From posts on
the blog
Tips&Bricks

THE UNOFFICAL GUIDE TO BASIC BUILDING TECHNIQUES

Created by Alex Johnson

BUILDER'S HANDBOOK

Table of Contents

Created by Alex Johnson

Images rendered in Stud.io

Information from the posts on the Facebook page Tips&Bricks

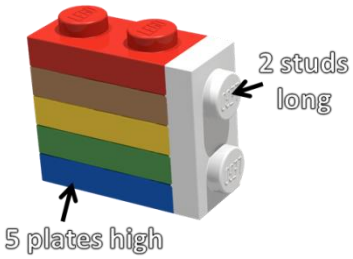
All builders credited for their technique, if they could be found

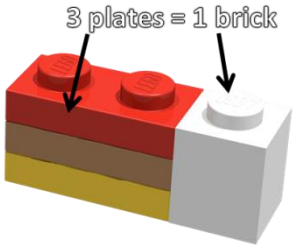
TECHNIQUES

SNOT

What is SNOT?

SNOT stands for 'Studs Not On Top', and is the basis for a lot techniques used in MOCs.
Studs Not On Top just means the brick's studs are not facing upwards, but are angled to the side or any other direction apart from upwards.



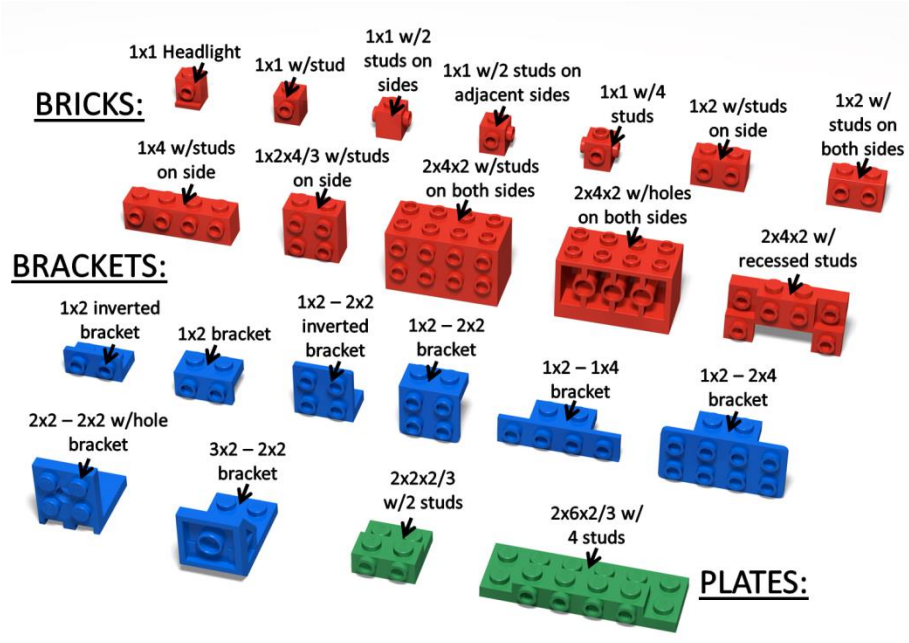


There is a ratio we can use that relates the height of a brick to the length of a brick. But first you should know that a plate is 1/3 the height of a brick.

The ratio is – 5:2, with 5 plates in height in ratio to 2 studs long
This ratio is important in SNOT as it allows you to build sideways and have no gaps in between the parts.

How can you position parts sideways and at different angles?

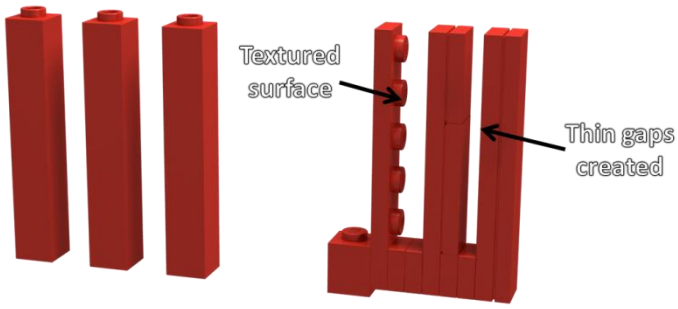
This can be done using certain pieces that have studs on the side. Here are the most common parts that are used:



Why would I use SNOT instead of normal building?

SNOT may be more complicated but the benefits are huge when it comes to professional LEGO building:

1. ***Detail -*** allows you to include more detail.

