Simple Machines Worksheet

**Worksheet on Simple Machines:**

**Name:...............,,,,.,,.,,,,,,,,,,,,,,,,,,,,,,,**

For each station, draw an arrow in red to show the direction you pushed or pulled. Draw this arrow at the point on your diagram where you applied the force.

Draw an arrow in blue to show the direction the object moved.

If you have time for multiple attempts, what happens if you rearrange the apparatus in an attempt to make your force less?

**Pulley:**

**Material:** 4l milk jug half filled with water. Smooth rope, broom handle, tape. Spring scale

Use the tape to attach the broom handle between two desks. Thread the rope through the handle of the milk jug and hang it over the broom handle. Attach the other end of the rope to the spring scale

The purpose of this station is to lift the milk bottle using the rod and the rope. How can you arrange this to make it as easy as possible to lift the milk jug?

**Lever.**

**Materials**: Long board to act as the lever. Paint bottle to act as the fulcrum. Pile of books.

Set the lever up with the fulcrum in the middle.

Can you use just one book to lift the 6 books on the other end of the metre ruler? Draw a picture of how you did this. Draw arrows that show the direction of the force of the books and the direction of movement of the books

**Inclined plane.**

**Materials**: Wooden plank (or I used a smaller whiteboard), a pile of books a weight and a spring scale.

Find the least force required to lift the weight to the top of the pile of books. Draw diagrams to show what you did including the force used each time.

**Axle and wheels.**

**Materials**: a child’s toy truck, a heavy weight and a spring scale.

Find the force required to pull the weight along the ground and to pull the weight when it is in the truck. Which is better? Look for the force needed to keep the weight moving, rather than the force needed to get it started moving.

**Wedge.**

Materials: three different wedges - one square shaped, one with about 60o at the pointed edge and one with about 30o at the pointed edge. 3 long containers, one mostly filled with water, one with sand and one with macaroni. A spring scale

Question: Which wedge moves most easily through the different containers?

**Screw.**

**Materials**: a nail, a screw and a bar of soap.

Try to push a nail into the bar of soap. Now try to turn the screw into the soap