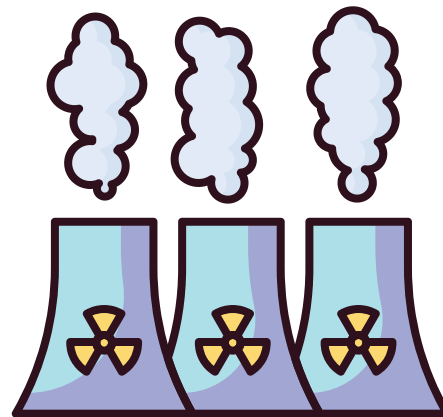
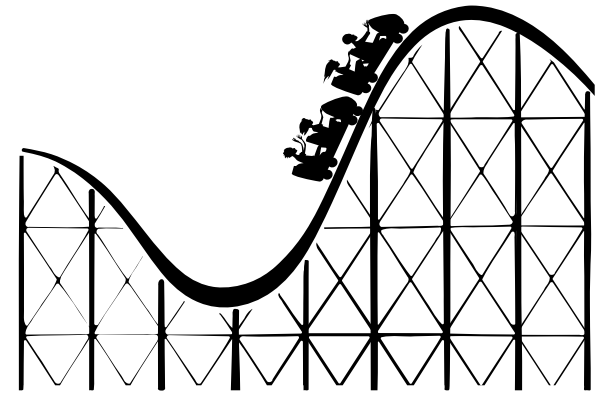


Work, Power, and Energy Unit

- Covers: Kinetic and Potential Energy, Conservation of Energy, Energy Efficiency, and Power
- Lesson & Engaging Activities
- Daily Teaching Schedule



Work, Power, and Energy Unit

Unit - Work, Power, and Energy

- 4 Lessons & 7 Activities

Work and Energy

- Work Done
- $W = Fd$
- Units and Direction
- Positive and Negative Work
- When Work = 0

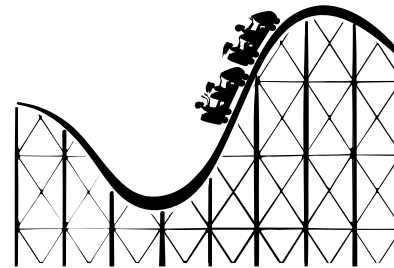
Kinetic and Potential Energy, Conservation of Energy, and Energy

Efficiency

- Kinetic energy
- Work-Energy Theorem
- Gravitational Potential Energy
- Conserving energy
- Application
- The Law of Conservation of Energy
- Total Mechanical Energy
- Other Forms of Energy
- Energy Efficiency
- Sports Application

Power

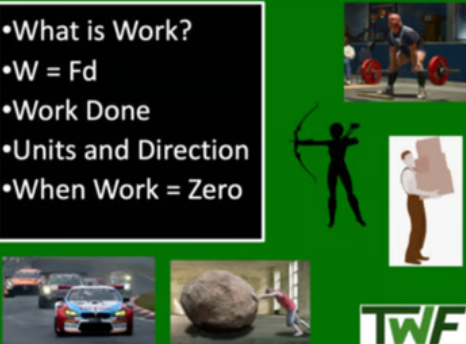
- Power
- The rate of doing work
- Watts
- Power Generation Stations
- Horsepower



Lessons Include Teacher and Student Versions - Videos Embedded in Lessons

Work

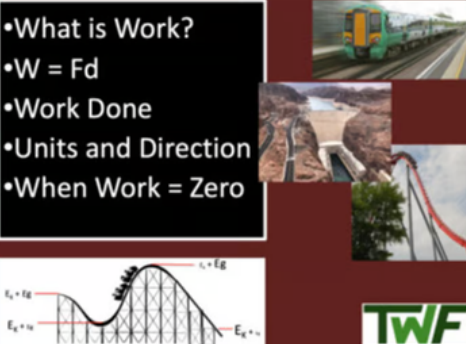
- What is Work?
- $W = Fd$
- Work Done
- Units and Direction
- When Work = Zero



TWF

Kinetic and Gravitational Potential Energy

- What is Work?
- $W = Fd$
- Work Done
- Units and Direction
- When Work = Zero



TWF

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Important: Before you click, make sure you're signed in to the Google account you'd like the resources placed into. If the resources are added to the wrong account, simply sign out and then into the correct one and repeat the process.

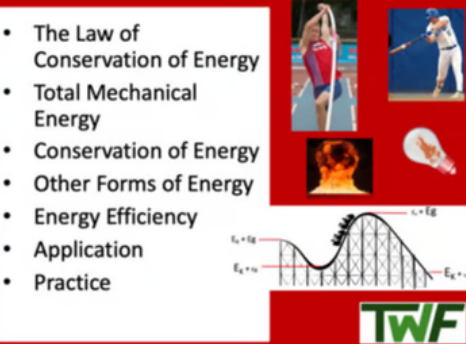
[Click here to place a copy of your resources into your Google account](#)

TWF

Google Classroom Ready
One-Click Google Slides Access

The Law of Conservation of Energy and Efficiency

- The Law of Conservation of Energy
- Total Mechanical Energy
- Conservation of Energy
- Other Forms of Energy
- Energy Efficiency
- Application
- Practice



TWF

Power

- What Power Is
- Watts
- Electricity Generation
- Vehicle Power
- Horsepower



TWF

Gravitational Potential Energy (ΔE_g or PE)