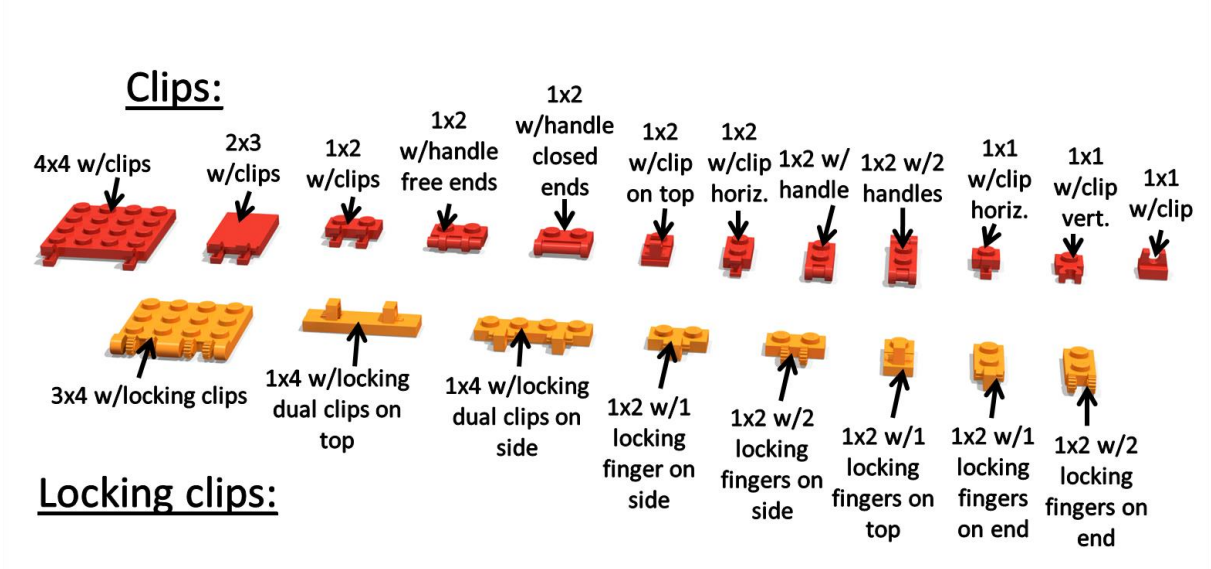


2. ***Creating unique angles and shapes -*** that can't be made with regular bricks.

3. ***Endless possibilities… -*** they really are endless when you can position the bricks in any directions you choose – no limits of conventional building!

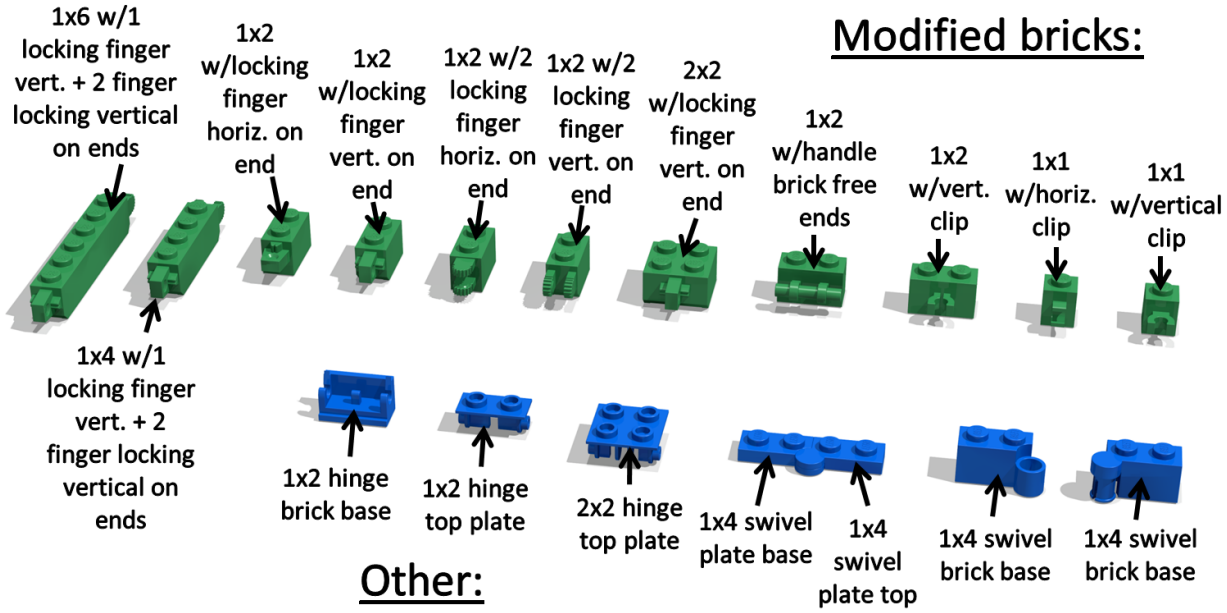
Hinges

Hinges are another way to position parts in different directions and angles. They allow you to freely move parts around a pivot in one direction, giving you the freedom to position pieces at angles that you want for your MOC.



