

SPIKE Essential

Programming Icon Blocks

Event Blocks

Play Block



This block will play all the blocks that are attached to it. When pressing the Play Button in the bottom right corner of the screen, all the Play Blocks will start simultaneously.

Color Sensor Block



This block is used to program the Color Sensor. It checks what color is in front of it. This blocks that are attached to it if the Color Sensor sees the selected color.

To change the color, press the white down arrow on the block and choose a color from the menu.

Force Sensor Block



This block programs the Force sensor. The Force Sensor is pressed or released. The block will play all the blocks that are attached to it if the Force Sensor.

To change the settings, press the white down arrow on the block, and choose "pressed" or "released" from the menu.

Distance Sensor Block



This block programs the Distance Sensor. The Distance Sensor Block is used to check the current distance in front of the Distance Sensor. The block will play all the blocks attached to it if the Distance Sensor sees an object closer than the chosen distance. The Distance Sensor can see 200 cm (78 inches) ahead. The threshold for when this block will reach on the object is indicated by the number in the block. The number is a percentage of the 0-200 cm (0-78 inches).

To change the threshold, press the number in the block, then drag the slider left or right.

Tilt Sensor Block



This block programs the Built-in Gyro Sensor. The Tilt Block is used to check the Built-in Gyro sensor on the LEGO Technic Small Hub. The block will play all the blocks that are attached to it if the Hub is tilted to the chosen side. The block can check if the Hub is tilted forward, backward, left, right, any of those directions, or lying flat.

To change the direction of the tilt, press the white down arrow on the block and select the corresponding arrow.

Loudness Block



This block is used to check the sound level in your microphone. The loudness Block will play all the blocks that are attached to it if the sound level is louder than the set number or threshold. The threshold is a percentage of the maximum loudness your microphone can register.

To change the threshold, press the white down arrow on the block, and drag the slider up and down.

The Loudness Block uses the microphone in your device. You may need to give the Spike App permission to use the microphone in your device.

Received Message Block



This block lets you play multiple programming stacks at once. The Receive Message Block must be used together with a Send Message in the same color to make it work.

To change the color of the message, press the white down arrow on the block, then choose a color.

Send Message Block



This block lets you play multiple programming stacks simultaneously. The Send Message block must be used together with a Received Message block. They also need to be the same color.

To change the color of the message, press the white down arrow on the block and select a color.

Motor Blocks

Motor Speed Block



This block changes the speed of the motor(s) attached to the Hub. The speed can be set to 15%, 40%, 70% or 100%. The speed levels are indicated by the number of green bars.

To use this block place this, block in front of the Run Motor Blocks (Clockwise or Counterclockwise). That will change the speed of the motor(s) from then onwards. The Set Motor Speed Block hasn't been used; the default speed is 40%.

To change the speed, press the white down arrow on the block, then press one of the 4 speed level buttons.

Run Motor Counterclockwise Block



This block will make the Motor(s) attached to the Hub run counterclockwise. The speed can be changed using the Motor Speed Block.

To change how many rotations the motor should run, open the block menu by pressing the white down arrow on the block. Use the plus (+) and minus (-) buttons to increase or decrease the number of full rotations. Use the dial to increase or decrease by quarter (0.25) rotations.

Run Motor Clockwise Block



This block will make the Motor(s) attached to the Hub run clockwise. The speed can be changed using the Motor Speed Block.

To change how many rotations the motor should run, open the block menu by pressing the white down arrow on the block. Use the plus (+) and minus (-) buttons to increase or decrease the number of full rotations. Use the dial to increase or decrease by quarter (0.25) rotations.



Stop Motor Block

This block will stop all running motors.

Light Blocks



3x3 Light Block

This block programs the 3x3 Light Matrix. To create your own pattern for the 3x3 Light Matrix, open the block menu by pressing the white down arrow. Now use the color selector on the right to select a color and draw the pixels in that color on the big 3x3 grid. The small 3x3 grid on the bottom left will clear the pattern. The small 3x3 grid on the right will set all pixels to the selected color.

The 3x3 Light Block waits 0.2 seconds before progressing to the next block.



Random 3x3 Light Block

This block will make the 3x3 Light Matrix light up in a random color. The block waits 0.2 seconds before progressing to the next block.



5x5 Light Block

This block programs the 5x5 Light Matrix. To create your own pattern for the 5x5 Light Matrix, open the block menu by pressing the white down arrow. Use the brightness selection on the right to select a brightness and draw the pixels in that color on the big 5x5 grid. The small 3x3 grid on the bottom left will clear the pattern. The small 5x5 grid on the right will set all pixels to the selected brightness.

