



SUMMIT K12

2024

6TH - 8TH DYNAMIC SCIENCE

Empowering ALL Texas Learners to Reach their Summit

**Built By Texas Educators
For Texas Educators**

Texas based publisher with curricula created by over 75 current and former Texas educators

**Built for Texas
TEKS-SEPs-RTCs-ELPS**

Ready to
Learn More?

Scan the QR code
to visit our website



SBOE Approved!

K-8 English, K-6 Spanish
Biology, Chemistry, Physics, IPC
100% TEKS/100% ELPS

Concise and Complete Teacher Supports

Instructional Resources
Video Resources
Supplemental Resources
Course Information
🔍

Teacher Resources
Dynamic Science - 8th

- ☰ Cat 1: Matter and Energy
- ☰ Cat 2: Force, Motion and Energy
 - 8.7A: Newton's Second Law of Motion
 - Pacing Guide
 - Lesson Guide
 - 📄 Assessments
 - 📺 TEKS Lesson Video
 - 📄 Vocabulary Mastery
 - Study Guide
 - Study Guide Key
 - Interactive E-Poster
 - 6.7B: Balanced and Unbalanced Net Forces
 - 8.7B: Simultaneous Action of Newton's Three Law...
 - 7.7D: Newton's First Law of Motion
 - 6.7C: Newton's Third Law of Motion
 - 8.8A: Characteristics of Waves
 - 6.8C: Transverse and Longitudinal Waves
 - 5.8C: Light can Reflect, Refract, or be Absorbed
 - 8.8B: Applications of Electromagnetic Waves
- ☰ Cat 3: Earth and Space
- ☰ Cat 4: Organisms and Environments

Lesson Guide

8.7A Learning Activities

* 1 day = 45 min

| ENGAGE | |
|--|-------------|
| 🔗 Phenomenon: Bungee Launches in Space | 30 minutes |
| 🔗 Demonstration: Second Law Relationships | 20 minutes |
| ESTABLISH RELEVANCE | |
| 🗣️ Discussion: Vehicle Acceleration | 5 minutes |
| INVESTIGATE AND LEARN | |
| 🧪 Comparative Investigation: Manipulating Mass | 1 day |
| 🧪 Virtual Investigation: Forces and Motion | 1 day |
| 🧪 Comparative Investigation: Marshmallow Launcher | 1 day |
| 🎯 Practice: Force, Mass, and Acceleration Calculations | 30 minutes |
| APPLY AND EXTEND | |
| 🎯 Practice: Solving for Acceleration | 30 minutes |
| 🧪 Design an Investigation: Newton's Second Law | 2 days |
| 🔗 Phenomenon: Bungee Launches in Space | 30 minutes |
| 📄 Study Guide: Newton's Second Law of Motion | 30 minutes |
| EVALUATE | |
| 📄 Concept Mastery Assessments | 20 min each |

TEKS 8.7A

Core Vocabulary

| | |
|--------------------------------------|--|
| acceleration | the change in velocity over time |
| mass | the amount of matter in an object |
| net force | the sum of all forces acting on an object |
| Newton's second law of motion | one of Newton's three laws of motion; explains the relationship between force, mass, and acceleration through the formula $F = ma$ |

INSTRUCTIONAL RESOURCES

Pacing Guides
Lesson Guides
Assessments
TEKS Lessons/Videos
Vocabulary Mastery
Study Guides/Keys
Interactive E-Posters

VIDEO RESOURCES

Phenomena
TEKS Lesson Videos/Simulations
Texas Virtual Field Investigations
Kate the Chemist Labs

SUPPLEMENTAL RESOURCES

Introduction to Science
SEPs Background/Vocabulary
Science Literacy
Graphic Organizers







COURSE INFORMATION

Pacing Guide
5E Model
Phenomena
Science Lab Explorations
TEKS-SEPs-RTCs Crosswalk

TEACHER SUPPORTS INCLUDE:

- Lesson and Lab Guides
- Scope and Sequence
- Pacing Guides
- Reports and Dashboards
- Anchoring Phenomena Table
- 3D Teaching and Learning
- Image Bank
- Science E-Books
- Formative Assessments
- Year-Round Responsive Support
- Asynchronous Online Teacher Training
- Zoom and Onsite Professional Development

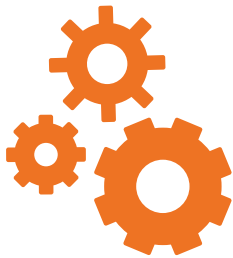
ASSESSMENT BANK

| Date Created | Custom Assessment Name | Avg. Score | PLD | Assign |
|--------------|--|------------|------------|---|
| 9/28/24 | First six weeks Assessment | 65% | Approaches |  |
| 11/4/24 | Force and Motion Benchmark | 87% | Meets |  |
| 12/4/24 | Extra Credit | 92% | Masters |  |
| 1/12/25 | Dual coded Category 4 items only | 81% | Meets |  |
| 2/3/25 | Practice with new item types only | 90% | Masters |  |
| 3/2/25 | Dr. Kate's Matter and Energy Hi Rigor Quiz spring 2025 | Start | |  |

Robust assessment bank including new item types.