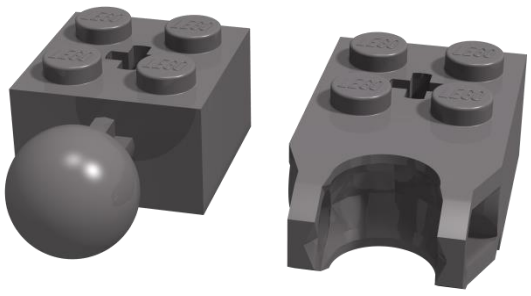
Locking clips can lock in place and therefore give a stronger connection

Above and below are the most common hinge parts, along with their technical names. Each has a different use, and will be used in a different situation – it is mostly trial and error to see which will work in your MOC.



Hinges provide a strong connection as multiple hinges can be used to hold the parts up, as only one direction is being angled.

Ball joints

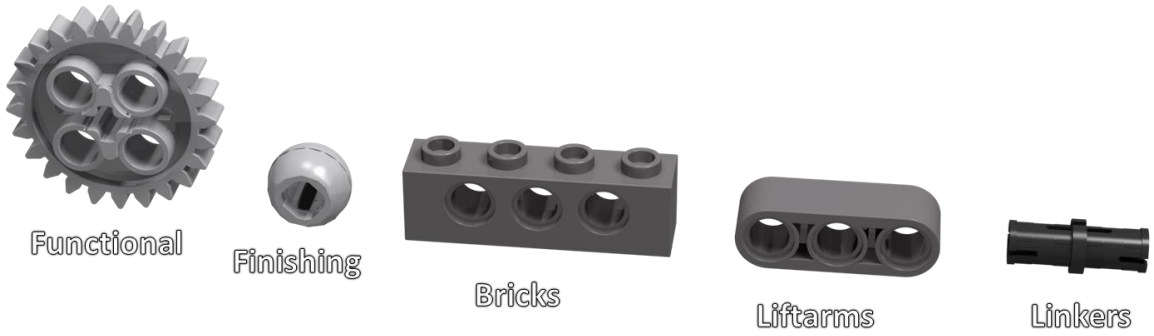


Ball joints, although similar to hinges, allow you to position bricks in any direction, not just one. This is because the ball that attaches to the socket is able to pivot in any direction. This makes ball joints useful for angles that are difficult to achieve with hinges as their movement is restricted where ball joints aren't.

Hinges are more common, as when using ball joints, generally only one is used so that it has free movement; two would restrict the movement in the way hinges are restricted to one direction. However, because only one ball joints is often used, this makes it unsuitable for lots of parts that need to be angled, as it is not strong enough to hold them up.

Technic bricks

Technic is a theme in LEGO that uses a different type of connection to regular bricks. Technic uses pegs and axles to connect the various parts together. These parts come in bricks, liftarms/beams, linkers (pegs and axles), functional and finishing:



Here are the main uses of Technic in MOCs:

1. ***Movement –*** through manual of gear or electrical power of motors

2. ***Structure –*** to strengthen the structure of the build using connecting Technic bricks, pegs and liftarms. This is often done by using liftarms to attach vertically to bricks, as this makes a strong force that provides lots of support.

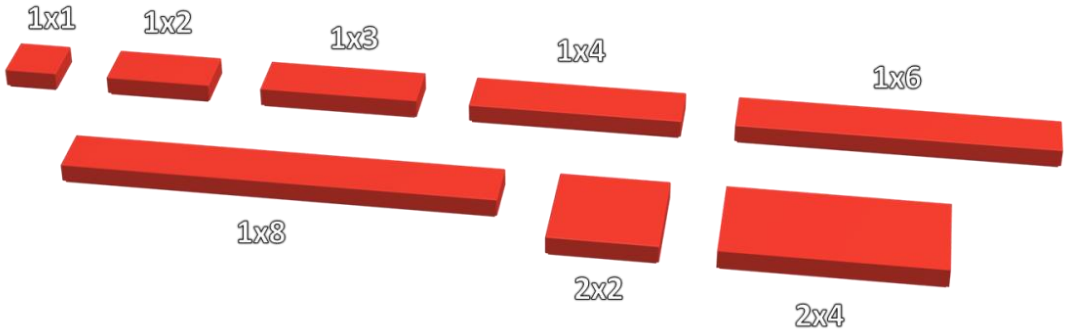
3. ***Starting –*** makes functions and structure easy to include when building

4. ***Attaching –*** to attach plates or other parts sideways using the holes in technic bricks, serving as SNOT bricks as well as having other roles at the same time.

