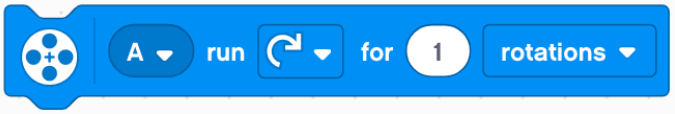
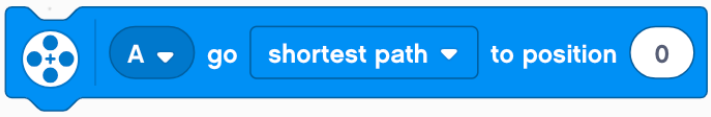
LEGO Spike Cheat Sheet

Motors



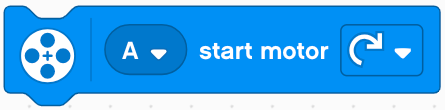
Tells the motor connected to pin “A” to run in a “clockwise” direction for “1” “rotation”.

Pin “A” can be changed, as well as the direction the motor turns, the unit of measurement from “rotations” to “seconds” or “degrees” as well as the amount of the unit.



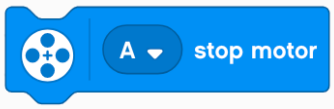
Tells the motor connected to pin "A" to travel the shortest path to the position “0”.

The shortest path can be changed to clockwise or anticlockwise as well as the specified position in degrees.



Starts the motor connected to pin “A” to turn in a clockwise direction.

The direction can be changed to anticlockwise.



Stops the motor connected to pin “A”.

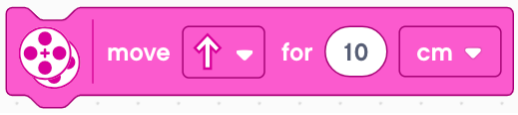
Sets the speed of the motor connected to pin “A” to “75%” of the maximum speed.

A variable containing the current position of the motor connected to pin “A”.

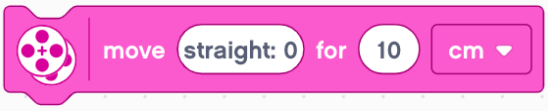
A variable containing the current speed of the motor connected to pin “A”.

LEGO Spike Cheat Sheet

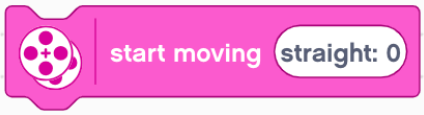
Movement



Move “forward” for “10” “cm”.
The direction can be changed between “forward”, “backward”, “left" or “right”. The unit of measurement can be changed between “cm”, “inches”, “rotations”, “degrees” or “seconds”.

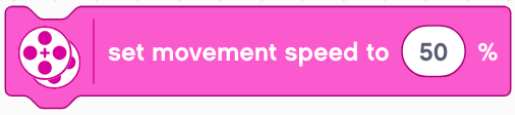


Move “straight: 0” for “10” “cm”.
The direction can be changed from “straight: 0” to “right: 1 to 100” and “left: -1 to -100” where the larger the absolute value, the more in that direction the movement will be. The unit of measurement can be changed as described above.

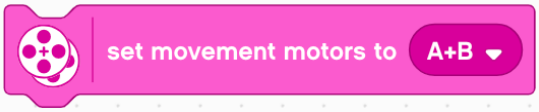


Starts the robots moving in the direction “straight: 0”.
The direction can be changed as described above.

Stops the robot moving.



Sets the speed of movement to “50%” of the maximum speed.

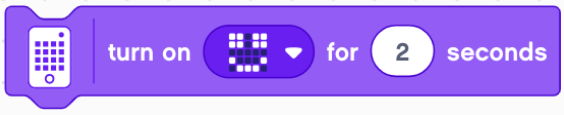


Sets which two pins are being used in conjunction for movement. Any two pins can be used in combination.

Sets the distance travelled in a single rotation of the motors to “17.5" “cm”.
This distance will then be used any time the code says move/turn x rotations. The unit of distance can be changed between “cm” or “inches”.

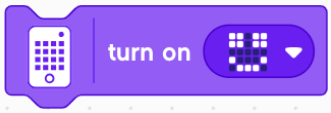
LEGO Spike Cheat Sheet

Light

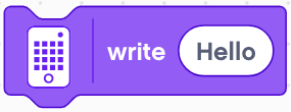


Turns on the LEDs on top of the Spike hub in the user specified pattern for a specific duration.