Teaching Science through Phenomena using the 3D Model

Science TEKS Content Standards



Scientific and Engineering Practices

Recurring Themes and Concepts



TEKS-SEPs-RTCs Crosswalk (8th Grade Example)

| Grade | Category | SEPs | 8th Grade Dynamic Science TEKS Lessons, Labs, Investigations, and Explore Activities | | | | | | | | | | | | | | | | | Totals by SEPs | | | | | | | |
|-------------------------------|--------------------------------------|------|--|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|------------|
| | | | 8.6A | 8.6B | 8.6C | 8.6D | 8.6E | 8.7A | 8.7B | 8.8A | 8.8B | 8.9A | 8.9B | 8.9C | 8.10A | 8.10B | 8.10C | 8.11A | 8.11B | | 8.11C | 8.12A | 8.12B | 8.12C | 8.13A | 8.13B | 8.13C |
| 8 | Scientific and engineering practices | 8.1A | | | X | X | | | X | X | SL | | X | X | SL | X | | | X | | X | X | X | X | X | | 15 |
| 8 | Scientific and engineering practices | 8.1B | | | X | | X | X | X | | | | X | | | | | | | | | | | | X | | 7 |
| 8 | Scientific and engineering practices | 8.1C | | | X | X | X | X | | | | | | | | | | | X | | | | | | | | 6 |
| 8 | Scientific and engineering practices | 8.1D | X | X | X | X | X | X | | | SL | SL | | | X | SL | | | | | X | | | X | | SL | 13 |
| 8 | Scientific and engineering practices | 8.1E | X | X | | X | X | X | | | X | SL | | | X | SL | | | | X | | | | X | X | | 12 |
| 8 | Scientific and engineering practices | 8.1F | X | X | | X | X | X | | | X | | X | X | | | | | | X | | | | SL | X | X | 13 |
| 8 | Scientific and engineering practices | 8.1G | X | X | | | X | | X | X | | | X | X | X | X | | | X | X | X | | X | X | X | X | 16 |
| 8 | Scientific and engineering practices | 8.1H | | | | | X | | | | | | X | | | | | | | | | | | | | | 2 |
| 8 | Scientific and engineering practices | 8.2A | X | | | SL | SL | | X | X | SL | | SL | X | | | | | | | | | | | | SL | 9 |
| 8 | Scientific and engineering practices | 8.2B | | | | SL | X | SL | SL | SL | SL | | SL | SL | SL | SL | | | | | X | | | SL | X | SL | 14 |
| 8 | Scientific and engineering practices | 8.2C | | | | | SL | X | SL | SL | SL | | | X | | SL | | | | | | | | | | SL | 8 |
| 8 | Scientific and engineering practices | 8.2D | | X | | | | | X | | | | | | | | | | X | | | | | | | | 3 |
| 8 | Scientific and engineering practices | 8.3A | | | X | X | X | SL | X | X | X | SL | | X | X | X | X | X | X | X | X | X | | SL | X | | 19 |
| 8 | Scientific and engineering practices | 8.3B | X | X | | X | | | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | X | X | X | 19 |
| 8 | Scientific and engineering practices | 8.3C | | | | | | | | | | | | X | | | | X | X | | | | | | | | 3 |
| 8 | Scientific and engineering practices | 8.4A | | | | | | | | | SL | X | X | SL | | | | | X | | | | | SL | | | 6 |
| 8 | Scientific and engineering practices | 8.4B | | | | | | | | | | | | X | | | | | X | | | | | | | | 2 |
| 8 | Scientific and engineering practices | 8.4C | | | | | | | | | | X | | | | | | | X | | | | | | | | 3 |
| 8 | Recurring themes and concepts | 8.5A | | | | X | | | | | SL | X | X | X | X | X | X | | | | X | | | SL | X | | 11 |
| 8 | Recurring themes and concepts | 8.5B | | | | X | SL | X | | | SL | SL | SL | | | | | X | X | X | X | X | | SL | X | X | 14 |
| 8 | Recurring themes and concepts | 8.5C | | | | | SL | | X | | | | | | | | | | | | | | | SL | | | 3 |
| 8 | Recurring themes and concepts | 8.5D | X | X | | | SL | | X | X | SL | | | X | | | | | | | | | | X | X | SL | 10 |
| 8 | Recurring themes and concepts | 8.5E | | | | X | | | | | X | X | | | | | | | | | X | | | | | | 5 |
| 8 | Recurring themes and concepts | 8.5F | | | X | | | | | | SL | | | | SL | | | | | | | | | SL | X | X | 6 |
| 8 | Recurring themes and concepts | 8.5G | | | | X | | | | | X | | | X | X | X | X | X | | | | | | SL | X | X | 13 |
| Totals by Content TEKS | | | 7 | 7 | 6 | 11 | 15 | 9 | 12 | 15 | 12 | 9 | 7 | 18 | 12 | 8 | 4 | 5 | 11 | 7 | 6 | 8 | 5 | 14 | 13 | 11 | 232 |