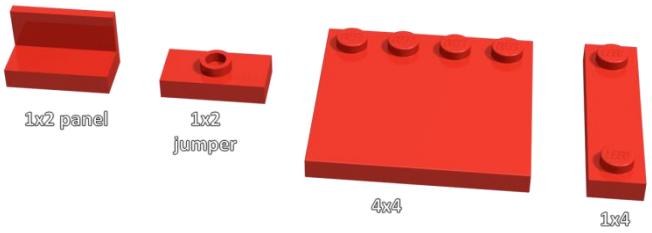
Tiling

Tiling is a technique used to create smooth surfaces by using plates that have no studs on them; tiles. This can make your MOC look like it's not made out of LEGO in a way, as hardly any studs are shown. It can also give a nice contrast to builds that use lots of studs.

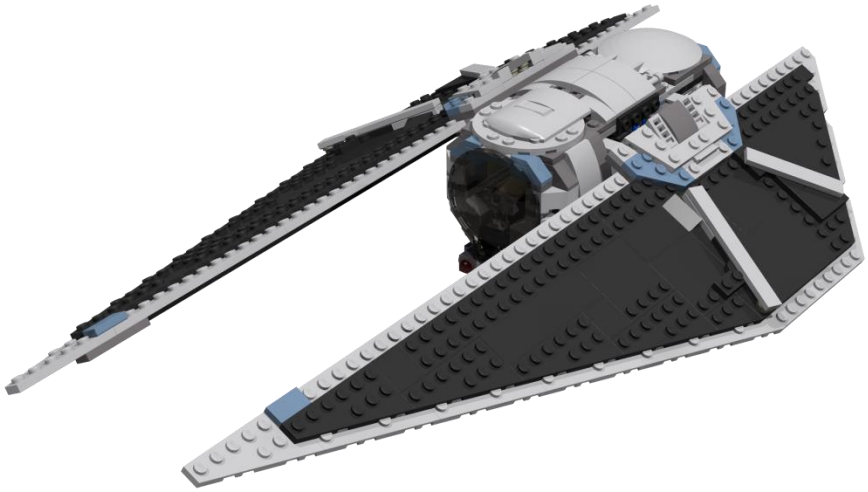
Tiles:



Some parts such as slopes have smooth surfaces already and therefore give you the tiled effect. However, plates and bricks have to be covered with tiles to give a smooth surface; so above are some you can use:

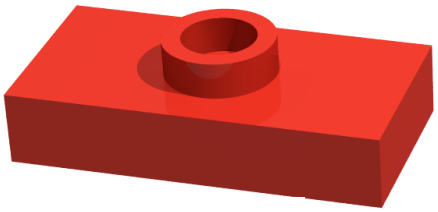


This technique has been used in many official sets such as the TIE Striker:



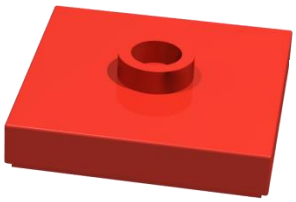
Offsetting

This technique involves a certain piece – the 1x2 “jumper” plate. It is called a jumper plate because it only has 1 stud on while regular 1x2 plate have 2 studs on. This stud is placed in the centre of the 1x2, which places it at an offset compared to regular bricks. This “jump” is ½ a stud out from regular studs, and therefore parts attached to the jumper piece are offset by ½ a stud.

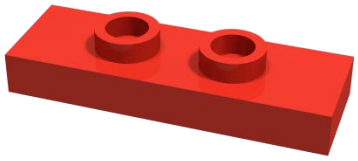


1x2 “jumper” plate

There have been two other versions of this piece produced; the 2x2 jumper plate and 1x3 double jumper:



2x2 “jumper” plate



1x3 “double jumper” plate

Offsetting is used for three main reasons:

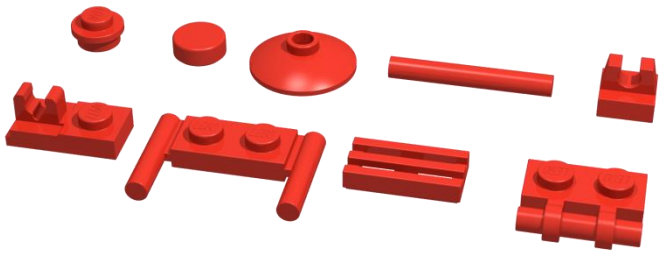
1. ***Techniques -*** when ½ a stud in needed for connections or other techniques.

2. ***Creating gaps and shapes –*** as pieces are offset by ½ a stud, this allows different sizes and shapes to be achieved, such as gaps between bricks of ½ a stud.