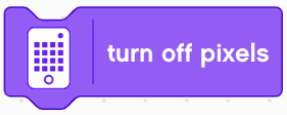
Each of the 5x5 pixels can be changed individually in varying degrees of brightness.



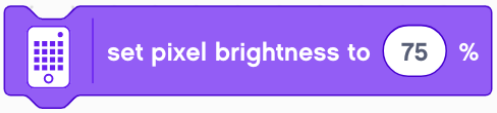
Turns on the LEDs on top of the Spike hub in the user specified pattern.



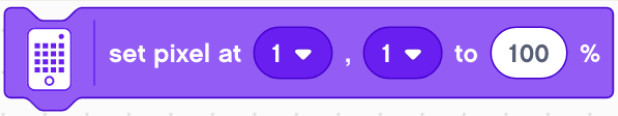
Writes out the user message using the LEDs on top of the Spike hub.



Turns off all the pixels on top of the Spike hub.

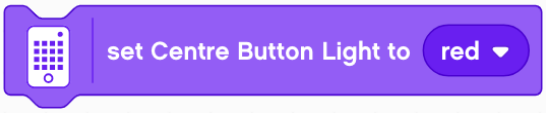


Sets the brightness of all pixels to “75%” of the maximum brightness.



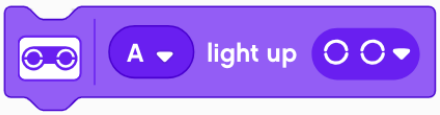
Sets the pixel at position “1”, “1” to “100%” brightness.

The any pixel on the Spike hub can be changed by selecting the appropriate co-ordinate. The brightness can also vary between 0% and 100%.



Sets the centre button on the Spike hub to light up in “red”.

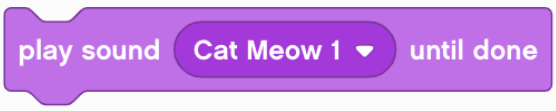
The colour can be changed between “violet”, “blue”, “green”, “yellow”, “red”, “white” or “no colour”.



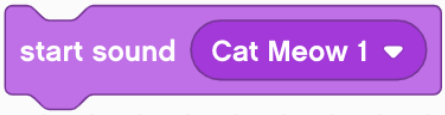
Sets the LEDs on the distance sensor connected to pin “A” to the specified pattern.

LEGO Spike Cheat Sheet

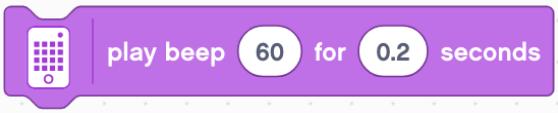
Sound



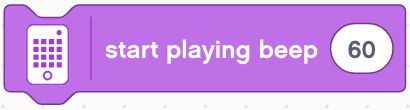
Plays the sound "Cat Meow 1" once.
The sound can be changed to any sound that is available in the sound library or you can choose to record your own sounds.



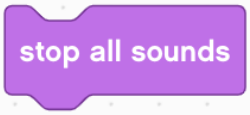
Plays the sound "Cat Meow 1" on a loop.
The sound can be changed as described above.



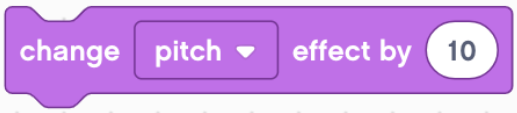
Plays a note from a keyboard for "0.2" seconds.
The note can be any from a 5 octave range starting at a low C corresponding to the value 48 to a high C corresponding to the value 108.



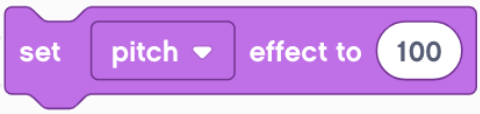
Continuously plays a note from a keyboard.
The note can be chosen as described above.



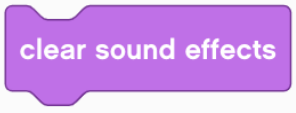
Stops all sounds being currently playing.



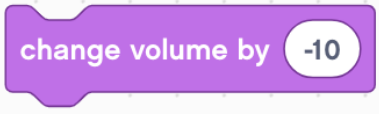
Changes the "pitch" effect by "10".
The effect can be changed between "pitch" or "pan left/right" as well as the amount the effect is changed by.



Sets the "pitch" effect to "100".
The effect can be changed between "pitch" or "pan left/right" as well as the amount the effect is set to.



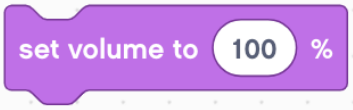
Clears all currently applied sound effects.



