

Simple Machines I – Inclined Planes, Wedges, and Screws

4th Grade

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References:

- Columbus Public Schools SLC Guide, Kelly Krupa [Simple Machines Stations!]

Benchmarks:

SLC 10: Explain the operation of a simple mechanical device

Objectives:

Students will learn the principles and uses of an inclined plane, screw, and wedge. They will also come up with every day examples of simple machines.

Materials:

- **8x8x10 board**
- **Wedges of different shapes**
- **Crate of books**
- **Folded paper plates**
- **Rope**
- **Nails and screws [w/big threads]**
- **Box of sand [wrapping paper Tupperware is the perfect size]**
- **Toy car**

Initial Demonstration:

Place a car on an inclined plane and watch the car roll down. Ask the students why did the car roll down? [gravity]. Ask if there were any forces opposing the car rolling down [friction, normal force – they probably do not know this one!]. Now ask if there are any other ways that the inclined plane can be used other than to accelerate a car. Explain that the class is going to explore other ways to use the IP and what features affect how it works.

Target Observations:

- A car rolling down and incline plane is acted upon by a force, gravity.

Target Model:

- Incline planes can be used to accelerate a car. They might also be able to be used for other purposes.