**Simple Machines Notes**

**The 6 Simple Machines:**

1.

2.

3.

4.

5.

6.

**Definitions:**

**Energy:**

 Work= ­­­­­\_\_\_\_\_\_\_\_\_\_ **x** \_\_\_\_\_\_\_\_\_\_\_\_

**Force:**

The Egyptians used ­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to build the pyramids.

**Inclined Planes**

* An inclined plane is a flat surface that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ on one end
* Inclined planes make the work of moving things \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Work input and output**

* Work input is the amount of work done \_\_\_\_\_ a machine.
* Input force **x** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Work output is the amount of work done \_\_\_\_\_ a machine.
* Output force **x** ­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Inclined Plane - Mechanical Advantage**

* The mechanical advantage of an inclined plane is equal to the \_\_\_\_\_\_\_\_\_\_\_ of the slope divided by the \_\_\_\_\_\_\_\_\_\_\_\_ of the inclined plane.
* While the inclined plane produces a mechanical advantage, it does so by increasing the ­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through which the force must \_\_\_\_\_\_\_\_\_\_\_\_\_.

**Wedges**

* Two inclined planes joined back to back.
* Wedges are used to ­­­­­­­\_\_\_\_\_\_\_\_\_\_\_ things.

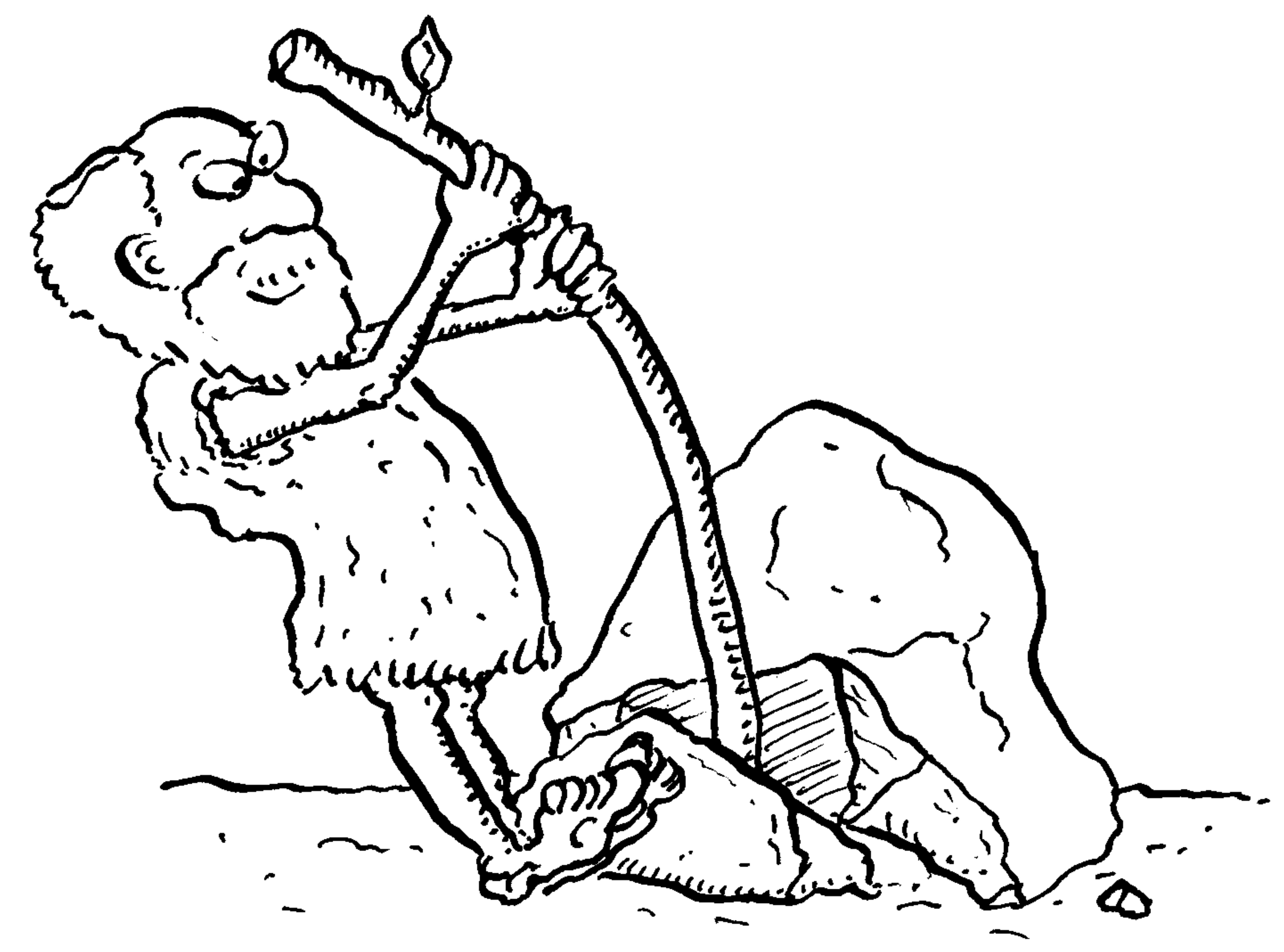
**Wedge – Mechanical Advantage**

* The mechanical advantage of a wedge can be found by dividing the \_\_\_\_\_\_\_\_\_ of either slope (S) by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (T) of the big end.

