Quickstart Sequence > The NXT

Materials
1 NXT Brick, 1 Battery Pack, 1 Battery Charger, 6 AA Batteries,
1 Available Electrical Outlet

Video
Charging the Battery Pack
1. Locate your Battery and Battery Charger
2. Plug your battery charger into an available electrical outlet
3. Plug the other end of the charger into your Battery Pack's charging port
4. Unplug the charger once the red light on the battery pack has turned off

Installing Batteries
1. Remove back cover by pressing tab with thumb and lifting
2. Insert batteries according to illustration in battery area
3. Press orange button on the front of the NXT block to ensure it turns on
4. Once NXT powers up properly, replace back cover (hinge side first)

NXT Ports
1. Outputs
   - Located on the top of the NXT
   - Lettered: A, B, and C
   - Example: Outputs can send commands to motors to turn them on/off
   - Uses NXT wire

2. Inputs
   - Located on the bottom of the NXT
   - Numbered: 1, 2, 3, and 4
   - Example: Inputs can receive data from the sensors
   - Uses NXT wire

3. USB
   - Located on the top of the NXT
   - Labeled: USB
   - Attaches PC or Macintosh to NXT for loading programs
   - Uses USB cable

Quickstart Sequence > Build Testbed

Materials
1 NXT Brick, 1 Sound Sensor, 1 Servo Motor, 2 NXT Wires,
2 Black Rubber Balloon Tires, 2 Gray Hubs, 1 Long Axle

Video
Building the Testbed
1. Place the black rubber balloon tires over the gray hubs
2. Push the axle through your motor so approximately ½ sticks out on either side
3. Add a tire/hub combination to each side of the axle
4. Take one of your NXT wires and plug it into the back of your motor
5. Plug the other end of the motor's wire into Port C on the top of the NXT
6. Plug the second NXT wire into the back of the sound sensor
7. Plug the other end of the sound sensor's wire into Port 2 on the bottom of the NXT

Quickstart Sequence > Test Run

Materials
1 Testbed

Video
S.P.A.

  Sense

  Robots must use sensors to gather data from their surroundings.

  Plan

  Using its sensors, a robot has to plan its actions according to its programming.

  Act

  A robot should then act out its plan.

Actuators

  Component which produce a physical effect on command

  Example: motors

Running the Testbed

1. Turn on your NXT by pressing the orange button on its front side
2. Scroll with the arrows to find the "Try Me" option, then press the orange button
3. Scroll with the arrows to find "Try-Sound", then press the orange button
4. Press the orange button once more to run the program
5. See what happens when you
    A. Make loud noises
    B. Make soft noises
    C. Make no noise

How it works

1. The sound sensor detects sound
2. The sensor transmits its data through the wire to the NXT
3. The NXT's program determines how to spin the motor according to the noise level
4. The NXT sends power to the motor through its wire
5. The motor spins

Result: motor speed controlled by sound

Summary

Battery Pack
    Plug your charger into the battery pack and wall, and remove once red light is off.
    If the green light is on then the battery is receiving electricity properly.
    If the red light is on the battery pack is charging and should be left alone.

Batteries:
    NXT requires six AA batteries
    Act as a good backup for when battery pack is charging or low

NXT
    Supplies power to all electrical components
    Houses processor which executes programs
    Lettered output ports on top
    Numbered input ports on bottom
    USB port on top

Wires
    Connect motors and sensors to NXT
    Transmit electricity and data

S.P.A.
    Sense
      Robots must use sensors to gather data from their surrounding
    Plan
      Using its sensors, a robot must the plan its actions according to its programming
    Act
      A robot must then act out its plan