Machines:

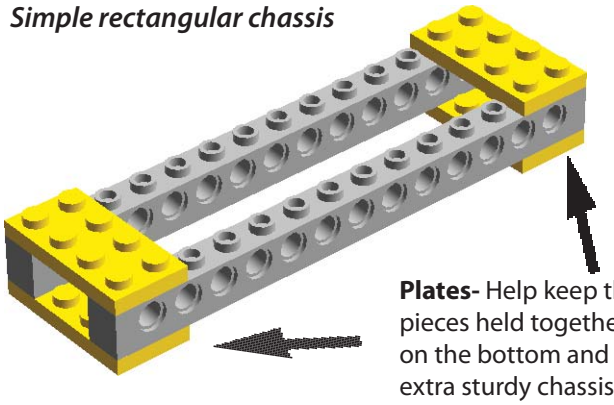
Devices that transmit energy to help us do things. They are made up of many different parts, such as gears and levers, and they have different functions that help us complete an overall task. The energy we will be using will be your own energy or that of an electric motor.

***Example**: A car is a machine that helps us get from one place to another. However, there are many different parts in a car and each serve a different function. The motor makes it run, the brakes make it stop, the air conditioner keeps us cool in the heat. Can you think of other parts in the car that have different functions?*

Parts of a machine

CHASSIS- This is the most important part of any machine! The chassis keeps everything together like the skeleton in your body. If the chassis is weak, then everything will break and not stay together. So it needs to be strong and sturdy! The chassis comes in many different sizes and shapes, however the one we will be building in class will be rectangular.

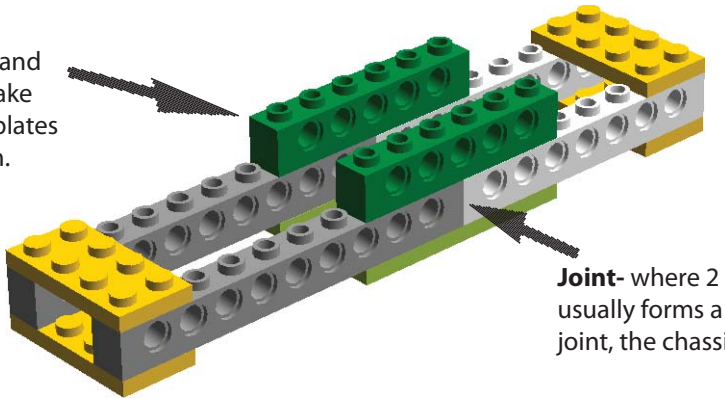
Simple rectangular chassis



Plates- Help keep the long pieces held together. Use plates on the bottom and top for an extra sturdy chassis.

Extended rectangular chassis

If you are engineering a long chassis and connecting more pieces together, make sure you add support pieces and/or plates over the joints to the top and bottom.



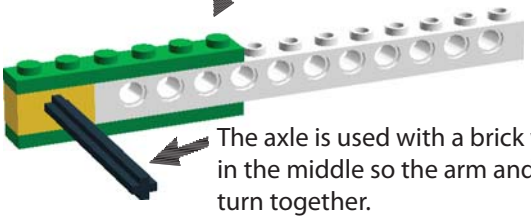
Joint- where 2 or more pieces meet. It usually forms a line. If you don't support the joint, the chassis will be weak and break.

After you have a strong chassis, you can now add more parts to your machine. Lets add some levers!

LEVER-

A lever is simply an arm that rotates and moves and it can help us do things. A teeter-totter in the playground is a lever. A lever can be engineered different ways. Here is one simple design that you can use for your project. For the lever design below, make sure that the axle will move along with the arm.

The lever arm also has to be strong like the chassis, so we use plates at the joints.



The axle is used with a brick with a "cross" in the middle so the arm and axle will turn together.

Can you design a simple machine to lift up a weight?