**First Class Lever**

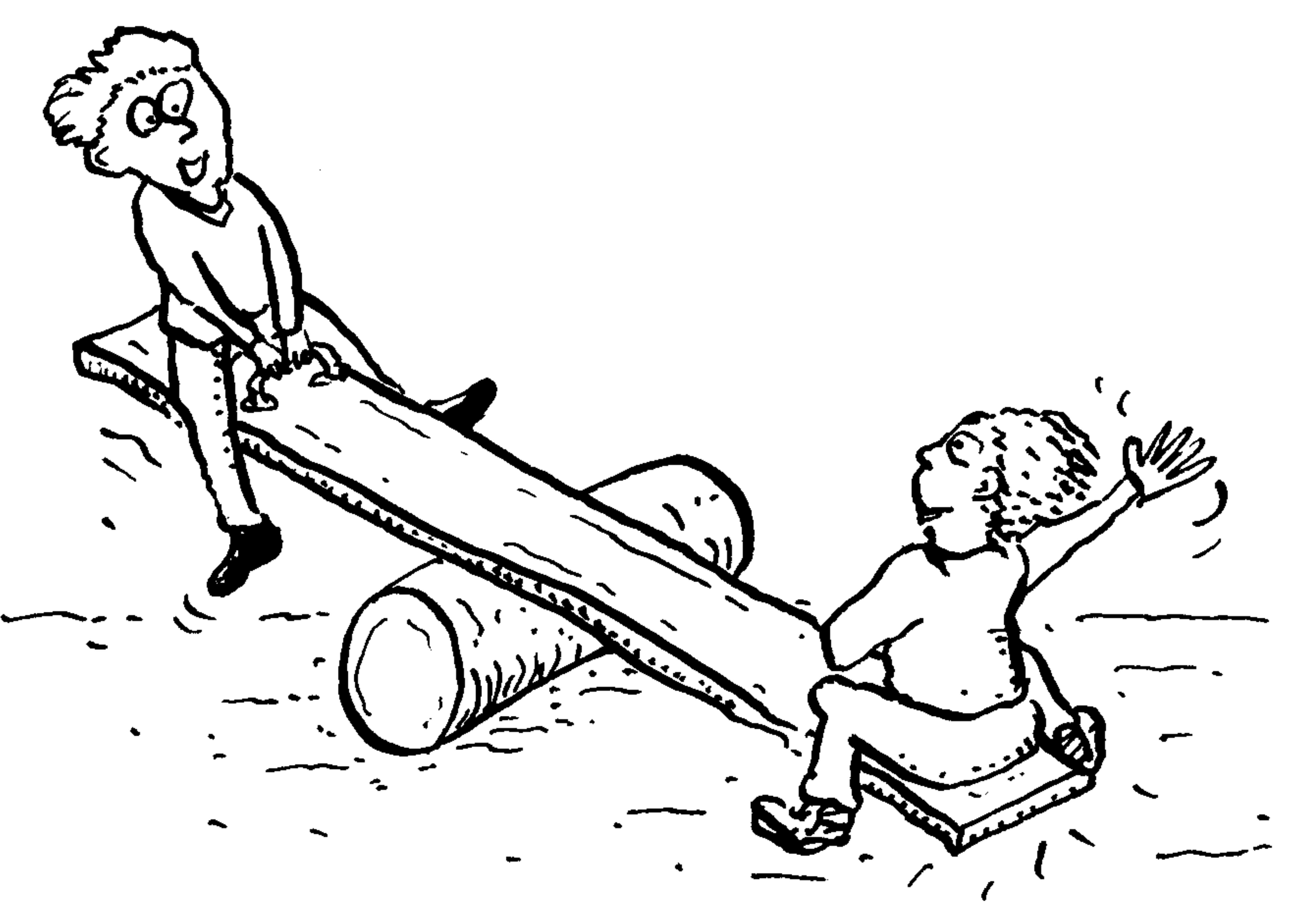
* Fulcrum is between EF (\_\_\_\_\_\_\_\_\_\_\_\_\_\_) and RF (\_\_\_\_\_\_\_\_\_\_\_)
* Effort moves farther than Resistance.