3. ***Placing at random –*** enables brick built objects such as supply created to be angled on the offset.

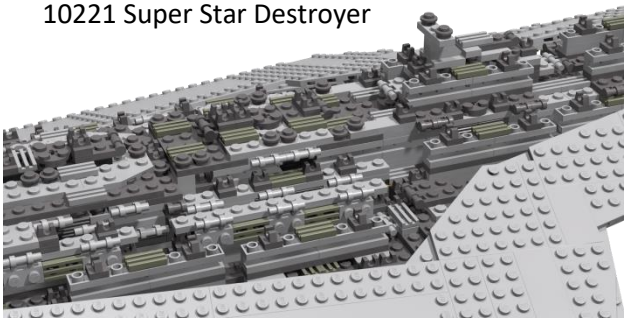
Greebling

This technique involves using small parts often referred to as “greebles” or groupings of mechanical-looking elements that provide detail.



They are used to give detail and show the scale of MOCs, such as the official set 10221 Super Star Destroyer, where small parts are meant to look like the various floors, towers and turrets. It can be used to fill up any space that is boring, or needs something to help it stand out or blend into your MOC.

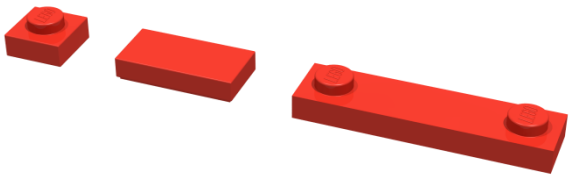
10221 Super Star Destroyer



There is no order or set way to place piece for greebling. A tip that you can use is to make the pieces flow into each other (interact or connect); this will make the greebles look less like they are just random parts.

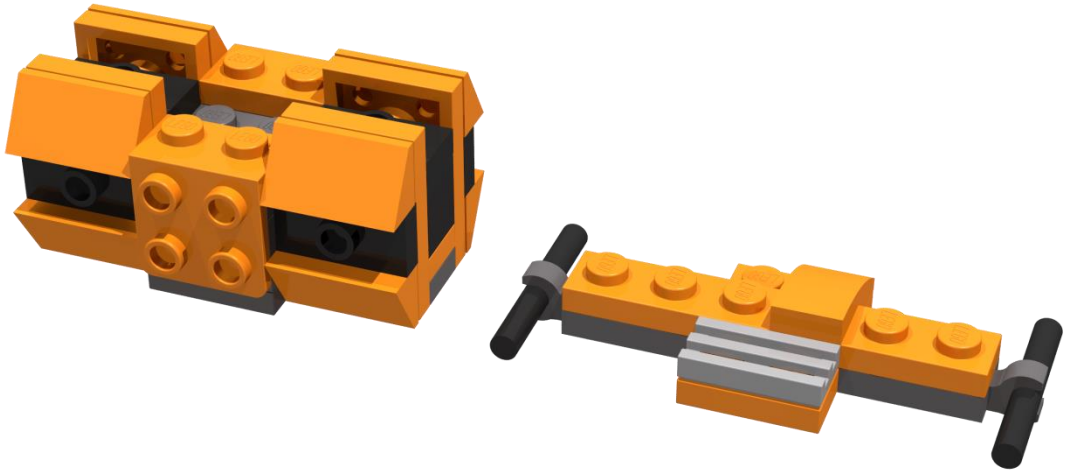
Detachable parts

Detachable parts are bricks built together that can be removed, normally to access the inside of something. They can be removed easily because of the weak connection of only a few studs, which allows it to remain fairly secure, but also be removed.



This technique is used for roofs of interiors or other parts of the MOC that need to be lifted off without tearing up the whole thing to access the inside.

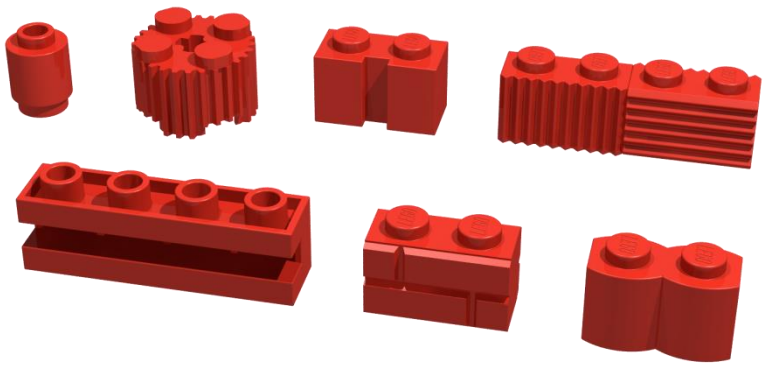
For example, the orange crate pictured has a detachable lid so you can store items in there.



