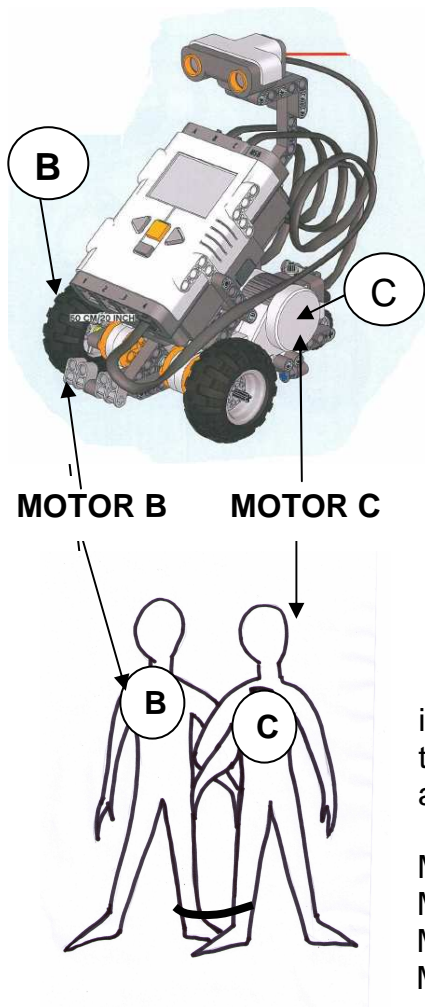


TEACHING NOTES MAKING CONNECTIONS



This is preparatory activity before students start working with the LEGO @MINDSTORMS Education Basic Robot . The aim of this activity is to get students to make the connection between the movements a two wheeled robot can make and HOW the robot makes these movements

The main points are :

- ✓ Inputs
- ✓ Outputs DO something (motors, sounds, graphics)
- ✓ Motors take the name of the port they are plugged in on – eg Motor A
- ✓ Motors can be on /off, the speed can also be controlled by the programmer.

2 students are used to represent the two motors on a generic robot

2 students are asked to link arms, they must also keep their inside feet together when they move. One student becomes MOTOR B, the other is MOTOR C. The teacher then gives motors instructions such as –

- Motor B forward, Motor C backwards
- Motor C forwards, Motor B forwards
- Motor C off, Motor B forwards
- Motor C forwards slowly , Motor B forwards on full power

The students observe and comment on the effects of these commands on the movements of the two “motors”.

The teacher must make the point that the “programmer” needs to identify the name of the motor (C/B) direction of the motor (forwards/backwards) and the speed of each motor (on/off/fast/slow)

Students can then be asked to “program” the two human motors to make actions eg:

Arc backwards left -

answer: Motor C backwards full power, Motor B backwards slow power.

Arc Backwards right—

answer: Motor B backwards slow power, Motor C backwards full power.

Spin Left- answer:

Motor A backwards full power, Motor C forwards full power.

Spin right- answer:

Motor C forwards full power, Motor B backwards full power.