


Blocks

Blocks are puzzle-piece shapes that are used to create code in [Scratch](#). The blocks connect to each other vertically like a jigsaw puzzle, where each data type ([hat](#), [stack](#), [reporter](#), [boolean](#), or [cap](#)) has its own shape and a specially shaped slot for it to be inserted into, which prevents syntax errors. Series of connected blocks are called [scripts](#).

Blocks are often easier to work with than text-based programming, as one has to memorize the commands typed and syntax errors may occur. However, text-based programming is more flexible, as blocks cannot be easily edited.

There are ten categories of blocks: [Motion](#), [Looks](#), [Sound](#), [Event](#), [Control](#), [Sensing](#), [Operators](#), [Variables](#), [List](#), and [My Blocks](#). The list blocks are shown under the Variables Blocks.

In total, there are seven [Hat Blocks](#), five [C Blocks](#), thirty-one [Reporter Blocks](#), thirteen [Boolean Blocks](#), two [Cap Blocks](#) and fifty-nine [Stack Blocks](#).

 **Note:** Block numbers do not include extensions.

Block Shapes

There are six different block shapes: [Hat](#), [Stack](#), [Boolean](#), [Reporter](#), [C](#) and [Cap](#).

Hat blocks



The shape of a Hat block.

Main article: [Hat Block](#)

Hat blocks are the blocks that start every script. They are shaped with a rounded top and a bump at the bottom — this is so you can only place blocks below them. There are 11 Hat blocks in the Scratch editor, six of which are in the [Events](#) category, one in the [Control](#) category, and one in the category [My Blocks](#) (if one has created one custom block).

Stack blocks



The shape of a Stack block.

Main article: [Stack Block](#)

Stack blocks are the blocks that perform the main commands. They are shaped with a notch at the top and a bump on the bottom — this is so blocks can be placed above and below them. There are 77 Stack blocks — the most common block shape.

Boolean blocks



Main article: [Boolean Block](#)

Boolean blocks are the conditions — they are either true or false. For example, asking a computer: "Does $2 + 2 = 4$?", and it would either tell you "Yes" or "No". With a hexagonal shape, there are 13 of these blocks.

Reporter blocks



Main article: [Reporter Block](#)

Reporter blocks are the values. Reporter blocks can hold numbers and [strings](#). It is like asking a friend, for example, "What is $2 + 2$?", and they would answer "4". It can also report a [variable](#). For example, "What is your age?" and they may answer: "15". Shaped with rounded edges, there are 37 of these blocks — not counting the theoretically infinite amount of Reporter blocks that can be made for each variable and list.

C blocks



Main article: [C Block](#)

C blocks are blocks that take the shape of "C's". Also known as "Wrap blocks", these blocks loop the blocks within the Cs or **check if a condition is true**. There are five C blocks, and they can be found in the Control category. C blocks can be bumped at the bottom, or capped.

Cap blocks



Cap blocks are the blocks that end scripts. They are shaped with a notch at the top and a flat bottom — this is so you cannot place any blocks below them. There are two Cap blocks which can both be found in the Control category.

Motion blocks are the blocks that control a [Sprite's](#) movement. There are 17 Motion blocks in Scratch 3.0.

Looks blocks

Looks blocks are the blocks that control how a sprite looks. There are 23 Looks blocks in Scratch 3.0. Three of the 19 sprite Looks blocks have a counterpart for the Stage.

Sound blocks

Sound blocks are the blocks that control sound. There are 16 Sound blocks in Scratch 3.0. The note blocks in 3.0 have been moved to the [Music Extension](#).

Scratch 3.0 has the following Sound Reporter block:

- `volume` — The volume.

Events blocks

Events blocks are blocks that control events and the triggering of scripts. There are 8 Event blocks in Scratch 3.0.

- `broadcast` — Sends a broadcast throughout the Scratch program, activating `When I Receive ()` blocks that are set to that broadcast.
- `broadcastandwait` — Like the `Broadcast ()` block, but pauses the script until all scripts activated by the broadcast are completed.

Control blocks

Control blocks are the blocks that control scripts. There are 11 Control blocks in Scratch 3.0.

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Sensing blocks

Sensing blocks are the blocks that detect things. There are 21 Sensing blocks in Scratch 3.0.

Operators blocks

Operators blocks are the blocks that perform math functions and string handling. There are 18 Operators blocks in Scratch 3.0.

Scratch 3.0 has the following seven Operators Boolean blocks:

- `<` — The condition for checking if a value is less than the other.
- `=` — The condition for checking if two values are equal.
- `>` — The condition for checking if a value is greater than the other.
- `and` — True if both conditions are true.
- `or` — True if either condition is true.
- `not` — Makes the condition checked if it is false, not true, or true, not false.
- `contains?` Checks if the first parameter's text contains the second parameter's text — if it does, the block returns true.

Variables blocks

Variables blocks are the blocks that hold variables and lists. There are 5 Variables blocks and 11 list blocks in Scratch 3.0.

Scratch 3.0 has the following Variables Reporter block:

- `variable` — The variable's value.