



size will balance on the see-saw if they are the same distance from the pivot point. However, if one child is larger than the other, the larger child must be from the pivot point than the smaller child is to the pivot point in order for the see-saw to balance. The principle is that it is the weight force times the distance (force x distance) from the pivot that must be the same for the see-saw to balance. Or, in other words, a small force at a large distance is equivalent to a large force at a small distance. Most tools and machine use this principle, in one form or another, to achieve what is called “mechanical advantage.”

The principle behind an inclined plane (i.e., a ramp) is similar to the principle of a lever, in that it takes less force to elevate a large weight, into the back of a truck for example, by moving it over a large distance (the length of the ramp) than it would be to lift it the short distance straight up onto the truck bed.

Pulleys allow a small force to be magnified into a large force, again similar to how both levers and incline planes magnify forces. A pulley can be rigged so that pulling the pulley rope a long distance with small force will exert a large force over a short distance on an object, such as a vehicle stuck in a ditch. Again, this is the principle that most tools and “simple machines” employ: a small force over a large distance is equivalent to a large force over a small distance.

A screw works by the same principle as the inclined plane, since the “threads”