

**Review of Previous Lesson**

1/16/2018

- State as many Vocabulary words and Learning Objectives that you remember from the last lesson as you can.
- Now complete the content learning objectives.
- Remember to grade yourself from 0 – 3.

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**Vocabulary**

1/16/2018

Language:	Start	End
state		
identify		
explain		
definition		
equation/relationship		
rearrange		
calculate		
derive		
various		
scenarios		
definition		

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**Work, Force & Displacement**

1/16/2018

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**Learning Objectives**

1/16/2018

Grade 7

Content:	Start	End
State the definition of <b>Work</b> .		
Identify the conditions for work to be done.		
Explain work needed to lift an object.		
State the equation/relationship for <b>Work Done</b> and rearrange to solve for force or displacement.		
Derive base units of a <b>Joule</b> .		
Calculate <b>Work Done</b> in various scenarios.		

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**Vocabulary**

1/16/2018

Content:	Start	End
Work Done		
base units		
equation/relationship		
energy		
Joule		
rearrange		
scenario		
force		

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**Learning Objectives**

1/16/2018

Grade 8

Content:	Start	End
State the definition of <b>Work</b> .		
Use the full equation for work ( $W = Fd \cos(\theta)$ ) and be able to describe the effect of the directions of the forces on the work done on an object.		

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Learning Objectives

1/16/2018

Language:	Start	End
Define, identify and state verbally and in writing.		
Calculate in writing.		

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Identify the conditions for work to be done.

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- Read the following five statements and determine whether or not they represent examples of work.
- Then click on the See Answer button to view the answer.
- <http://www.physicsclassroom.com/Class/energy/u5l1a.cfm>

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State the definition of **Work**.

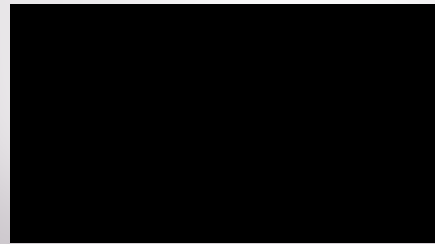
1/16/2018

- When a force acts upon an object to cause a displacement of the object, it is said that work was done upon the object.
- <http://www.physicsclassroom.com/Class/energy/u5l1a.cfm>

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State the **equation/relationship** for **Work Done** and rearrange to solve for force or displacement.  
Calculate Work Done in various scenarios.

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<https://www.youtube.com/watch?v=JHEmPZ-YnrU>

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Identify the conditions for work to be done.

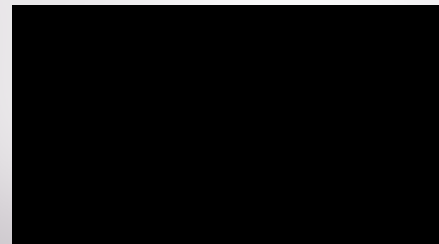
1/16/2018

- In order for a force to qualify as having done *work* on an object, there must be a **displacement** and the force must *cause* the displacement.
- <http://www.physicsclassroom.com/Class/energy/u5l1a.cfm>

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Explain work needed to lift an object.  
Calculate Work Done in various scenarios.

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<https://www.youtube.com/watch?v=MXtt4C643-8>

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Grade 7

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**Work Done**

- $W = Fd$

- $W$  = Work Done [Joules (J) or Nm]
- $F$  = force (N)
- $d$  (sometimes  $s$ ) = displacement in the direction of the force (m)



- <http://physics.fiskastudycenter.com/junior-high-school-physics/82-10-common-problems-of-work-and-power-junior-physics>
- <http://www.sparknotes.com/physics/workenergy/power/review/quiz.html>

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**Problems and Solutions:  
Work Done Only – Grade 7:**

1/16/2018

- [Problems of Work and Power - Junior Physics](#) (Physics Learning Center)
- [Physical Science: Work Quiz](#) (SoftSchools.com)
- [Work and Energy Quiz](#) (SoftSchools.com)
- [Work and Power Quiz](#) (thatquiz.org)
- [Review of Work, Energy and Power](#) (sparknotes)
- [Work, Energy & Power: Quiz](#) (goconqr.com)

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Grade 8

1/16/2018

**Work Done**

- $W = Fd \cos(\theta)$

- $W$  = Work Done [Joules (J) or Nm]
- $F$  = force (N)
- $d$  (sometimes  $s$ ) = displacement in the direction of the force (m)
- $\theta$  = the angle between the force and the displacement vectors

- <http://www.physicsclassroom.com/class/energy/Lesson-1/Calculating-the-Amount-of-Work-Done-by-Forces>

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**Problems and Solutions:  
Work Energy Theorem – Grade 8:**

1/16/2018

- [Exercises on Work-Energy Theorem](#) (gauss.vaniercollege.qc.ca)
- [Problems](#) (theory.uwinnipeg.ca)
- [Net Work & Kinetic Energy](#) (clutchprep.com)
- [More Work-Energy Problems](#) (clutchprep.com)
- [Work and Power](#) (sparknotes.com)

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**Derive base units of a Joule.**

1/16/2018

- One Joule is equivalent to one Newton of force causing a displacement of one meter. In other words,
- The **Joule (J)** is the unit of work.
  - $W = Fd$
  - $1 \text{ Joule} = 1 \text{ Newton} \times 1 \text{ metre}$
  - $1 \text{ J} = 1 \text{ N} \times \text{m}$

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