• The potential energy at a height "h" above that point is equal to the work which was required to lift the object to that height

• The energy stored in an object due to its elevation above Earth's surface

• The potential energy at a height "h" above that point is equal to the work which was required to lift the object to that height

Student and Teacher versions of the presentations

Energy Efficiency

• Energy efficiency can be calculated as follows:

$$\text{efficiency} = \frac{\text{useful energy output}}{\text{energy input}} \times 100\%$$

- Keep in mind that work done = energy input
 - The work you do is the energy inputted into the system
- Different energy sources used to produce electricity (fossil fuels, wind, etc.) have different efficiencies based on the above equation
- Rank the following from least to most efficient

Solar, Nuclear, Wind, Fossil Fuels, Hydroelectric

Videos embedded directly into the slides. One-click access.

Engaging Activities

Work and Energy Lab Station Activity



7 Lab Station Activities to get your kids out of their seats and engaged in their learning

Kinetic Energy & Gravitational Potential Energy Lab Station Activity



7 Lab Station Activities to get your kids out of their seats and engaged in their learning

Device-Based Scavenger Hunt Work and Energy

Includes

- 5 Unique Locations
- Online form submission
- Answer Key



Works on all smartphones, tablets, Chromebooks, and laptops

- 100% Digital
- Simulations
- Quizzes
- Videos
- Games
- and more

Roller Coasters – History, Design, and Function Scientific Reading Comprehension Article and Extension Activity



Improve your students **Literacy and Analysis Skills**, use as an **Emergency Substitute Plan** or create **Applicability** in your classroom

Power Lab Station Activity



7 Lab Station Activities to get your kids out of their seats and engaged in their learning

Device-Based Scavenger Hunt Power



Includes

- 5 Unique Locations
- Online form submission
- Answer Key

Works on all smartphones, tablets, Chromebooks, and laptops

- 100% Digital
- Simulations
- Quizzes
- Videos
- Games
- and more



Speed Quizzing



_____ is the energy stored in the nucleus of an atom.

Nuclear potential energy

Define power.

The rate of doing work or transforming energy.

A fast-moving review activity where students quiz each other, swap cards, then move on to someone new.

Work, Energy, and Power Unit

Daily Teaching Schedule

UNIT – Work, Power, and Energy **11 DAYS TOTAL**

Work and Energy – 3 days

Number of Day(s)	Course Content	Teaching Resources	NGSS
1	• Work Done • $W = Fd$ • Units and Direction • Positive and Negative Work • When Work = 0	Work and Energy - Google Slides and PowerPoint Lesson	
1	Hands-on review activity	Work and Energy - Lab Station Activity	
1	Hands-on review activity	Work and Energy – Digital Scavenger Hunt Activity	
Assessments	There are multiple assessments included throughout this unit portion.		

Kinetic and Potential Energy – 4 days

Conservation of Energy

Energy Efficiency

Number of Day(s)	Course Content	Teaching Resources	NGSS
1	- Kinetic energy - Work-Energy Theorem - Gravitational Potential Energy - Conserving energy - Application	Kinetic and Gravitational Potential Energy - Lesson	HS-PS3-1 HS-PS3-2 HS-PS3-3 HS-PS2-4 HS-PS2-5 HS-PS3-4 HS-ETS1-3
1	Hands-on review activity	Kinetic and Gravitational Potential Energy - Lab Station Activity	
1	Review activity	Roller Coasters - History, Design, and Function - Science Reading Article	
1	- The Law of Conservation of Energy - Total Mechanical Energy - Other Forms of Energy - Energy Efficiency - Sports Application	The Law of Conservation of Energy and Efficiency - Lesson	
Assessments	There are multiple assessments included throughout this unit portion.		

Power – 4 days

Number of Day(s)	Course Content	Teaching Resources	NGSS
1	• Power • The rate of doing work • Watts • Power Generation Stations • Check Your Understanding • Horsepower	Power - Lesson	HS-PS3-1 HS-PS3-3 HS-PS3-4 HS-ETS1-3
1	Hands-on review activity	Power - Lab Station Activity	
1	Hands-on review activity	Power – A Digital Scavenger Hunt Activity	
1	Review activity	Work, Energy, and Power - Speed Quizzing	
Assessments	There are multiple assessments included throughout this unit portion. UNIT TEST		

Who's It For?

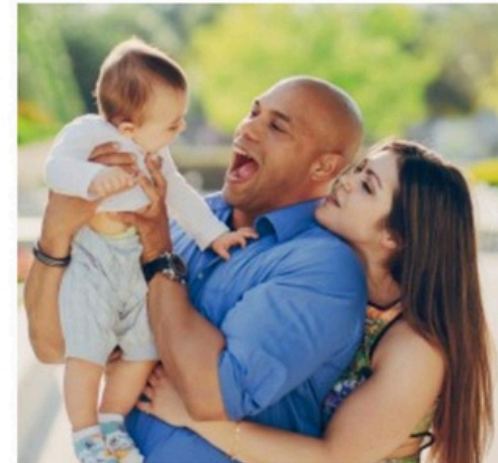
- **High School Physical Science Teachers**
- **Teachers using NGSS**
- **Teachers who want to increase their student's engagement and retention**
- **Teachers not looking to reinvent the wheel**

Save yourself the **STRESS AND TIME**



TWF

Spend your time WISELY



TWF