Standard(s):6.PS3.1: Energy

1) Analyze the properties and compare the sources of kinetic, elastic potential, gravitational potential, electric potential, chemical, and thermal energy.

Vocab to Teach:

Quizlet Chapter 1 Lesson 1
Quizlet Chapter 1 Lesson 2

- **Energy**
- **Kinetic energy**
- **Potential energy**
- **Electric potential energy**
- **Gravitational potential energy**
- **Elastic potential energy**
- **Chemical energy**
- **Thermal energy**

Textbook:

Chapter 1 Lesson 1-2

Book Lesson:

- Activate Prior Knowledge- https://www.khanacademy.org/partner-content/nova/energy/v/windpower
    - Watch the above video
    - Read "Wind Farms" in the book (p.8)
    - Students Write in journal: What are some advantages and disadvantages of using wind energy to create electricity?
- TEACH:
    - Inquiry Warm-Up- Bounce a Ball- Observe that the greater height from which a ball is dropped, the higher the ball bounces.
    - Cecily's Video 1 https://drive.google.com/file/d/1h1EkrEAKGoXawQTngkyYQdNnVJCV0ZeL/view?usp=sharing
    - Cecily's Video 2 https://drive.google.com/file/d/1w8T1jHDoTc_IrImEAVSe1fiv6lb-kJ6-/view?usp=sharing

Formative Assessment:

Standard(s):6.PS3.2: Energy

Date: 9/26

Standard(s):6.PS3: Energy

2) Construct a scientific explanation of the transformations between potential and kinetic energy.

Chapter 1 Lesson 3 Energy transformations and conservation

Science and Engineering Practice:

Crosscutting Concept:

Vocab to Teach:

- Quizlet Chapter 1 Lesson 3

Essential Questions:

- How are different forms of energy related?
- What is the Law of Conservation of Energy?

Activities: maybe pool noodles and marbles?

- Cecily's Video 1 https://drive.google.com/file/d/1UOEXsVhNqVgoso33WsCpWCHYhX0XRa37/view?usp=sharing
- Cecily's Video 2 https://drive.google.com/file/d/1dqmw7WPg6FpG7VphRc70Kv4QOvl8P07-/view?usp=sharing
- My Planet Diary
- What would make a card jump? Activity
- Look at page 21 together and apply it activity
- Nearpod Chapter 1 Lesson 3
- Energy Transformations Interactive Art
- Transfer of energy in a roller coaster ride interactive
- Design a Roller Coaster
- Law of Conservation of Energy Quick Lab

Formative Assessment:

- Energy Transformations and Conservation worksheet
- Lesson 3 quiz

Standard(s):6.PS3.3: Energy

3) Analyze and interpret data to show the relationship between kinetic energy and the mass of an object in motion and its speed.

Vocab to Teach:

Textbook:

Book Lesson:

Formative Assessment:

Standard(s):6.PS3.4: Energy

4) Conduct an investigation to demonstrate the way that heat (thermal energy) moves among objects through radiation, conduction, or convection.

Vocab to Teach:

Quizlet Chapter 2 Lesson 1
Quizlet Chapter 2 Lesson 2
Quizlet Chapter 2 Lesson 3

Textbook:

Book Lesson:

Formative Assessment:

Standard(s):6.LS2.1: Ecosystems: Interactions, Energy, and Dynamics

1) Evaluate and communicate the impact of environmental variables on population size.

Science and Engineering Practice: Analyzing and Interpreting Data
Crosscutting Concept: Stability and Change

Vocab to Teach:

- **This is the Quizlet for all of Chapter 3 (Standards 2.1 and 2.2)**
- **Carrying Capacity**
- **Limiting Factors**

Textbook: Chapter 3, Lesson 1 & 2

Fill-inNotes:
https://docs.google.com/document/d/1IRMMysqCXf1RlFCOf_5XVwMc3RFCkBWFOcXakqdS1G4/copy

Activities:

- Great Website for quick teaching or review- https://www.ck12.org/earth-science/population-size/lesson/Population-Size-HS-ES/ Fill in Notes for this website: https://docs.google.com/document/d/1l_oIeqCF45RRXboQ2v8pd0faw0ATR66XKmThC2-DCb0/edit?usp=sharing
- Oh Deer game- http://www.beaconlearningcenter.com/documents/313_01.pdf
- https://www.youtube.com/watch?v=pPw51fDTl68 Limiting Factors Video
- Edpuzzle Carrying Capacity
- Nearpod Chapter 3, Lesson 3, Inquiry Warm-up, Butterfly Activity

Formative Assessment:
Google Forms

Standard(s):6.LS2.2: Ecosystems: Interactions, Energy, and Dynamics

2) Determine the impact of competitive, symbiotic, and predatory interactions in an ecosystem.

