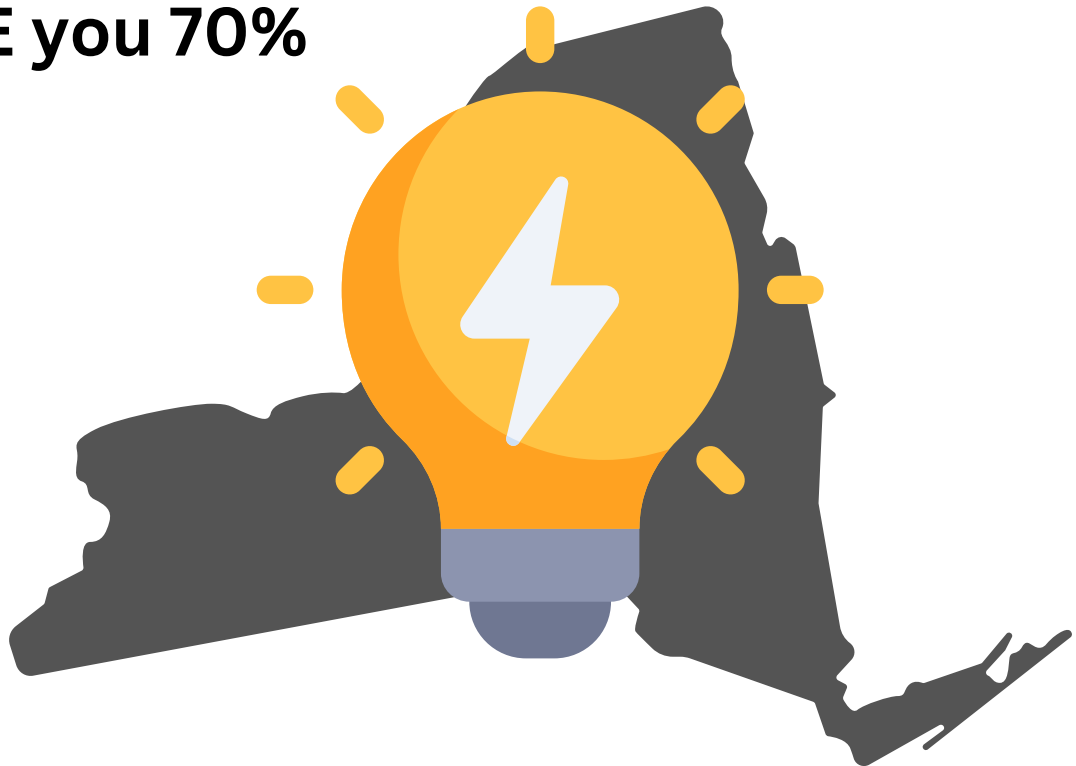


New York State P-12 Science Learning Standards (NYSSLs) MS. Energy

- ✓ Complete Standard for New York Middle School - Energy Standard
- ✓ MS-PS3-1, PS3-2, PS3-3, PS3-4, PS3-5, PS3-6
- ✓ The Bundle will SAVE you 70%



UPGRADE to the Bundle



This Bundle:

- Get immediate access to my **COMPLETE** New York State Middle School Curriculum
- Every standard covered at a **HUGE DISCOUNT**

New York Middle School Science Curriculum

New York State P-12 Science Learning Standards (NYSSLS)

- ✓ Standards are directly aligned to New York State Middle School Science Standards according to the New York State Education Department
- ✓ The Bundle will SAVE you 80%



Click here to have a look

Resources Included

MS-PS3-1

- Relationship Between Kinetic Energy Mass & Speed – Lesson
- Rolling Into Energy - Lab Investigation
- Kinetic Catapult Challenge



MS-PS3-2

- Energy at a Distance - Understanding Potential Energy – Lesson
- Gravitational Potential Energy – Lesson
- The Science of Roller Coasters - Reading



MS-PS3-3

- The Insulator – Thermal Insulator Challenge
- Thermal Energy Change Reactions Experiments and Demonstrations
- Solar Oven STEM Engineering Challenge

Resources Included

MS-PS3-4

- Thermal Energy Temperature and Heat Lesson
- Particle Motion, Temperature, and States of Matter Lesson
- Relationship Between Kinetic Energy, Mass, and Speed Lesson
- How Does the Type of Matter Affect Heat Transfer – Activity
- How Does Mass Affect Temperature Change – Activity

MS-PS3-5

- Thermal Energy Temperature and Heat Lesson
- When Kinetic Energy Changes Energy Transfers
- Heat by Friction – Activity
- Crash Test Challenge - Activity