Changes the volume level by "-10".
A positive value will increase the volume level, a negative value will decrease the volume level.

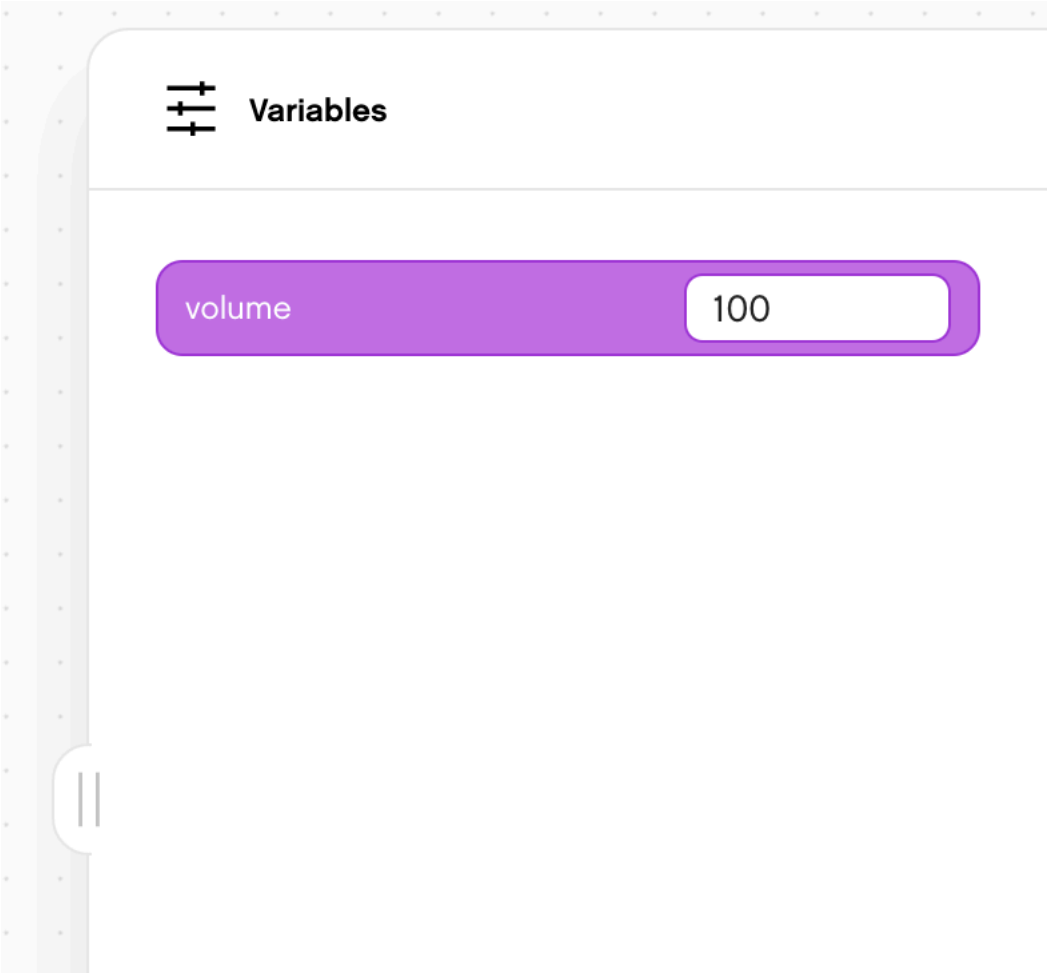
LEGO Spike Cheat Sheet

Sound



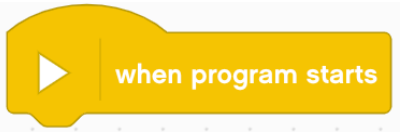
Sets the current volume to 100% of the maximum volume.

Creates a variable that stores the current volume value.
The list of variables currently in use can be viewed in the pull out tab on the right had side of the screen, as shown below

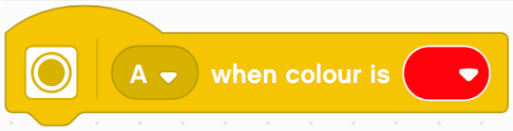


LEGO Spike Cheat Sheet

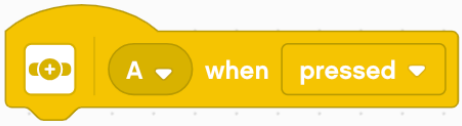
Events



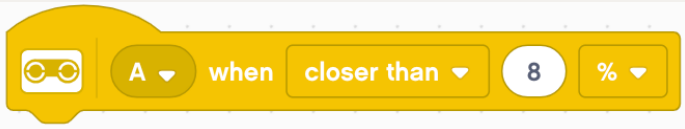
When you start your program, all code below this block will run sequentially from top to bottom.



