Commonly used blocks

1. **Move:**

   This block controls the movement of the motors which includes direction, steering, power, duration of rotation and the port to which the motor will be connected on the NXT.

2. **Record/Play:**

   This block counts the number of degrees (one full rotation is 360 degrees) or full rotations that your motor turns. It will send a logic signal (true or false) or the current value through a data wire. The reset button clears any value in the feedback box as well as in the NXT.

3. **Sound:**

   This block in a program outputs a sound from the speakers when instructed to. The sound can be selected from a file list or a tone can be generated. Volume of the sound can also be controlled.

* For detailed explanations of each block click on ‘more help’ at the bottom right of the main program window
4. Display:

This block displays the specified file. This block can also be used to display text or numbers stored in variables. Also values from the sensors can be displayed on it.

5. Wait:

This block allows the program to pause for a specified amount of time or till it receives a signal from a sensor or counter to proceed depending on where the wait block is used in the program.

6. Loop:

This block is used to repeat a specific command continuously for a specified number of times or infinitely. The program exits the loop after performing the task a specified number of times or never exits if looped forever.
7. Switch:

Use this block to choose between two sequences of code. For example, when configured with a touch sensor, the switch block might run one series of blocks when the sensor is pressed and another when the sensor is not.

![Switch Diagram]

**SENSORS**

8. Touch Sensor:

This block sends a logic signal (true or false) through a data wire indicating the current condition of a touch sensor. Use the radio buttons to decide which action will produce the “true” signal.

![Touch Sensor Diagram]

9. Sound Sensor:

This is a sound detector. Using data wires, it can send the current sound value and a logic signal (true or false). Specify the trigger point and the range that will generate a “true” signal.

![Sound Sensor Diagram]
10. Light sensor:

This sensor detects ambient (surrounding) light. Through data wires it can send a logic signal (true or false) or the current light reading. Turning on “Generated Light” will allow the sensor to detect its own reflected light.

11. Ultrasonic sensor:

This block has a range of about 250 cm (or 100 inches). By specifying a trigger point less than that (by using the slider or by typing in a number), you can have your robot react if something gets too close to it. Output is sent by a data wire.

12. NXT buttons:

This block outputs a “true” signal through a data wire when one of the NXT buttons is activated. Select the button and the action that will send the “true” signal.
13. Rotation Sensor:

This block counts the number of degrees (one full rotation is 360 degrees) or full rotations that your motor turns. It will send a logic signal (true or false) or the current value through a data wire. The reset button clears any value in the feedback box as well as in the NXT.

14. Logic

This block performs a logical operation on its inputs and sends out the true/false answer by a data wire. The inputs (which must also be “true” or “false”) can be set using the radio buttons or supplied dynamically from data wires.

15. Math:

This block performs a logical operation on its inputs and sends out the true/false answer by a data wire. The inputs (which must also be “true” or “false”) can be set using the radio buttons or supplied dynamically from data wires.

* For detailed explanations of each block click on ‘more help’ at the bottom right of the main program window
16. Compare:

This block can determine if a number is greater than (>), less than (<), or equal to (=) another number. The input numbers can be typed in or supplied dynamically by data wires.

17. Range:

This block can determine if a number is either inside or outside of a range of numbers. The input values can be typed in, set using the sliders, or supplied dynamically by data wires. The output logic (true/false) signal will be sent by a data wire.

18. Variable:

Create and name a variable by using the Define Variable command in the Edit menu. Then drag a Variable block into your program and, after selecting its name from the list, choose to either read or write to the variable.

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