MS-PS3-6

- Electricity and Current – Lesson
- Solving Circuit Diagrams – Lesson
- Drawing Circuit Diagrams - Activity
- Solving Circuit Diagrams - Worksheet
- Mystery Circuit Challenge – Activity
- Circuits, Current, and Voltage - Digital Interactive Notebook



Bundles Included

NGSS MS-PS3-1 Curriculum Bundle

Kinetic Energy, Mass & Speed

- ✓ 1 Lesson and 2 Activities
- ✓ Everything You Need to Teach NGSS MS-PS3-1



NGSS MS-PS3-2 Curriculum Bundle

Potential Energy & Distance Modeling

- ✓ 2 Lessons and 1 Activity
- ✓ Everything You Need to Teach NGSS MS-PS3-2



NGSS MS-PS3-3 Curriculum Bundle

Thermal Energy Transfer Design Projects

- ✓ 3 Activities
- ✓ Everything You Need to Teach NGSS MS-PS3-3



NGSS MS-PS3-4 Curriculum Bundle

Thermal Energy & Temperature Investigation

- ✓ 3 Lessons and 2 Activities
- ✓ Everything You Need to Teach NGSS MS-PS3-4



NGSS MS-PS3-5 Curriculum Bundle

Kinetic Energy and Energy Transfer

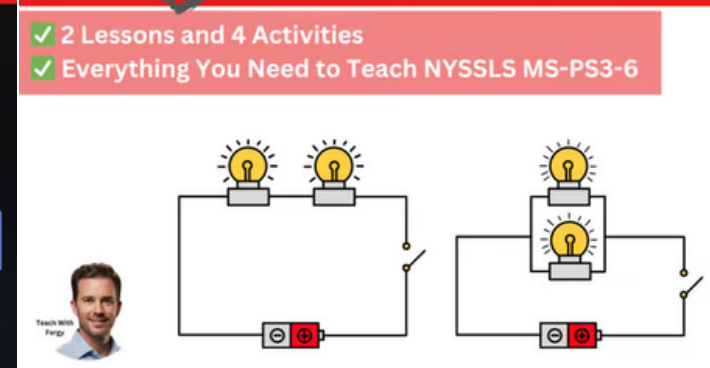
- ✓ 2 Lessons and 2 Activities
- ✓ Everything You Need to Teach NGSS MS-PS3-5



NYSSLS MS-PS3-6 Curriculum Bundle

Electrical Currents and Circuits

- ✓ 2 Lessons and 4 Activities
- ✓ Everything You Need to Teach NYSSLS MS-PS3-6



Everything You Need to Teach Middle School Energy in New York State using NYSSLS

Complete Lessons

Electricity and Current

- What Electricity Is
- Atoms and Electrons
- Static Electricity
- Current Electricity
- Drawing Circuit Diagrams
- Parts of an Electric Circuit
- The Cell
- Open vs. Closed Circuits
- Electric Current
- Circuit Types
 - Series and Parallel
- Coulombs

Google Slides and PowerPoint Versions Included
Google Classroom Ready

Relationship Between Kinetic Energy Mass and Speed

Included in your Lesson:

- What Energy Is
- Kinetic Energy
- Kinetic Energy and Mass
- Kinetic Energy and Speed
- Examples
- Practice
- Student-Designed Experiment

Middle School TWF

Thermal Energy, Temperature, & Heat Transfer

6th, 7th, 8th Grade Lesson

- ✓ Comprehensive Content Overview – Covers Thermal Energy, Temperature, Particle Motion, and Heat Transfer.
- ✓ Student-Friendly Format – Clear visuals and comparisons support understanding of complex concepts.

Middle School TWF

Gravitational Potential Energy

Included in your Lesson:

- Energy
- Gravitational Potential Energy
- Mass and Height
- Roller Coasters
- Hydroelectric Power Plants
- Practice
- Student-Designed Experiment

Middle School TWF

Engaging Activities

The Insulator – Thermal Insulator Challenge

- ✓ Classroom Ready - Just Print and Go!
- ✓ Active Engagement - Keep Students' Attention
- ✓ Direct Video Link Included

WATCH VIDEO

Includes Word and PDF Versions

Reading Comprehension Passage and Questions

The Science of Roller Coasters

6th, 7th, and 8th Grade Science

- ✓ No Prep, Ready-to-Use Resource in Google and Office Format
- ✓ Includes Comprehension and Extension Questions

SOLAR OVEN ENGINEERING CHALLENGE

MIDDLE SCHOOL

Kinetic Catapult Challenge

Standards: Working in groups of 4, you will design and build a catapult using the materials listed below.

