

Learning Intentions and Success Criteria

Physical Sci
1.1

Sci 8

Colorado Standard: Physical Science 1.1 The fact that matter is composed of atoms and molecules can be used to explain the properties of substances, diversity of materials, states of matter and phases changes.(Understand, 2)

Learning Intentions: Students will be able to explain the properties of substances, diversity of materials, states of matter and phase changes using properties of matter.

Success Criteria:

- Can identify parts of matter, including atoms and molecules
- Understand properties of substances
- Understands the different states of matter
- Understands phase changes.
- Develop models to describe the atomic composition of simple molecules and extended structures.

Resources: Textbook Chapters 1-4
Reading and Study Workbook pg. 15-20
Ck-12 Matter, Mass, and Volume,
[Matter, Mass, and Volume](#)
States of Matter Video
[States of Matter Video Ck-12](#)

Learning Progression:

- Atom is the smallest part of an element.
- Molecules are groups of atoms bonded together, and is the smallest fundamental unit of a chemical compound.
- Every sample of a given substance has the same properties because a substance has a fixed, uniform composition.
- Matter can change from a solid to a liquid to a gas, back to a solid.
- Phase changes include: Melting, Freezing, Evaporation, Boiling, Condensation

Academic Vocabulary:

Atoms, subatomic particles, chemical change, physical change, gas laws, pressure, viscosity, compound, mixtures, distillation, malleability, variables, density, volume, conversion factor, atomic mass, number, metalloids, valence electrons, solid, liquid, gas,

Interventions:

Resource room and CK-12 practice. Online forms review.

Extensions:

Online labs, Interactives

Learning Intentions and Success Criteria

Physical Sci
1.2

Sci 8

Colorado Standard: Physical Science 1.2 Reacting substances rearrange to form different molecules, but the number of atoms is conserved. Some reactions release energy and others absorb energy. (Understand, 2)

Learning Intentions: Students will be able to explain why atoms are conserved in a reaction and what happens to the energy from that reaction.

Success Criteria:

- Identify different energy forms.
- Map energy transfer.
- Describe energy forms and types of conservation.
- Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

Resources:

- Textbook Chapters 15 and 17
- Physical Science Guided Reading and Study Workbook pg. 171-178
- Ck-12 Resources

Learning Progression:

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Academic Vocabulary:

Potential energy, Kinetic energy, Renewable energy, Thermal, Chemical, Mechanical, Electric energy.

Interventions:

Resource room and CK-12 practice. Online forms review.

Extensions:

Online labs, Interactives

Learning Intentions and Success Criteria

Physical Sci
1.3

Sci 8

Colorado Standard: Physical Science 1.3 Motion is described relative to a reference frame that must be shared with others and is determined by the sum of the forces acting on it. The greater the mass of the object, the greater the force needed to achieve the same change in motion.
(Understand, 3; Apply, 3)

Learning Intentions: Students will be able to predict and evaluate motion by examining applied forces. Students will use math expressions to describe movement of an object. Student will be able to determine results of vector combinations.

Success Criteria:

- Calculate speed and acceleration.
- Interpret vector combinations.
- Compare and contrast motion laws.
- Present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.

Resources:

- Textbook ch 11, 12
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Learning Progression:

- Relative Motion: movement in relation to a frame of reference.
- Speed is the ratio of the distance an object moves to the amount of time the object moves, (m/s)
- Acceleration is changes in speed, changes in direction, or changes in both.
- Acceleration is the change in velocity over the total time.
- The slope of a speed-time graph is the acceleration.
- Know how to plot a graph.
- Understand math expressions in terms of acceleration and average speed.

Academic Vocabulary: frame or reference, vector, speed, acceleration, free fall, Newton's Laws, mass, momentum, force, friction, projectile motion, terminal velocity, gravity, centripetal force,

Interventions:
Resource room and CK-12 practice. Online forms review.

Extensions:
Online labs, Interactives

Learning Intentions and Success Criteria

Physical Sci
1.4

Sci 8

Colorado Standard: Physical Science 1.4 Forces that act a distance (gravitational, electric, and magnetic) can be explained by force fields that extend through space and can be mapped by their effect on a test object.

Learning Intentions: Students will be able to explain why force fields can be mapped.

Success Criteria:

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Resources:

- Textbook Chapters 12, 13, and 14
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Learning Progression:

Academic Vocabulary: frame or reference, vector, speed, acceleration, free fall, Newton's Laws, mass, momentum, force, friction, projectile motion, terminal velocity, gravity, centripetal force,

Interventions:
Resource room and CK-12 practice. Online forms review.

Extensions:
Online labs, Interactives

Learning Intentions and Success Criteria

Sci 8

Physical Sci
3.3

Colorado Standard : Distinguish between physical and chemical changes, noting that mass is conserved during any change.

Student Friendly: Recognize properties of chemical and physical changes and mass can not be destroyed.

Learning Intentions: Classify chemical and physical changes. Realize than energy and mass cannot be destroyed only converted. Identify these changes from occurences in nature.

Success Criteria:
Identify chemical and physical changes from experimental data. Understand and describe why energy cannot be created or destroyed. Recognize and explain physical and chemical changes in nature.

Resources: Textbook ch 2,3, google classroom labs and interactives, CK-12.

Depth Of Knowledge 1-3

Cognitive Process Gather and organize data on chemical and physical changes.
Identify evidence that matter is conserved.

Learning Progression: Chemical and physical change vocab. Identify properties of each. Describe real life examples. Describe how energy is conserved in process.