KEY

| | |
|----|--|
| X | Lab Investigations or Explore Activity |
| SL | Science Literacy Process Skill or RTC |

Kate the Chemist 6th-8th Video Series



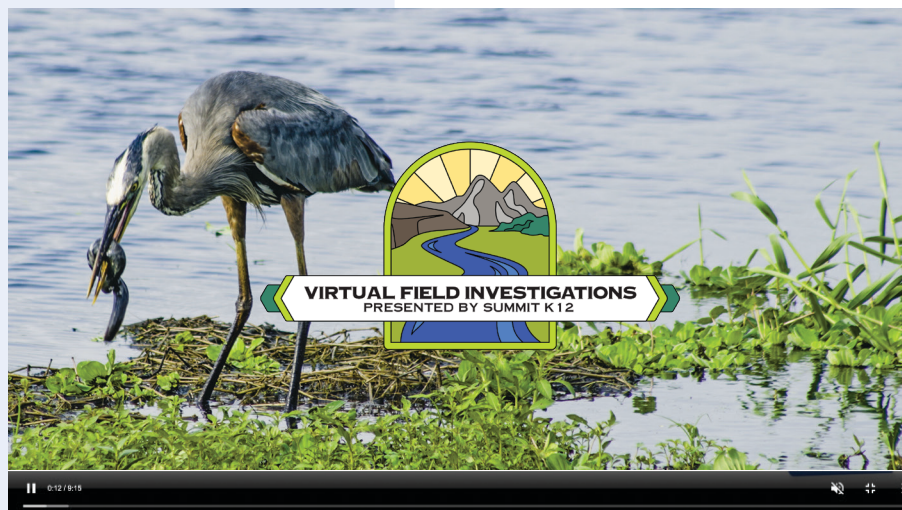
Summit K12 has teamed up with UT Austin Professor and best-selling science author, Dr. Kate Biberdorf, to create Phenomena-based videos specifically for the 2024 Science TEKS.

- K-12 Phenomena-Based Videos
- Teacher Pre-Lab Prep Videos
- Student Pre-Lab Videos
- Full Length Virtual Science Lab Videos

6th-8th Texas Virtual Field Investigations

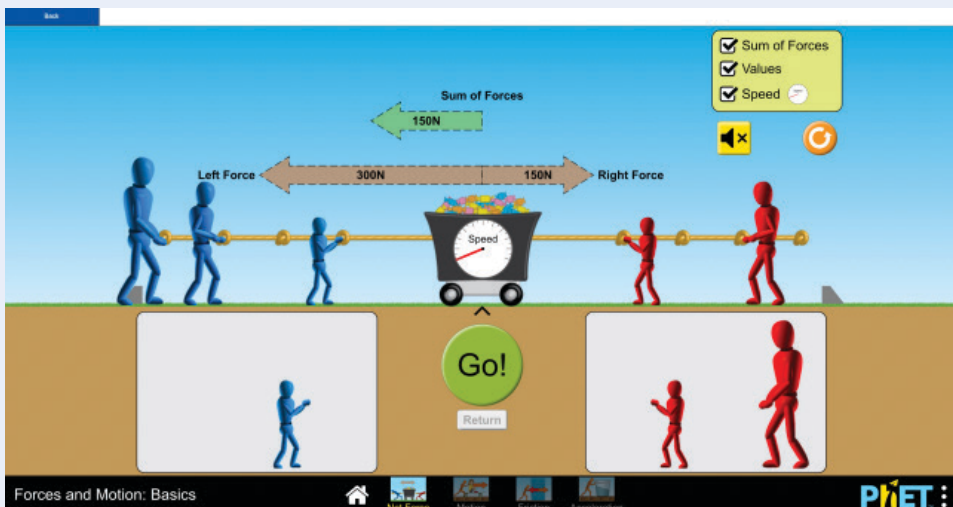
ALL 6th-8th students will have the opportunity to investigate phenomena throughout dozens of the most popular state parks and engineering marvels in Texas.

