

Unit Overview – Simple Machines

Essential Questions

- How are simple machines used to increase mechanical advantage and increase efficiency?

- I totally get it
 I kinda get it
 I don't get it

What came first:

- Infer changes in speed or direction resulting from forces acting on an object.
- Predict the effect of a given force or a change in mass on the motion of an object.

What comes next:

- Explain work in terms of the relationship among the applied force to an object, the resulting displacement of the object and the energy transferred to the object.
- Explain the relationship among work, power and simple machines both qualitatively and quantitatively
- Interpret data on work and energy presented graphically and numerically.
- Compare the concepts of potential and kinetic energy and conservation of total mechanical energy in the description of the motion of objects.
- Explain the relationship among work, power and energy.

Enduring understanding

- Simple machines make work easier by changing the direction of the input force or the direction the force is applied
- Compound machines are made up of two or more simple machines
- Simple machines can magnify the amount of force used to complete a task (mechanical advantage)
- Efficiency of a simple machine can be gained or lost depending on factors such as friction, expansion, and wear

Important to know and do

- Identify the six types of simple machines
- Compare the types of simple machines in terms of changing force and direction
- Build a model or device that includes more than one simple machine
- Calculate mechanical advantage
- Explain the relationship between mechanical advantage and efficiency

Worth being familiar with

- Explain how to increase the efficiency given a situation involving simple machines

Vocabulary to master

<input type="checkbox"/> Efficiency	<input type="checkbox"/> Force	<input type="checkbox"/> Inclined plane	<input type="checkbox"/> Lever
<input type="checkbox"/> Mechanical advantage	<input type="checkbox"/> Pulley	<input type="checkbox"/> Screw	<input type="checkbox"/> Wedge
<input type="checkbox"/> Wheel and axle	<input type="checkbox"/> Work	<input type="checkbox"/>	<input type="checkbox"/>