When the colour sensor, connected to pin "A", detects the colour red, all code below this block will run sequentially from top to bottom.
The colour choice can be changed between "black", "purple", "blue", "light blue", "green", "yellow", "red", "white" or "no colour".



When the force sensor, connected to pin "A", detects it has been "pressed", all code below this block will run sequentially from top to bottom.
What the force sensor detects can be changed between "pressed", "hard pressed", "released" or "pressure changed".



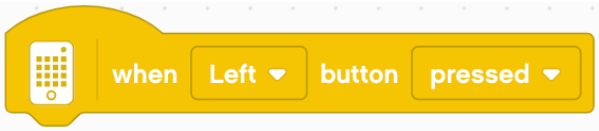
When the distance sensor, connected to pin "A", detects it is "closer" than "8" "% of the maximum distance it can measure", all code below this block will run sequentially from top to bottom.
What the distance sensor detects can be changed between "closer than", "farther than" or "exactly at". The unit of measurement can be changed between "% of the maximum distance", "cm" or "inches".

When the gyroscope inside the Spike hub detects the "front" the Spike hub is facing upwards, all code below this block will run sequentially from top to bottom.
What the gyroscope detects can be changed between "front", "back", "top", "bottom", "left side" or "right side".

When the gyroscope inside the Spike hub detects that the Spike hub has been "shaken", all code below this block will run sequentially from top to bottom.
What the gyroscope detects can be changed between "shaken", "tapped" or falling".

LEGO Spike Cheat Sheet

Events

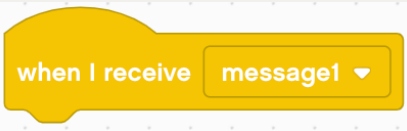


When the "left" button is "pressed", all code below block will run sequentially from top to bottom.

The button being checked can be changed between "Left" or "Right". What the button detects can be changed between "pressed" or "released".

When the timer variable, found in sensors, is greater than "10", all code below this block will run sequentially from top to bottom.

When the user specified condition placed in the hexagon gap is satisfied, all code below this block will run sequentially from top to bottom.



When a specific message that is broadcast has been detected, all code below this block will run sequentially from top to bottom.

This block will broadcast a specific message to all the scripts in this program and then continue on to the next block of code in its script.

This block will broadcast a specific message to all the scripts in the program and will wait until any script that detects the broadcast has run all their blocks of code before continuing on to the next block of code below this broadcast.

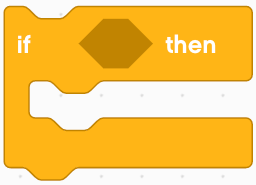
LEGO Spike Cheat Sheet

Control

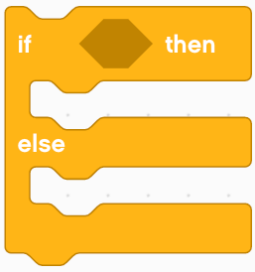
Tells the code to wait “1” second before carrying out the next sequential block of code.

Executes all code inside the gap in sequential order “10” times.

Infinitely repeats all code inside the gap in sequential order



If the specified condition placed inside the hexagonal gap is true, execute the code inside the white space. Otherwise move onto the next sequential block of code.



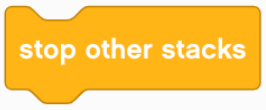
If the specified condition placed inside the hexagonal gap is true, execute the code inside the first white space. If the specified condition inside the hexagonal gap is false, execute the code inside the second white space. In either case, when the code inside a gap has finished executing, move onto the next sequential block of code.

The program will wait at this block until the condition in the hexagonal gap is true, at which point the program will move on to the next sequential block of code.

Executes all code inside the gap in a sequential order, repeating until the condition inside the hexagonal gap is true. At which point the program will move on to the next sequential block of code.

LEGO Spike Cheat Sheet

Control



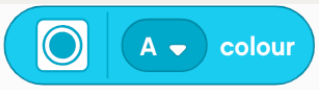
Stops all other stacks of code blocks that are currently running.

Stops “all” stacks of code blocks that are currently running.
Which stacks to stop can be changed between “all” or “this stack”.

LEGO Spike Cheat Sheet

Sensors

Checks if the colour sensor, connected to pin "A", detects the colour "red". If it does, the block returns True, if not it returns False.