The 2024 TEKS Virtual Field Investigations series was created specifically for the Texas Science Adoption.



Hands-on Investigations and **Virtual Labs**

Comparative, Descriptive, and Experimental Investigations to engage students and support sensemaking.



Includes Summit K12 Lab Guides developed to support the 2024 Science TEKS.

High Quality Print Materials

DYNAMIC SCIENCE
GRADE 8

SUMMIT K12
Teacher's Guide

Newton's Second Law of Motion **TEKS 8.7A**

Students will:
calculate and analyze how the acceleration of an object is dependent upon the net force acting on the object and the mass of the object using Newton's second law of motion.

8.7A Learning Activities

SUMMIT K12online

| | | |
|--|--|------------|
| | Investigation: Manipulating Mass | 1 day |
| | Establish Relevance | 5 minutes |
| | Virtual Investigation: Forces and Motion Lab | 10 minutes |
| | Phenomenon: Second Law Relationships | 1 day |
| | Investigation: Marshmallow Shooter Lab | 30 minutes |
| | Practice: Force, Mass, and Acceleration Calculations | 20 minutes |
| | Study Guide: Newton's Second Law of Motion | 30 minutes |
| | Practice: Solving for Acceleration | 20 minutes |
| | Design an Investigation: Newton's Second Law | 2 days |



Newton's Second Law of Motion **8.7A**

Name: _____ Period: _____ Date: _____

Practice: Force, Mass, and Acceleration Calculations

Part 1:
Directions:
Fill in the missing parts of the table by using the formula triangle below. Write out the formula, plug in the numbers, and then solve.

$$F = ma$$

| Force (N) | Mass (kg) | Acceleration (m/s ²) |
|-----------|-----------|----------------------------------|
| | 50 | 5 |
| | 12 | 30 |
| 400 | | 25 |
| 150 | | 37.5 |
| 75 | 25 | |
| 50 | 8 | |

Newton's Second Law of Motion **8.7A**

Name: _____ Period: _____ Date: _____

Comparative Investigation: Marshmallow Launcher

Guiding Question:
What are the effects of force and mass on the acceleration of a marshmallow?

Prediction:
How do you think acceleration will be affected by increasing the applied force used?

How do you think acceleration will be affected by increasing the mass of the object?

Lab Safety:
Wear safety goggles and follow all teacher guidelines.

Materials:

- balloon (1 per student)
- digital scale (1 per group)
- goggles (1 per student)
- marshmallows, jumbo (3 per student)
- marshmallows, mini (3 per student)
- measuring tape (1 per group)
- roll of masking tape (1 per group)
- scissors (1 per group)
- sturdy plastic cup (1 per student)

Procedures:

Setup: Building your Launcher

- Put on your lab safety goggles.
- Carefully cut the bottom off a plastic cup.
- Cut off the closed end of a balloon as shown below.


- Tie off the other end and stretch the opening across the cut end of the plastic cup.
- Use masking tape to secure the balloon to the cup.

High Quality TEKS Lesson Videos


EARTH AND SPACE
TEKS 8.9B

Categorization of Galaxies


Galaxies



spiral galaxy



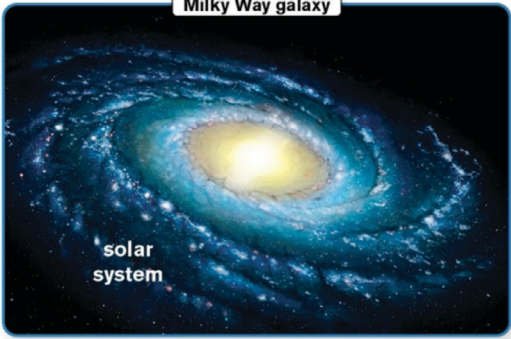
elliptical galaxy



irregular galaxy

A galaxy is made up of stars, gases, and dust held together by gravity.

There are billions of galaxies in the universe.



