound if it senses smoke. To be a robot, a machine must be programmable.

Output

The output is the actions a robot takes, often involving motors, lights, or sounds. For example, a smoke detector makes a loud sound and might flash lights. (In other words, effecting change in the robot's environment—adapting.)

Behavior

Behavior is the combination of outputs that result in the task or jov the robot does. For example, the behavior of a smoke detector is to "go off" in the presence of smoke. "Going off" is a comvination of making noise and flashing lights, and may also involve calling the fire department.

Are We Robots?

Directions:

Below is a list of machines that you might encounter in your daily life. Add machines to the bottom. Complete the table by deciding if the machine meets the criteria for being a robot. Then determine if the machine is a robot.

Body—physical form of some kind

Control—

        Input—gets information from sensors, buttons, etc.

        Program—is programmable, follows a set of instructions you give it

        Output—an action it takes

Behavior—wht it does; the function it performs

	BODY	INPUT	PROGRAM	OUTPUT	BEHAVIOR	IS IT A ROBOT?
Stove						
Microwave						
Radio						
iPod						
Flashlight						
Bicycle						
Car						
Alarm clock						
Traffic light						
Photocopier						
Computer						
Mars Rover						
Sewing Machine						
Smart phone						