**Draw and Label:**

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**Examples:**

**Second Class Lever**

* RF (\_\_\_\_\_\_\_\_\_\_\_\_\_) is between fulcrum and EF
* Effort moves farther than Resistance.

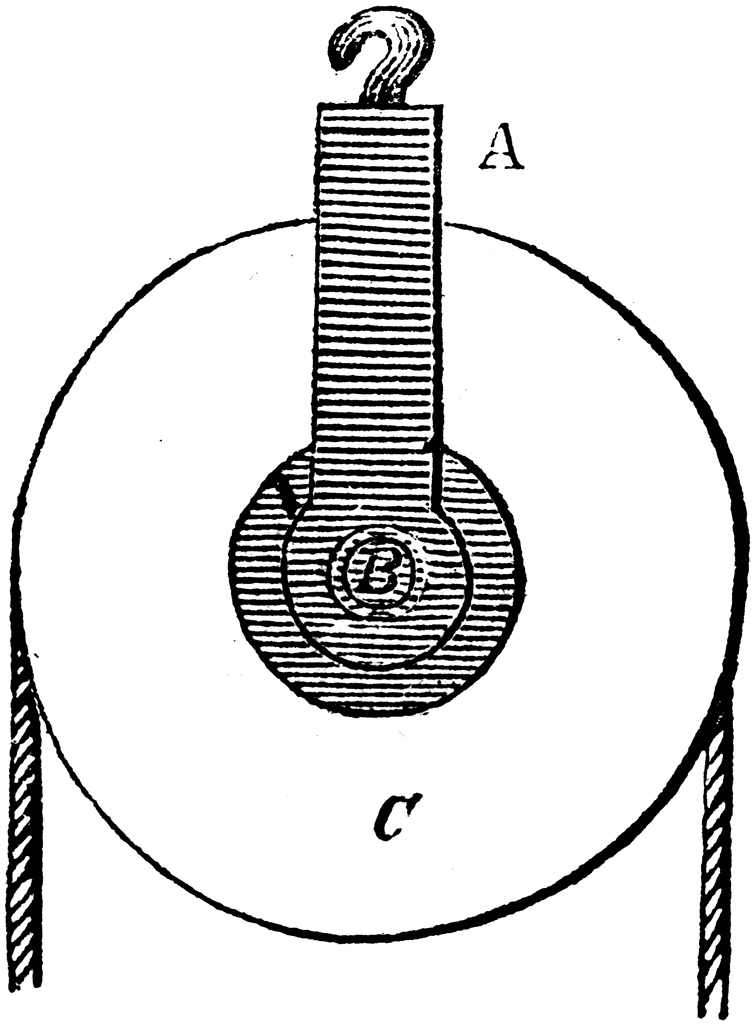
**Draw and Label:**

**Examples:**

**Third Class Lever**

* EF is between fulcrum and RF (\_\_\_\_\_\_\_\_\_\_\_\_)
* Does not multiply force Resistance moves farther than Effort.

**Draw and Label:**

**Examples:**

**Pulleys**

* Pulley are \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_ with a groove around the outside
* A pulley needs a rope, chain or belt around the \_\_\_\_\_\_\_\_\_\_\_\_\_ to make it do work

Fixed pulley

A fixed pulley changes the \_\_\_\_\_\_\_\_\_\_\_\_\_ of a force; however, it does not create a **mechanical advantage.**

**Draw:**

Movable Pulley

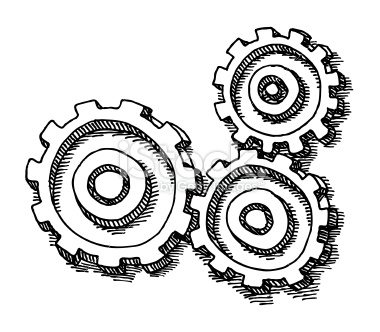
The **mechanical advantage** of a moveable pulley is equal to the \_\_\_\_\_\_\_\_\_\_\_\_\_ of ropes that support the moveable pulley.

**Draw:**

Combined pulley

The effort needed to lift the load is less than \_\_\_\_\_\_\_\_\_\_ the weight of the load .

**Draw:**

**Wheel and Axel**

The \_\_\_\_\_\_\_\_\_\_ is stuck rigidly to a large \_\_\_\_\_\_\_\_\_\_\_\_. Fan blades are attached to the wheel. When the axel turns, the fan blades spin.

**GEARS-** **Wheel and Axel**

Each gear in a series \_\_\_\_\_\_\_\_\_\_\_\_\_ the direction of rotation of the previous gear. The \_ \_\_\_\_\_\_\_\_\_\_\_\_\_ gear will always turn faster than the \_\_\_\_\_\_\_\_\_\_\_\_ gear.

**Rube Goldberg Machines**

Rube Goldberg machines are usually a complicated \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of simple machines.