Milky Way galaxy

solar system

Our solar system is on the outer edge of a radiating arm in the Milky Way galaxy.


elliptical galaxy
galaxy
irregular galaxy
Milky Way galaxy
spiral arm
spiral galaxy

TEKS - 8th Grade

0:12 / 8:15
🔊 🔍 ⋮

EARTH AND SPACE
TEKS 8.6A

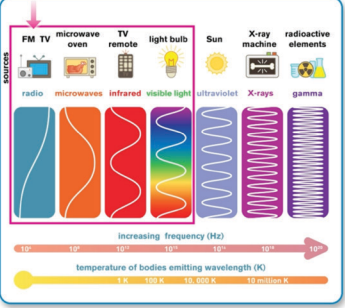
Classification Matter Assignment




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EARTH AND SPACE
TEKS 8.8B

The Electromagnetic Spectrum





radio

TEKS - 8th Grade

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Vocabulary Mastery

TEKS Content Vocabulary | Science Tools Vocabulary |
SEPs & RTCs Vocabulary | Science Cognates



The baby birds rely on their parent to bring them food for Select
reflecting
survival
interacting
pollination

○○○○○○○○●○○



survival

supervivencia

noun



Survival refers to continuing to live or exist.

IN
ENGLISH
AND
SPANISH



Select
Overpopulation
Species diversity
Ecological succession
Human activity

is the number of different species present in an ecosystem.

○○○○○○○○○○●○○



species diversity

diversidad de especies

noun



Species diversity describes the number of different species present in an ecosystem.

Finish Attempt

○○○○○○○○○○○○○○●○○

Image Bank

- 500-1,000 images per grade level/subject
- Minimum 15-25 images per content TEKS
- Images for all SEPs Vocabulary Words
- Images for all Science Tools Vocabulary

Summit K12 Image Bank



Comprehensive Professional Development

Professional Development for ALL Stakeholders

Science Coordinators

Science Teachers

Principals & Superintendents

Parents/Guardians

Instructional Coaches

SCIENCE COORDINATOR IMPLEMENTATION PD

INITIAL TEACHER TRAINING

TEKS CHANGES BY GRADE LEVEL

TEACHING WITH PHENOMENA

DELIVERY MODELS

- Asynchronous, Zoom, and On-site

DIFFERENTIATION/ACCELERATION

SCIENCE-LITERACY/VOCABULARY

3D TEACHING & LEARNING

"Every student in Texas will be deeply involved in the doing of science and sensemaking."

"We need to prepare teachers to teach science in a different way, but we also need to help principals understand that [the new 3D] science classrooms are going to look and sound different than[current classrooms]."



DR. LINDA COOK

Dr Linda Cook's experiences include Extensive Professional Development Work and presentations related to the Framework for K-12 Science Education; Ready, Set, Science.

- Summit K12 Professional Development Strategy and Implementation Planning
- NSELA Professional Development Committee 2023-2026
- NSELA President-Elect, President, and Past President 2020-2023
- President of the Metroplex Area Science Supervisors (2009-2010)
- Director of K-12 Science, Coppell ISD, 15 years
- PhD Curriculum and Instruction focused on Global Science Education

EASY • EFFICIENT • EFFECTIVE



2024

DYNAMIC SCIENCE State Adoption Pricing


K-8th Grade English/Spanish, Biology, Chemistry, Physics, IPC

\$6.95 PER STUDENT/YEAR*


*8-year Online Package with Print Teacher's Edition

 = **Best Value** (up to 50% off)

DYNAMIC SCIENCE ONLINE PACKAGES COMPREHENSIVE 100% TEKS/ELPS STATE APPROVED

| PACKAGE | TOTAL PRICE | PRICE PER YEAR |
|---|----------------|----------------|
| Online 1-Year | \$10.95 | \$10.95 |
| Online 2-Year | \$19.90 | \$9.95 |
| Online 4-Year | \$31.80 | \$7.95 |
|  Online 8-Year | \$55.60 | \$6.95 |

DYNAMIC SCIENCE ONLINE + PRINT PACKAGES COMPREHENSIVE 100% TEKS/ELPS STATE APPROVED + PRINT TE

| PACKAGE | TOTAL PRICE | PRICE PER YEAR |
|--|----------------|----------------|
| Online 1-Year + Print TE | \$13.95 | \$13.95 |
| Online 2-Year + Print TE | \$23.90 | \$11.95 |
| Online 4-Year + Print TE | \$35.80 | \$8.95 |
|  Online 8-Year + Print TE | \$55.60 | \$6.95 |

3D Student Consumable Print K-12 (from 1-8 Years, up to 25% off)

Science Lab Investigation Kits (starting at \$1,345 per classroom)