Textures

Instead of just using regular bricks, textured parts have a rough surface that can be used to contrast with smooth surfaces and provide details. Here are some parts that are textured:

These can be used on their own, but I think they look best when mixed with regular bricks as it is perfect for making walls or damaged ships. They also look great when integrated into any build, to provide contrast and texture that make it more visually interesting.

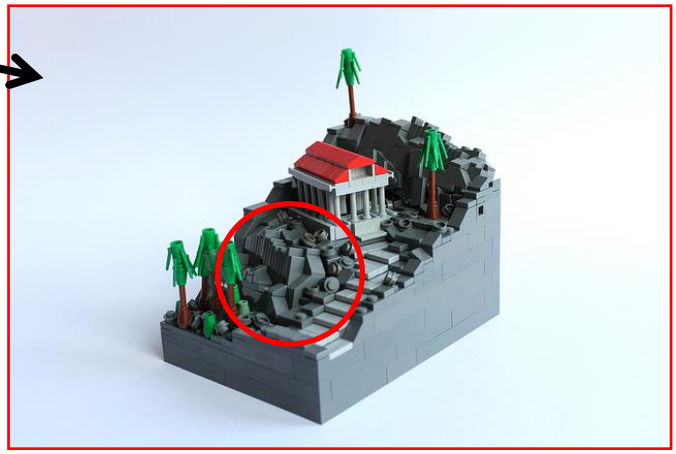


Textures can also be made using different colours and sizes of bricks.

Brick scattering

Brick scattering or random placement of pieces is used in MOCs to create different textures and shapes in environments were the surroundings are random and natural. Any pieces can be used but they are usually quite small so that big shapes or not created which can disrupt the randomness. The pieces that are scattered have no connection to the base of the MOC, which allows them to be positioned in any way.

For example, this picture shows the pieces have been scattered on the ground to create a hillside that has a rocky and uneven texture. This looks very effective because unique and random angles are made which make the rock face look natural. Also, the pieces are all the same colour, which helps them blend in so you don't notice that they are scattered.



This picture shows a body of water, and the scattered studs accurately depict the raging water. This also saves time for the builder, as otherwise all those studs would have to be connected. This way, they can just be tipped in.

Transparent parts

Differing to regular bricks, transparent parts let light through and therefore look quite different. This difference is utilized for various uses:

1. ***Lights -*** or glowing sections such as ship's engine

2. ***Windows -*** some transparent bricks have no tubes without the brick and are totally clear.

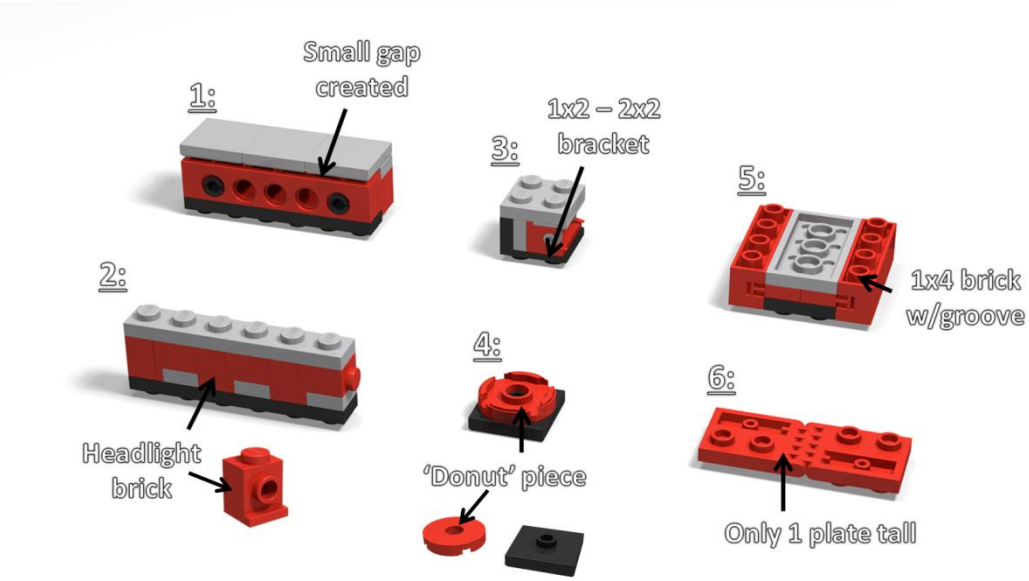
3. ***Supports -*** clear transparent parts are harder to see and therefore you can create the illusion that your MOC is floating.

