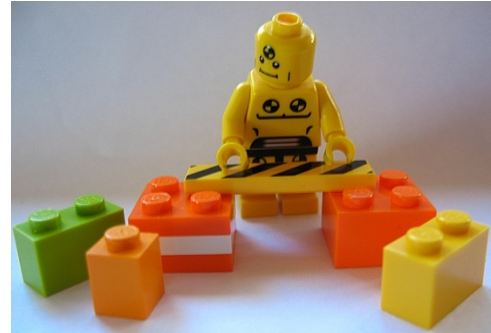


## Learn to speak LEGO! – BASIC TERMS<sup>i</sup>

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What are those “bumps” called on top of LEGO bricks? And how about the ones with no bumps? How do you refer to them?

It is a good idea to get familiar with some basic LEGO terms. This will help you to communicate easily with other Lego builders. It also becomes easier to locate pieces at online stores, or at least know what category they most likely belong to.



There are hundreds of different LEGO pieces; bricks, plates, tiles, doors, windows, fence pieces, wheels, slopes, arches, wedges, specialized pieces, etc. But let’s start with identifying the most basics; the bread-and-butter of LEGO.

**STUDS**: these are the little “bumps” on top of LEGO elements. These are what makes LEGO “stick” together.

**BASEPLATES**: are you building a LEGO house, or perhaps planning to create a whole town? How about a moon-base for your space-explorers? Baseplates are the foundation for the task!

These are thin plates, usually quite large, and you can build things on top of them. (They have no bottom connections.) They provide an excellent base – that’s why the name “baseplate” – for any medium to large size creation.

Some baseplates are very simple; with just studs to connect other pieces to. Other baseplates have outlines of roads, intersections, rivers, lakes, etc. And there are also very special baseplates with raised parts resembling rocks, hills, and other landscaping. These can make your creation more realistic.



**BRICKS**: the heart-and-soul of LEGO is the basic brick. They come in many different sizes and colors. You can attach other parts with studs on both the top and the bottom of a brick.

**SLOPES**: these are bricks with a side sliced off. They are down-slopes or up-slopes, depending on the direction in which the slope travels from the bottom of the brick. Some slopes have no studs on the top and often are used as the cap for a roof.

## Southern Maine Gearbots: Lego Terminology

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**PLATES:** these are thinner than bricks (but not as thin as baseplates). In fact, if you stack 3 plates on top of each other, you get the height of one brick. (This is useful to know while you are building.) They can also connect to other parts both on top and at the bottom, just like bricks.



**TILES:** these are thin, like plates, but they have no studs on top. They are excellent for floor-tiling, table-tops, and any other time when you want to create a smooth surface. They have connection points at the bottom, but not on top.

**DECORATED PARTS:** When bricks, plates, tiles or other parts have printed designs on them they are usually referred to as “printed” or “decorated” parts. These can add a nice finishing touch to your creation.

**VARIATIONS:** there are many variations of the different types of LEGO bricks, plates, and tiles. You can use your imagination to describe and communicate what you see and what you need to your friends.

**MEASUREMENTS:** LEGO-fans usually refer to parts not by inches or centimeters, but by the number of studs the part has. For example, a brick that has 2 studs on the short side and 4 studs on the longer side is called a 2x4 brick.



A plate with 4 studs on the short side and 8 studs on the long side is called a 4x8 plate. A baseplate that has 50 studs on all sides is called a 50x50 baseplate.

Even though tiles have no studs, they are still referred to by how many studs they would have. So a tile that is the same size as a 1x4 plate, will be referred to as a 1x4 tile.

**If you familiarize yourself with these basic terms you will see that all other names for the more specialized parts are based on these.**

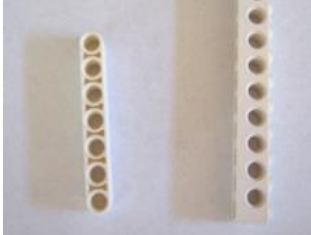
For example, if you find a part that has the height of a brick, and has 4 studs on top, but it is round, it would be called a 2x2 round brick.

If you run across a piece that has the height of a plate, and has 1 stud, but there is a little clip sticking out at the side, it would be called a 1x1 plate with clip.

See, it is easy! 😊

### LEGO TECHNIC Parts<sup>ii</sup>

The major parts in LEGO TECHNIC are listed below:

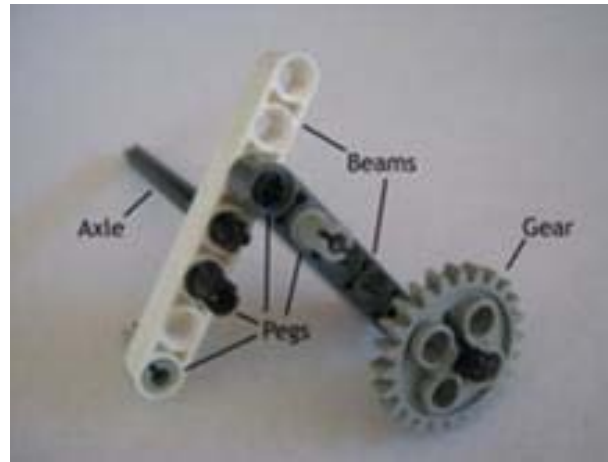
- **Beams** - Beams are long blocks with rows of round holes. All beams are one stud wide, but can have varying lengths. They constitute the basic structure of the TECHNIC system. Before 2000, TECHNIC beams had studs like ordinary bricks; while modern beams have rounded edges and no studs (officially known as 'studless construction' .) TECHNIC beams with studs are still made today.
- 
- **Pins** - Pins are small cylindrical pieces that latch into holes in beams. The two most common types of pins are called **connector pins**, which join two beams together. Black or blue pins are friction pins and hold the two beams together stiffly, while grey or tan pins are joint or hinge pins and form loose hinges. Pins are also found in System sets.
  - **Axles** - Axles, sometimes known as **cross axles**, are cross-shaped rods. They are most often used in rotating parts. When inserted into beam holes, they can turn freely. Like beams, axles are measured in stud lengths; axles with even lengths are colored black, and axles with odd lengths are colored grey. There are some specialty axles that are colored differently, such as red or tan.
  - **Gears/Wheels** - Gears are flat cylinders with holes in the center; most have teeth around the edges. Wheels are flat cylinders with holes in the center; they will have a groove to fit a tire or rubber band. A large majority of gears/wheels can fit snugly onto axles or pins. When used with rubber bands or strings, some wheels can form pulleys. Most of the modern gears are one stud wide and have peg holes in them.
  - **Bricks/Plates** - Basic elements with studs on the top. They differ in size, color, and shape, and may make up the bulk of a model.
  - **Motor** - A LEGO element that can be used to drive pieces like wheels and gears. Appear in WeDo, TECHNIC , and Mindstorms LEGO sets.
  - **Sensors** - LEGO Mindstorms/WeDo elements used to detect sound, objects, light, touch, tilt etc. A program can be created using special software that can take the information from the sensors and cause things to happen with motors, or other special LEGO elements in the WeDo or Mindstorms sets.






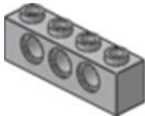










# Southern Maine Gearbots: Lego Terminology

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## LEGO TECHNIC Components

The four basic TECHNIC components.




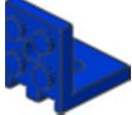
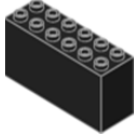



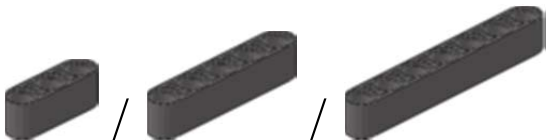



<b>Other Common LEGO TECHNIC Components</b>	
This is a small sample of a huge number of parts in the LEGO world.	
Brick 1 x 2 with Axle Hole (Green / Dk Grey)	 / 
TECHNIC Brick 1 x 2 with Hole (Red / Grey)	 / 
TECHNIC Brick 1 x 4 with Holes (Red / Grey)	 / 
Pin (Joint or Hinge) / 1/2 Pin / 3/4 Pin	 /  / 
Pin (Friction and Slots)	
Pin, Long (Friction and Slots)	
Pin, Long with Stop Bushing	
Pin, Axle (Joint/Hinge-Beige / Friction-Blue)	 / 
Axle 2 with Grooves (Black / Red)	 / 

## Southern Maine Gearbots: Lego Terminology

<b>Other Common LEGO TECHNIC Components</b>	
Axles (3 / 4 / 5) Odd length axles are grey. Even length axles are black. Specialty axles are other colors. Some may be flexible as well.	
Axle 3 with Stud and 5.5 with Stop (Grey)	
Bushing / 1/2 Bushing / 1/2 Bushing (Yellow)	
Gears, Toothed (8 / 16 / 24) Count the teeth one quarter of the way around and multiply by four!	
Gear 24 Tooth Crown Type III (x pattern)	
Wedge Belt Wheel / Wedge Belt Wheel Tire The wheel also works as a pulley!	
Pulley Large / Rubber Belt Extra Large (Yellow) / Rubber Belt Medium (Red)	
Connector with Axle Hole	
Universal Joint	
Angle Connectors (2 / 3 / 5 / 6)	
Axle Joiners (Offset / Perpendicular / Perpendicular 3L / Double)	
Axle Joiner Perpendicular 3L with 4 Pins	
Gear Rack 1 x 4	

## Southern Maine Gearbots: Lego Terminology

Other Common LEGO TECHNIC Components	
Gearbox 2 x 4 x 3 & 1/3	
Worm Screw (works in Gearbox)	
Reel 2.5 x 2	
Bracket 2 x 2 - 2 x 2	
Brick 2 x 6 x 2 Weight with Plate Bottom	
Beam, Liftarm Bent 90 (2 x 4 / 3 x 5)	
Beam 3 x 3.8 x 7 Liftarm Bent 45 Double	
Beam 3 x 5 x 0.5 Liftarm Bent 90 Quarter Ellipse	
Beam (3 / 5 / 7) - counted by number of holes, same length as brick with studs	
Brick Separator	

<sup>i</sup> From: <http://thebrickblogger.com/2010/11/lego-disctionary-basic-term/>

<sup>ii</sup> From: <http://www.brickowl.com/catalog/lego-parts/technic>