The 5x5 Light Block waits 0.2 seconds before progressing to the next block.



Random 5x5 Light Block

This block will make the 5x5 Light Matrix light up in a random color. The block waits 0.2 seconds before progressing to the next block.

Sound Blocks



Animal Sound Block

This block will play an animal sound. Select from 8 different animal sounds.

To choose a sound, press the white down arrow on the block, then pick a number in the menu. Choosing the dice will pick a new random animal sound every time the block plays.



Sound Effect Block

This block will play a sound effect. There are 8 effects to pick from.

To choose a sound, press the white down arrow on the block, then pick a number in the menu. Choosing the dice will pick a new random animal sound every time the block plays.



Music Block

This block will play a music through the device.

To choose a sound, press the white down arrow on the block, then pick a number in the menu. Choosing the dice will pick a new random animal sound every time the block plays.



Record Sound

This block allows you to record your own sound. It enables you to record your own sound and save it as a new block to use in your program.

To make a new recording, press Record Sound to open the Record Sound menu. Press the record button in the middle to start the recording. When you are finished press the stop button, and the checkmark button to save the recording. Your recording will save as a new block.

Control Blocks



Wait Block

This block will make the programming stack wait for a certain amount of time. It can be adjusted to the amount of time the program should wait.

Press the number in the block to change the wait time.



Repeat Loop

This block repeats all the blocks inside it. The number of times it repeats can be changed. Press the number to change it.



Forever Loop

This block will play all the blocks inside it forever.



Stop Block

This block will stop all the programming stacks that are currently running.

Movement Blocks



Movement Speed Block

This block changes the speed of moving a Driving Base is a LEGO robot that drives with two identical motors. The speed levels are indicated by the number of green bars. The speed can be set to 15%, 40%, 70% or 100%.

To use this block, place this block in front of the other Movement Blocks. It will change the speed of the Driving Base from then on onwards. The Ser Movement Speed Block will not change the speed of a running Motor or start the Motor.

To change the speed, press the white down arrow on the block, then press one of the speed level buttons.

Move Forward Block



This block moves a Driving Base forward a number of wheel rotations. A Driving Base is a LEGO robot that drives with two identical motors.

To change the number of wheels rotation, press the number on the block. Entering 1 into the block will make each wheel turn 1 full rotation.

Move Backward Block



This block moves a Driving Base backward. A Driving Base is a LEGO robot that drives with two identical motors.

To change the number of wheels rotation, press the number on the block. Entering 1 into the block will make each wheel turn 1 full rotation.

Turn Counterclockwise Block



This block moves a Driving Base counterclockwise. A Driving Base is a LEGO robot that drives with two identical motors.

To change the number of wheels rotation, press the number on the block. Entering 1 into the block will make a Driving Base turn 90 degrees.

Turn Clockwise Block



This block moves a Driving Base clockwise. A Driving Base is a LEGO robot that drives with two identical motors.

To change the number of wheels rotation, press the number on the block. Add the number of rotations that the Driving Base will move.

Stop Moving Block



The block stops both motors of a Driving Base. A Driving Base is a LEGO robot that drives with two identical motors.

Bar Graph Blocks

Add 1 to Bar Graph Block



This block adds a value to the bar in the bar graph. The Bar Graph is displayed on the programming canvas. Press the full-screen button in the top left corner of the Bar Graph to take a closer look.

To change what color to add to, press the white down arrow on the block and choose a color from the drop-down menu.

Clear Bar Graph Block



This block will clear the Bar Graph. All values will be reset to 0.

Full-screen Bar Graph Block



This block changes how the Bar Graph is display. The Bar Graph can be displayed full screen or in a smaller window on the programming canvas.

To change the display format, press the white down arrow on the block, and then pick either full screen (two green arrows) or smaller window view (one green arrow) from the drop-down menu.

Display Blocks

Display Text Block



This block displays text in the display window. Press the full-screen button in the top left to make the text full screen.

To change the text, press the text field in the block and start typing a new text.

Display Image Block



This block displays an image in the display window. Press the full-screen button in the top left to make the image full screen.

To change the image, press white down arrow on the block, then press the image you want to display. Choosing the dice will pick a random image every time the block plays.

Full-Screen Display Block



This block changes how an image or text is displayed. The image and text can be displayed full screen or in a smaller window on the programming canvas.

To change the display format, press the white down arrow on the block, and then pick either full screen (two green arrows) or window view from the menu (one green arrow).