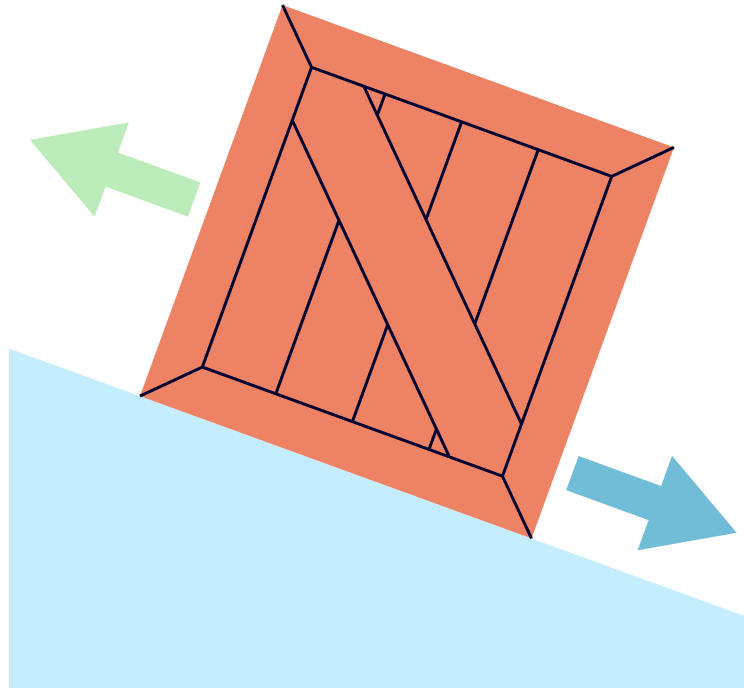


Force and Motion Unit

- **Covers: Types of Forces, Newton's 3 Laws of Motion, and Simple Machines**
- **Lesson & Engaging Activities**
- **Daily Teaching Schedule**



Force and Motion Unit

Unit - Force and Motion

- 6 Lessons & 9 Activities

Types of Forces

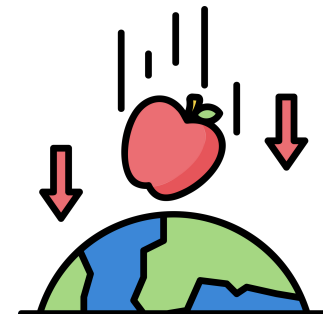
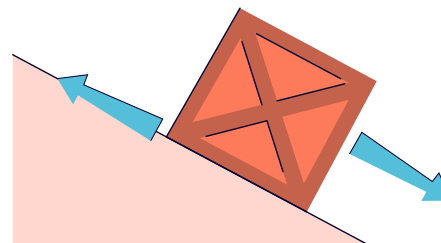
- Force Overview
- What is a Force?
- The Four Fundamental Forces
- Forces all around us
- Normal, Friction and Tension force
- Contact vs. Action at a distance force
- Measuring force
- System and Free-Body Diagrams
- Finding F_{net}
- Force vectors
- Analyzing Forces
- What is friction and what causes it?
- Friction and Newton's Laws
- Static and Kinetic Friction
- Coefficients of Friction
- Applications of Friction
- Gravity in Space
- Law of Universal Gravitation
- The Power of Gravity
- How Gravity Affects the Tides
- Objects in Circular Orbit
- Our Bodies in Microgravity

Newton's Laws of Motion

- Newton's 3 Laws Summary
- Newton's First Law
- Applications
- Newton's Second Law
- Second Law Simulation
- Newton's Third Law
- Applications