Design your catapult to:

1. be able to launch a marshmallow
2. be the most accurate (hit the target the most times)
3. be the most powerful (launch the marshmallow the farthest)

Materials:

- 1. 1 marshmallow (to be launched)
- 2. 1 rubber band (to be used as a spring)
- 3. 1 wooden clothespin (to be used as a trigger)
- 4. 1 wooden clothespin (to be used as a trigger)
- 5. 1 wooden clothespin (to be used as a trigger)
- 6. 1 wooden clothespin (to be used as a trigger)
- 7. 1 wooden clothespin (to be used as a trigger)
- 8. 1 wooden clothespin (to be used as a trigger)
- 9. 1 wooden clothespin (to be used as a trigger)
- 10. 1 wooden clothespin (to be used as a trigger)

What you need to do:

1. You will have 15 minutes to design and build your catapult. You will then be competing in the Kinetic Catapult Challenge.
2. The winning team will be the one that produces the greatest amount of average kinetic energy (i.e., the one that launches the marshmallow the farthest).

Design: Use the space below to design your catapult.

Mystery Circuit Challenge

A challenging inquiry activity for your electricity collection

Teacher's Key



The Standard is Explained and the Resources it Incorporates are Outlined

MS. Energy – New York State – Middle School

MS-PS3-1: Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.

Emphasis is on descriptive relationships between kinetic energy and mass separately from kinetic energy and speed. Examples could include riding a bicycle at different speeds, rolling different sizes of rocks downhill, and getting hit by a wiffle ball versus a tennis ball.

Resources:

- Relationship Between Kinetic Energy Mass & Speed – Lesson
- Rolling Into Energy - Lab Investigation
- Kinetic Catapult Challenge

MS-PS3-2: Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.

Emphasis is on relative amounts of potential energy, not on calculations of potential energy. Examples of objects within systems interacting at varying distances could include: the Earth and either a roller coaster cart at varying positions on a hill or objects at varying heights on shelves, changing the direction/orientation of a magnet, and a balloon with static electrical charge being brought closer to a classmate's hair. Examples of models could include representations, diagrams, pictures, and written descriptions of systems. *Assessment Boundary:* Assessment is limited to two objects interacting magnetically, and gravitational interactions.

Resources:

- Energy at a Distance - Understanding Potential Energy – Lesson
- Gravitational Potential Energy – Lesson
- The Science of Roller Coasters - Reading

MS-PS3-3: Apply scientific principles to design, construct, and test a device that either maximizes thermal energy transfer. [Clarification Statement: Examples of devices could include an insulated box, a solar cooker, and a Styrofoam cup.] *Assessment Boundary:* Assessment does not include calculating the total amount of thermal energy transferred.]

Resources:

- The Insulator – Thermal Insulator Challenge
- Thermal Energy Change Reactions Experiments and Demonstrations
- Solar Oven STEM Engineering Challenge

MS-PS3-4: Plan an investigation to determine the relationships among the energy of matter, the mass, and the change in the average kinetic energy of the particles in a sample. [Clarification Statement: Examples of experiments could include comparing final water temperatures after different masses of ice melted in the same amount of water with the same initial temperature, the temperature change of samples of different mass as they cool or heat in the environment, or the same material with different specific amounts of energy is added.] *Assessment Boundary:* Assessment does not include the total amount of thermal energy transferred.]

Resources:

- Thermal Energy Temperature and Heat Lesson
- Particle Motion, Temperature, and States of Matter Lesson
- Relationship Between Kinetic Energy, Mass, and Speed Lesson
- How Does the Type of Matter Affect Heat Transfer – Activity
- How Does Mass Affect Temperature Change – Activity

MS-PS3-5: Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. [Clarification Statement: Examples of empirical evidence used in arguments could include an inventory or other representation of the energy before and after the transfer in the form of temperature changes or motion of object.] *Assessment Boundary:* Assessment does not include calculations of energy.]

Resources:

- Thermal Energy Temperature and Heat Lesson
- When Kinetic Energy Changes Energy Transfers
- Heat by Friction – Activity
- Crash Test Challenge - Activity

MS-PS3-6: Make observations to provide evidence that energy can be transferred by electric currents. [Clarification Statement: Emphasis should be on arrangements of circuit components in series and parallel circuits.] *Assessment Boundary:* Assessment will be limited to qualitative analysis and reasoning.]

Resources:

- Electricity and Current – Lesson
- Solving Circuit Diagrams – Lesson
- Drawing Circuit Diagrams - Activity
- Solving Circuit Diagrams - Worksheet
- Mystery Circuit Challenge – Activity
- Circuits, Current, and Voltage - Digital Interactive Notebook



Who is this Bundle for?

- Teachers who teach middle school science in **New York State** and use **NYSSLS**
- Teachers who want multiple resources at their fingertips including lessons and a variety of activities, in order to meet the standard
- Teachers who don't have time to develop their own resources or organize what to teach and when