Academic Vocabulary:
physical change, conductivity, chemical change, viscosity, distillation, solution, suspension, malleability, mixture, suspension, colloid, element, atom , reactivity, and precipitate.

Interventions:
Resource room and CK-12 practice. Online forms review.

Extensions:
Online labs, Interactives

Learning Intentions and Success Criteria

Sci 8

Physical Sci
1.4

Colorado Standard: Physical Science 1.4 Forces that act a distance (gravitational, electric, and magnetic) can be explained by force fields that extend through space and can be mapped by their effect on a test object.

Student Friendly: Classify different types of waves - identify parts and understand applications in the real world.

Learning Intentions: Break down basic parts of wave. Realize how waves transform energy. Understand that waves can be constructive and destructive.

Success Criteria:
Model and describe function of different wave types. Realize that varying different aspects of a wave affects function. Be able to calculate wave frequency and speed.

Resources: Textbook ch 17,18 google classroom labs and interactives, CK-12.

Depth Of Knowledge 1-2

Cognitive Process - Compare and contrast waves, describe pitch frequency relationships, investigate reflection models.

Learning Progression: Basic vocab, wave model, wave math calculations, compare contrast wave types, describe and identify waves in the natural environment and how they affect us.

Academic Vocabulary:
frequency, wavelength, trough, crest, reflection, refraction, diffusion, amplitude, wave speed, Doppler effect, decibel, sonar, diffraction, hertz, period, medium, compression, .

Interventions:
Resource room and CK-12 practice. Online forms review.

Extensions:
Online labs, Interactives

Learning Intentions and Success Criteria

Earth System

3.1

Sci 8

Colorado Standard : Weather is the result of complex interactions of Earth's atmosphere, land and water, that are driven by energy from the sun, and can be predicted and described through complex models.

Student Friendly: Understand what causes weather, what methods are used to predict it , and how land and water effects patterns.

Learning Intentions: To understand the role of atmosphere, land and water in weather patterns, be aware of all the tools and methods we use to predict weather, and evaluate current weather and climate trends.

Success Criteria:
Be able to interpret weather maps, know the importance of weather forecasting tools and prediction, Evaluate effect of mankind on climate conditions, and recognize factors that contribute to weather

Depth of Knowledge 1-3

Resources: Online textbook ch 24 google classroom labs and interactives, CK-12.

Cognitive Process - Differentiate weather conditions for action plans, observe and gather weather data and make predictions, use models to communicate weather predictions.

Learning Progression: Basic vocab, be aware of weather models, understand weather map, describe interaction of land and water on weather, communicate on how accurate weather predictions saves lives and property, and evaluate evidence that supports climate change.

Academic Vocabulary: Layers of atmosphere, humidity, rotation, revolution, greenhouse effect, convection, radiation, conduction, Coriolis effect, monsoon, cloud types, fronts, isotherms, global-local winds, and currents.

Interventions:
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Extensions:
Online labs, Interactives

Learning Intentions and Success Criteria

Earth Systems

3.3

Sci 8

Colorado Standard : The solar system is comprised of various objects that orbit the Sun and are classified based on their characteristics.

Student Friendly: Understand differences between bodies in our solar system and how they were formed and located in current positions.

Learning Intentions: Understand components of our solar system, How planets are placed in our solar system, characteristics of inner and outer planets, form and function of non planetary bodies and energy - gravity forces in our solar system.

Success Criteria: Compare and contrast inner and outer planets, describe role of gravity in solar system, design model of solar system , research solar system creation, describe methods to explore solar system, and use computer simulations to explore solar system.

Depth of Knowledge 1-3

Resources: Online textbook ch 25 google classroom labs and interactives, CK-12.

Cognitive Process - Design solar system model, research solar system formation theories, analyze solar system interactives, describe methods to explore solar system, and use gravity concepts to explain motions.

Learning Progression: Basic vocab, model solar system object placement, differentiate between inner - outer planets, understand role of gravity, evaluate results of solar system objects collisions with earth, verify that comet motions in solar system are predictable.

Academic Vocabulary: geocentric, heliocentric, ellipse, terrestrial, jovian, asteroid, comet, Nebular Theory, Kuiper Belt, Oort cloud, meteor types, planetesimals, accretion, protoplanets,

Interventions:
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Extensions:
Online labs, Interactives

Learning Intentions and Success Criteria

Earth Systems

3.4

Sci 8

Colorado Standard : The relative positions and motions of Earth, Moon, and Sun can be used to explain observable effects such as seasons, eclipses, and Moon phases.

Student Friendly: Where solar system bodies are located and how they move determine seasons, eclipses, and phases of the Moon.

Learning Intentions: Understand our planet rotation around sun determines seasons along with distance and tilt, positions of earth-moon - sun determine phases as well as different eclipses.

Success Criteria: Model eclipses, describe cause and effect of tides, explain role of gravity in types of tides, relate how positions of Earth, Moon, and Sun affect natural phenomenon on Earth

Depth of Knowledge 1-2

Resources: Online textbook ch 25 google classroom labs and interactives, CK-12.

Cognitive Process - Design models of eclipses, evaluate data from space exploration, interpret data to explain seasons and cite evidence to predict sun life cycle based on relative size.

Learning Progression: Basic vocab, model solar system object placement, differentiate between inner - outer planets, understand role of gravity, evaluate results of solar system objects collisions with earth, verify that comet motions in solar system are predictable.

Academic Vocabulary: geocentric, heliocentric, ellipse, terrestrial, jovian, asteroid, comet, Nebular Theory, Kuiper Belt, Oort cloud, meteor types, planetesimals, accretion, protoplanets,

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