Simple Machines

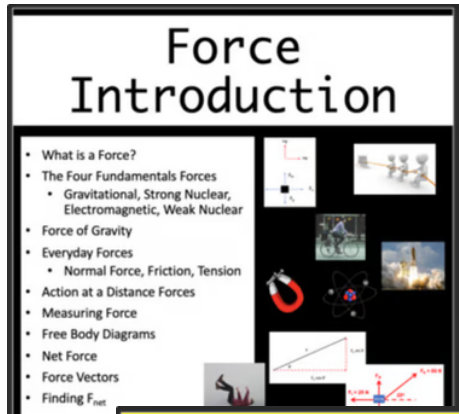
- What are Simple Machines?
- $Work = F \times d$
- Lever
- Inclined Plane
- Wheel and Axle
- Pulley
- Screw
- Wedge
- Compound Machines



Lessons Include Teacher and Student Versions - Videos Embedded in Lessons

Force Introduction

- What is a Force?
- The Four Fundamentals Forces
 - Gravitational, Strong Nuclear, Electromagnetic, Weak Nuclear
- Force of Gravity
- Everyday Forces
 - Normal Force, Friction, Tension
- Action at a Distance Forces
- Measuring Force
- Free Body Diagrams
- Net Force
- Force Vectors
- Finding F_{net}



Forces and Free-Body Diagrams

- Forces Review
- Common Forces
- Free-Body Diagrams
- Analyzing Forces
- Force Vectors
- Choosing a coordinate system



Google Access

Thank you for your purchase. Clicking the link button below will automatically create a copy of the Google resources and place them into your Google Drive. You'll find the folder inside the 'Shared with me' section on the left side of your Drive.

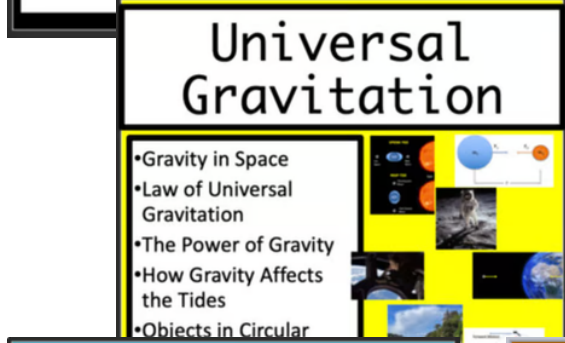
Important: Before you click, make sure you're signed in to the Google account you'd like the resources placed into. If the resources are added to the wrong account, simply sign out and then into the correct one and repeat the process.

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



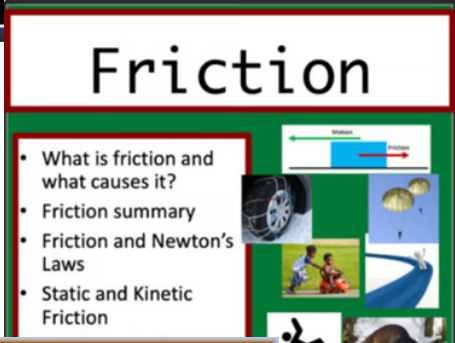
Universal Gravitation

- Gravity in Space
- Law of Universal Gravitation
- The Power of Gravity
- How Gravity Affects the Tides
- Objects in Circular



Friction

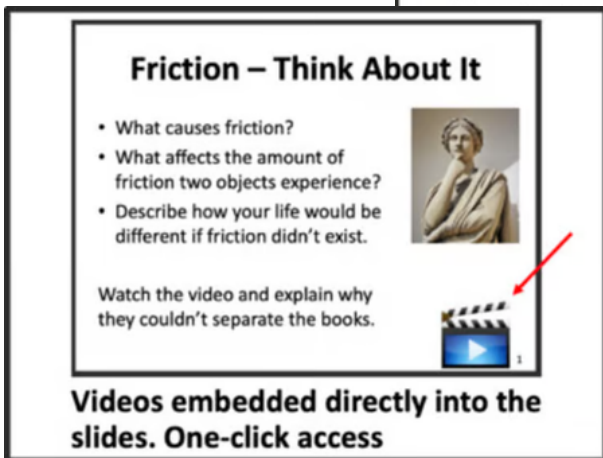
- What is friction and what causes it?
- Friction summary
- Friction and Newton's Laws
- Static and Kinetic Friction



Friction – Think About It

- What causes friction?
- What affects the amount of friction two objects experience?
- Describe how your life would be different if friction didn't exist.

