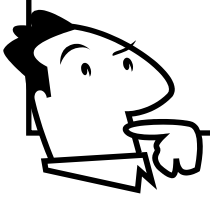

Physical Science

Chapter 15: Energy
Section 1- Energy and Its Forms
Pages 446-450

15:1

Key Concept #1: How are energy and work related?

Energy: DEFINE- _____

- Energy is the ability to do _____

Key Concept #2: What factors does the kinetic energy of an object depend on?

Kinetic Energy: DEFINE- _____

_____

Formula for Kinetic Energy:	**The KE of any moving object depends upon its:** **&**

Math Practice: *Practice Problem #1 on page 448*

E: **S:** **A:**

Key Concept #3: How is gravitational potential energy determined?

Potential Energy: DEFINE- _____

_____

- Potential energy that depends upon an object's height is called _____

  _____
- An object's gravitational PE depends on its _____ , it's _____ and the _____
- Elastic Potential Energy is _____

Formula for Gravitational Potential Energy:

_____

_____

Physical Science

Chapter 14: Work, Power & Machines
Section 1- Work and Power
Pages 412-416

14:1

Think about different ways humans and machines do work…

Examples:

Key Concept #1: When does a force do work?

Work: DEFINE- _____

- RULE: Work requires motion and depends on direction
- For a force to do work on an object, some of the force must act in the same _____ as the object moves. Therefore, if there is no _____ , no _____ is done!
- Any part of a force that does not act in the _____ of motion does no _____ on an object.

Formula for Work:	**Units for Work:**

Key Concept #2: How are work and power related?

Power: DEFINE- _____

- Doing work at a faster rate requires more _____
- If you want to increase power, you can:
  1. _____

  OR

  2. _____

Formula for Power:	**Units for Power:**

Math Practice: *Practice Problem #1 on page 415*

E: **S:** **A:**

Physical Science

Chapter 14: Work, Power & Machines
Section 2- Work and Machines
Pages 417-420

14:2

Think of a machine that makes life easier…

Example:

How is life easier because of the machine?:

Key Concept #1: How do machines make work easier?

Machine: DEFINE- _____

_____

- Machines make work _____ to do.

How?	Example
1.	
2.	
3.	

Key Concept #2: How are work input and work output related for a machine?

Input Force: DEFINE-	Output Force: DEFINE-
Input Distance: DEFINE-	Output Distance: DEFINE-
Work Input: DEFINE-	Work Output: DEFINE-

- Because of _____ , work done **by** machines is always _____ than the work done **on** the machine.

Physical Science

Chapter 14: Work, Power & Machines
Section 3- Mechanical Advantage and Efficiency
Pages 421-426

14:3

Key Concept #1: How does the Actual Mechanical Advantage (AMA) of a machine compare to the Ideal Mechanical Advantage (IMA)?

Mechanical Advantage: DEFINE- _____

_____

Formula for Mechanical Advantage (MA):

Ideal Mechanical Advantage: DEFINE- _____

_____

- Because _____ is always present, the Actual Mechanical Advantage of a machine is always _____ than the Ideal Mechanical Advantage.

Formula for Ideal Mechanical Advantage (IMA):

Key Concept #2: Why is efficiency of a machine always less than 100%?

Efficiency: DEFINE- _____

_____

Formula for Efficiency:

- Efficiency is always less than 100% because _____

_____

_____

Physical Science

Chapter 14: Work, Power & Machines
Section 4- Simple Machines
Pages 427-435

14:4

What do you know about simple machines already?

Key Concept #1: What are the six types of simple machines?

Simple Machine	Description/Details	Picture/Example
Lever		
Wheel and Axle		
Inclined Plane		
Wedge		
Screw		
Pulley		

Key Concept #2: What determines the Mechanical Advantage of the six Simple Machines?

- ***Lever:*** to calculate the IMA, divide the _____ by the _____ _____ .
- ***Wheel and Axle:*** to calculate the IMA, divide the radius/diameter where the _____ is exerted by the radius/diameter where the _____ is exerted
- ***Inclined Plane:*** to calculate the IMA, divide the _____ along the inclined plane by its change in _____
- ***Wedge:*** a thin wedge has a greater MA than a thick wedge of the same length
- ***Screw:*** greater IMA when the _____ are closer together
- ***Pulley:*** IMA is equal to the number of rope sections supporting the load being lifted