

Inclined Plane

Have you ever faced the task of lifting something from a lower level to a higher level? You probably know that the job is much easier if you have a ramp. For example, a ramp makes it much easier to push a grocery cart over a curb or a cart into a truck. A ramp is an example of a simple machine called an inclined plane. An **inclined plane** is a flat, slanted surface.

An inclined plane allows you to exert your input force over a longer distance. The input force necessary will then be less than the output force. The input force that you use on an inclined plane is the force with which you push or pull an object. The output force is the force that you would need to lift the object without the inclined plane. This force is equal to the weight of the object.



Figure 10 Although the amount of work is the same whether you lift the loaded cart or push it up the ramp to the truck, you need less force when you use an inclined plane.

Relating Cause and Effect What happens to the distance over which