Watch the video and explain why they couldn't separate the books.

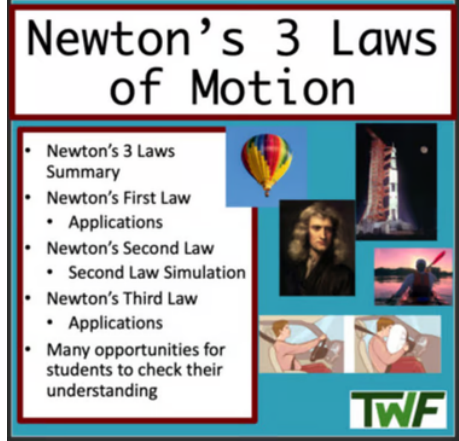


Room Ready Slides Access

Videos embedded directly into the slides. One-click access

Newton's 3 Laws of Motion

- Newton's 3 Laws Summary
- Newton's First Law
 - Applications
- Newton's Second Law
 - Second Law Simulation
- Newton's Third Law
 - Applications
- Many opportunities for students to check their understanding



Simple Machines

- What are Simple Machines?
- $Work = F \times d$
- Lever
- Inclined Plane
- Wheel and Axle
- Pulley
- Screw
- Wedge
- Compound Machines



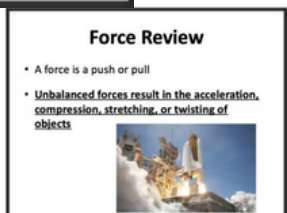
Force Review

- A force is a push or pull
- _____



Force Review

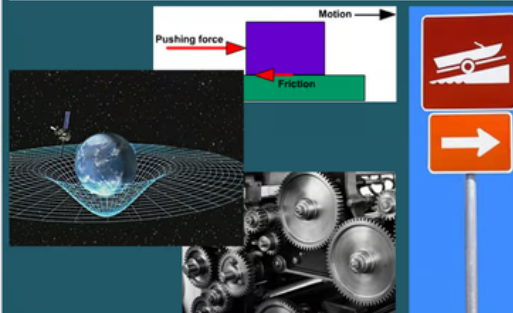
- A force is a push or pull
- **Unbalanced forces result in the acceleration, compression, stretching, or twisting of objects**



Student and Teacher versions of the presentations

Engaging Activities

Forces Lab Station Activity



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

The Effects of Everyday Forces 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

Newton's Laws of Motion Word Search and Scramble

THREE Activities in One!

1. Basic 22-Term Word Search
2. Scrambled Words Word Search
3. Word Scramble and Define Activity



TWF



Simple Machines 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

Newton's 3 Laws of Motion Lab Station Activity



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

Simple Machines Lab Station Activity



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

Device-Based Scavenger Hunt Friction



Includes

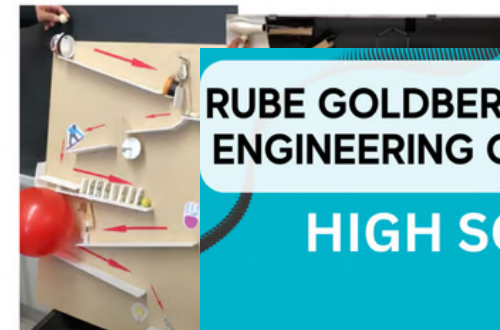
- 5 Unique Locations
- Online form submission
- Answer Key