4. ***Weapons -*** to show a bullet or blaster bolt being fired, or a weapon such as the Death Star charging up

Clear transparent parts:

Building upside down

There are many ways to build sideways with LEGO and it is fairly easy to do with the range of SNOT (Studs Not On Top) pieces on offer. Building upside down uses similar techniques, but there are many more possibilities, and different techniques work better for different situations. Here are 6 techniques that are relatively simple to use:



1. Technic - very strong but creates small gap

2. Headlight - reliable but uses lots of bricks

3. Hinge brick - strong and good for columns

4. Donut - small and compact, perfect for interiors

5. Rail - strong but needs 4 stud width to use

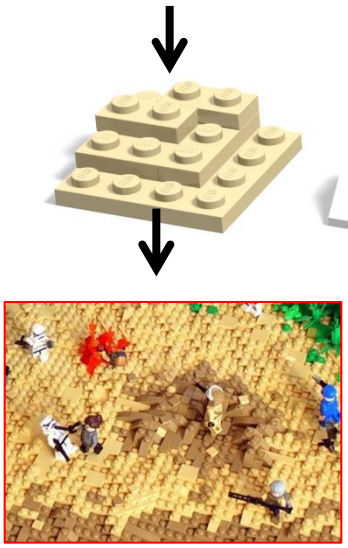
6. Finger joint - simple and easy, unlike the other hinges only 1 plate difference between layers

Simple landscaping

You can create different landscapes such as a desert, a snowy biome, a rocky mountain or a flat surface with a range of different techniques. Here are some simple ones you can use:

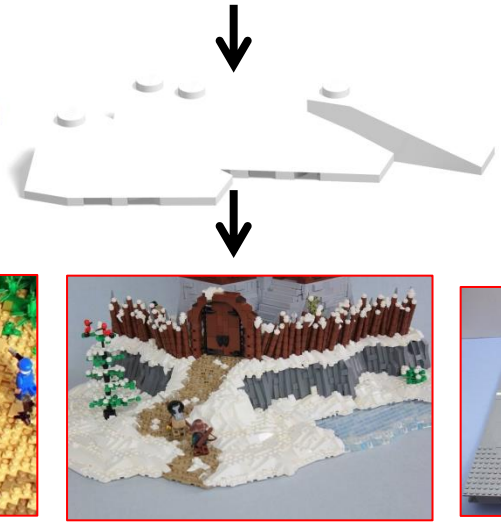
Layering for sand: using plates and tiles to create gentle inclines.

Tips – try to use different sized pieces and shapes



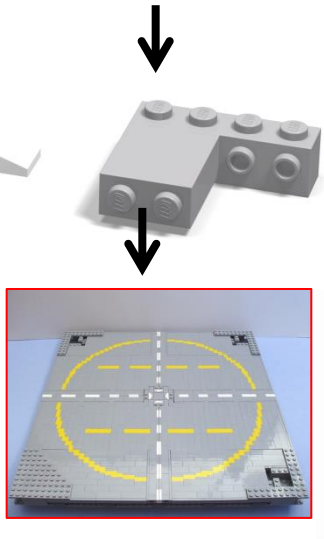
Flat/curved slopes for snow: using different sized slopes

Tips: use the same colour pieces so they blend together and look natural



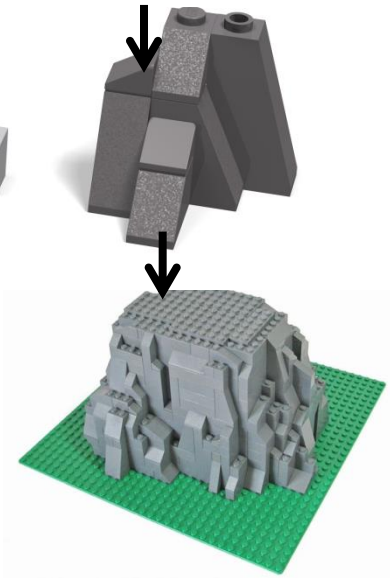
SNOT for flat surfaces: use SNOT bricks to position bricks sideways, only showing their smooth side, and therefore no need for tiles

Tips: Incorporate plates to create patterns/markings in the surface



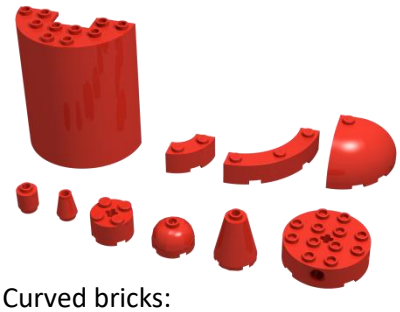
Steep slopes for rock: using different sized slopes to create the ragged and natural texture of rock.