A variable containing the current colour detected by the colour sensor connected to pin "A"

Checks if the colour sensor, connected to pin "A", detects reflection of light "less than <" "50%".
The inequality used to compare the reflection can be changed between "less than <", "equal to =" or "greater than >".

A variable containing the current amount of reflection detected by the colour sensor connected to pin "A"

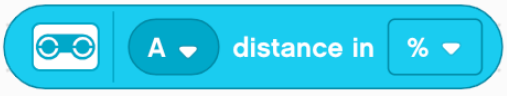
Checks if the force sensor, connected to pin "A", has been "pressed".
What the force sensor detects can be changed between "pressed", "hard pressed" or "released".

A variable containing the current pressure detected by the force sensor in "%" connected to pin "A".
The unit of measurement can changed between "%" or "Newtons"

Checks if the distance sensor, connected to pin "A", detects it is "closer" than "15" "%" of the maximum distance it can measure.
What the distance sensor detects can be changed between "closer than", "farther than" or "exactly at". The unit of measurement can be changed between "% of the maximum distance", "cm" or "inches".

LEGO Spike Cheat Sheet

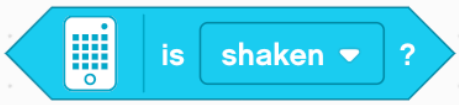
Sensors



A variable containing the current distance as a "%" of the maximum distance detected by the distance sensor.
The unit of measurement can change between "%", "cm" or "inches".

Checks whether the gyroscope inside the Spike hub detected the Spike hub has its "front" facing upwards.
What the gyroscope detects can be changed between "front", "back", "top", "bottom", "left side" or "right side".

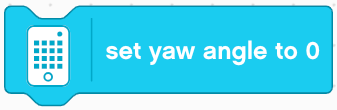
A variable containing the current orientation of the Spike hub detected by the gyroscope inside.



Checks whether the gyroscope inside the Spike hub detects the Spike hub is being "shaken".
What the gyroscope detects can be changed between "shaken", "tapped" or falling".

A variable containing the current gesture of the Spike hub detected by the gyroscope inside.

A variable containing the current "pitch" angle of the Spike hub detected by the gyroscope inside.
What angle that is contained in the variable can be changed between "pitch", "roll" or "yaw".



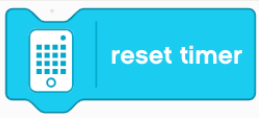
Sets the current yaw angle to 0.
Any yaw angle measured from this point onwards will consider the current orientation as having a yaw angle of 0.

Checks whether the "Left" button has been "pressed".
The button being checked can be changed between "Left" and "Right". What the button detects can be changed between "pressed" or "released".

LEGO Spike Cheat Sheet

Sensors

A variable containing the current value of the timer.



Sets the timer value back to 0.

LEGO Spike Cheat Sheet

Operators

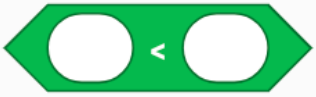
Picks a random number between “1” and “10”.

Adds the two inputs together.

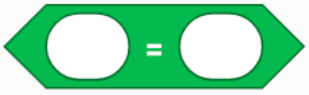
Subtracts the second input from the first.

Multiplies the two inputs together.

Divides the first input by the second.



Checks if the first input is strictly less than the second input, returning True or False.



Checks if the first input is equal to the second input, returning True or False.

Checks if the first input is strictly greater than the second input, returning True or False.

Computes the logical AND operation on the two inputs, returning True or False.

Computes the logical OR operation on the two inputs, returning True or False

Negates the output of a logical statement, changing an inputted True to False and inputted False to True.

LEGO Spike Cheat Sheet

Operators

Checks if "0" is between "-10" and "10", returning True or False.

Joins "apple" and "banana" together. In this case, the output would be "applebanana".

Returns the "first" letter of the word "apple". In this case, the output would be "a".

Returns the length of the inputted word "apple". In this case, the output would be 5.

Checks if the inputted word "apple" contains the inputted character "a", returning True or False.

Computes the first input modulo the second.
This is like division with remainder where the remainder is the outputted value. For example 25 mod 7 = 4

Rounds the inputted number to the nearest whole number.
For example round 10.4 would return 10.

Computes the "absolute value" of the inputted number.
The mathematical operation can be changed between "absolute value", "floor", "ceiling", "square root", "sin", "cos", "tan", "arcsin", "arccos", "arctan", "natural log ln", "log base 2", "exponential e^" or "x10^".