Works on all smartphones, tablets, Chromebooks and laptops

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



Rube Goldberg Simple Machine Project



RUBE GOLDBERG MACHINE
ENGINEERING CHALLENGE

HIGH SCHOOL



CHALLENGE

TWF

Daily Teaching Schedule

UNIT – Forces and Motion 22 DAYS TOTAL

Types of Forces – 10 days			
Number of Day(s)	Course Content	Teaching Resources	NGSS
3	- Force Overview - What is a Force? - The Four Fundamental Forces - Forces all around us - Normal, Friction and Tension force - Contact vs. Action at a distance force - Measuring force - System and Free-Body Diagrams - Finding Fnet - Force vectors	Forces Introduction - Lesson	HS-PS2-1 HS-PS2-2 HS-PS2-3 HS-PS2-4 HS-PS2-5 HS-PS3-1 HS-PS3-2 HS-ESS1-4
1	- Forces Review - Common Forces - Free-Body Diagrams - Analyzing Forces - Force Vectors - Choosing a coordinate system	Forces and Free-Body Diagrams - Google Slides and PowerPoint Lesson	
2	- What is friction and what causes it? – Student Inquiry - Friction summary - Friction and Newton's Laws - Static and Kinetic Friction - Coefficients of Friction - Applications of Friction	Friction Lesson	
1	Hands-on review activity	Friction – Digital Scavenger Hunt Activity	
1	- Gravity in Space - Law of Universal Gravitation - The Power of Gravity - How Gravity Affects the Tides - Objects in Circular Orbit - Our Bodies in Microgravity	Universal Gravitation - Lesson	
1	Hands-on review activity	Forces - Lab Station Activity	
1	Review activity	The Effects of Everyday Forces - Review	
Assessments	There are multiple assessments included throughout this unit portion.		

Newton's Laws of Motion – 5 days

Number of Day(s)	Course Content	Teaching Resources	NGSS
3	• Newton's 3 Laws Summary • Newton's First Law • Applications • Newton's Second Law • Second Law Simulation • Newton's Third Law • Applications	Newton's 3 Laws of Motion - Lesson	HS-PS2-1 HS-PS2-2 HS-PS2-3 HS-PS3-1 HS-PS3-2
1	Hands-on review activity	Newton's Three Laws of Motion - Lab Station Activity	
1	Review activity	Newton's Laws of Motion Word Search and Scramble Activity	
Assessments	There are multiple assessments included throughout this unit portion.		

Simple Machines – 7 days

Number of Day(s)	Course Content	Teaching Resources	NGSS
1	- What are Simple Machines? - Work = $F \times d$ - Lever - Inclined Plane - Wheel and Axle - Pulley - Screw - Wedge - Compound Machines	Simple Machines - Lesson	HS-PS2-1 HS-PS2-2 HS-PS3-1 HS-PS3-2 HS-PS3-3 HS-ETS1-2 HS-ETS1-3
1	Review activity	Simple Machines Reading Comprehension Article	
1	Hands-on review activity	Simple Machines - Lab Station Activity	
3	Hands-on review activity	Rube Goldberg Simple Machine Project	
1	Hands-on review activity	Rube Goldberg Machine STEM Engineering Challenge	
Assessments	There are multiple assessments included throughout this unit portion. UNIT TEST		

Who's It For?

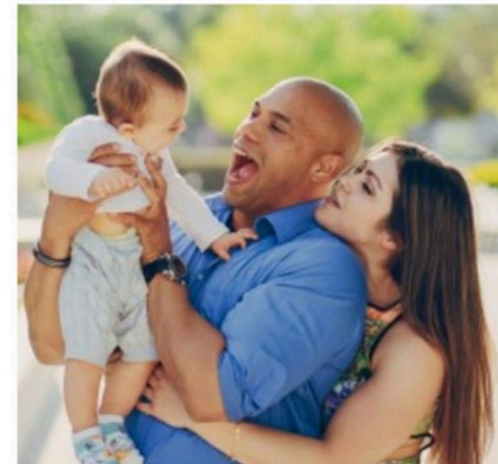
- **High School Physical Science Teachers**
- **Teachers using NGSS**
- **Teachers who want to increase their student's engagement and retention**
- **Teachers not looking to reinvent the wheel**

Save yourself the **STRESS AND TIME**



TWF

Spend your time WISELY



TWF