Tips: use different sized slopes and rotate them to create different angles



Creating curves

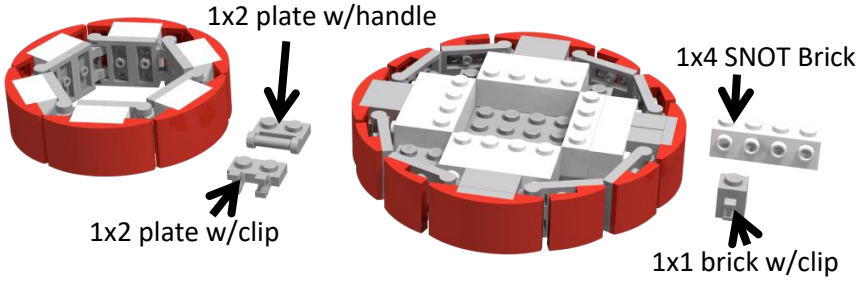
Circles or curves can be tricky to create with LEGO as there are few parts that will be the size you want to achieve. However, here are all the circular parts that are very common (this does not include all but the most useful or commonly used ones):



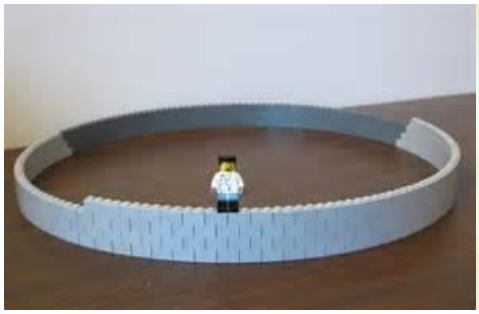
Curved bricks:

Curved plates/tiles:

As said above, these parts will not do for all of your MOC requirements. In the case you need different sized curves or circles; you can employ hinges and other SNOT techniques. At a basic level, here are some techniques that you could use:



Another technique you can use to create curves and circle is called “brick bending”. Despite its name, you aren’t actually bending the brick, just rotating them on each other. There is a small space of allowance that the bricks can move, and this is used to create hinge curves. The downside to this is that the curves created are quite big.



Creates wide, huge circles

Can also make other curves

1x1 cylinder bricks

However, if you want to build smaller curves using this technique, you can use 1x1 cylinder bricks (pictures above). When combined with regular bricks, this allows them to rotate or “bend” much more than before, and there the angles can be smaller and the curves or circles are smaller.

THANKS FOR READING

If you enjoyed this document, please let me know via my Facebook page, Tips&Bricks, or by contacting

contact.tipsandbricks@gmail.com

LINKS:

Tips&Bricks - https://www.facebook.com/tipsandbricks/
A Facebook page that posts daily tips, tricks, techniques, MOC features and set analyses

LEGO Digital Design - http://ldd.us.lego.com/en-us/download
A design software to create your MOCs, directly linked to the LEGO Group

Bricklink - https://www.bricklink.com/v2/main.page
A website where you can buy bricks for your MOCs from online stores

Stud.io - https://studio.bricklink.com/v2/build/studio.page
An alternative design software, directly linked to Bricklink

Brickset - https://brickset.com/
A website that has a database of all the LEGO sets ever made and various news articles

LEGO Gallery - http://ldd.us.lego.com/en-us/gallery
I website where you can access, upload and download MOCs and official LEGO sets

LEGO Tricks – https://www.pinterest.co.uk/keithblack7547/lego-tricks/
https://www.pinterest.co.uk/johnathonv/lego-techniques/
Pinterest boards that collect LEGO techniques from various builders

Swooshable - http://swooshable.com/
A website for LEGO articles on tips and techniques, especially SNOT techniques

Brickly - https://www.facebook.com/bricklyHQ/
An app that allows users to feature their MOCs to its growing community

LEGO MOCs – Community Builders - https://www.facebook.com/groups/1591646100896260/
A Facebook group dedicated to MOCs, tips and techniques as well Builder's Handbooks

LEGO STAR WARS MOCs (DIEHARD FANS) - https://www.facebook.com/groups/301165213630238/
A Facebook group for sharing your own creations with a friendly community

LEGO Glossary - https://www.brothers-brick.com/lego-glossary/#S@H
A glossary made by the website Brother Brick that covers all the jargon used by LEGO builders

MOC pages - http://www.moc-pages.com/
A website with a library of 400,000 MOCs strong that is guaranteed to fuel your creativity

Brickowl - https://www.brickowl.com/
A simpler and alternative marketplace to buy and sell LEGO

MOC Recipes - http://mocrecipes.com/
A website with many LEGO techniques and detailed articles

Stack Exchange Bricks - https://bricks.stackexchange.com/
A website where you can post questions about the brick and get answers from experienced builders and collectors