Science and Engineering Practice: Engaging in Argument from Evidence
Crosscutting Concept: Stability and Change & Cause and Effect

Vocab to Teach:

- **Competition**
- **Symbiosis**
- **Mutualism**
- **Parasitism**
- **Commensalism**
- **Predator**
- **Prey**

Textbook: Chapter 3, Lesson 3
Fill-in Notes:
https://docs.google.com/document/d/1nOeeahnUCewikYRIlCg71Pnsza7iv_90vobvp4hlgcc/copy

Activities: Lesson included in TN Standards Training Guide Book

- Teacher Guide from TN Training Guide Book: https://docs.google.com/document/d/1W6TGSl7-ja6gS9VzXdG5jdgU4FWbuNpDpullrI4fvbA/edit?usp=sharing
- Wolf article for above Lesson: https://docs.google.com/document/d/1ETecPoclVqJE53T3OOudwoQgYGnUvdkA5BYagChYCZw/edit?usp=sharing
- Student Activity Pages for above Lesson: https://docs.google.com/document/d/1GpmT7OWU84zJUKV3GWy59x0vbhgKwCFIU7V7kIzlciU/edit?usp=sharing
- Simulation Cards (Set 1) for Activity for above lesson: https://docs.google.com/document/d/1H5yj4oWeemSsOTMsOXAVUjj0frbU75smPEIeiz5jBi4/edit?usp=sharing
- Simulation Cards (Set 2) for Activity for above lesson: https://docs.google.com/document/d/1MfsW4YSRXXLzXX75Mfr3MdulHXYsowg1RVyPDFFtOAQ/edit?usp=sharing

- Interactions powerpoint

- Interactions powerpoint answer document

- Kay's Activity- Scenarios- Post labels on the classroom walls. Read the following scenarios and instruct students to move to that label. After the activity have student return to their desk and write their own scenarios on index cards or notebook paper. They may use internet to help them find these scenarios. Mutualism: you and a species of bacteria that lives in your intestines. (bacteria gets food from you, and you get vitamins from the bacteria) Commensalism: shark and a smaller fish, remoras (the fish hitches a ride and feeds on scraps of food left by the shark). Parasitism: tick and a deer (the tick sucks blood from the deer).
- Nearpod https://share.nearpod.com/vsph/J6UEMjpwPz

Formative Assessment: Google Forms

Summative Assessment: Quizzes from the book into google forms

https://docs.google.com/forms/d/1ndM0f5W8D9V4aY6ni54cJxDsWVH9Ntz2ruZ4HOYmjzk/copy

Kahoots review for Chapter 3 test
https://play.kahoot.it/#/k/2df1f81f-2e8c-4f82-be05-2056d26c1e2b

Standard(s):6.LS2.3: Ecosystems: Interactions, Energy, and Dynamics

3) Draw conclusions about the transfer of energy through a food web and energy pyramid in an ecosystem

Science and Engineering Practice: Developing and Using Models
Crosscutting Concept: Energy and Matter

Vocab to Teach:

Review:

- Ecosystems
- Abiotic factors
- Biotic factors
- Producer

New:

- Consumer
- Herbivores
- Carnivores
- Omnivores
- Scavenger
- Decomposers
- Food chain
- Food web
- Energy pyramid
- Desertification

Quizlet for all Chapter 4 vocabulary

Textbook: Chapter 4, Lesson 1

Activities:

- Crash Course Kids
- Kristen- TpT activity- https://documentcloud.adobe.com/link/track?uri=urn%3Aaaid%3Ascds%3AUS%3A0afca3de-6aa4-4b25-8c23-78f78c856bb5
- https://www.dropbox.com/s/n1zqlqc7q9zlcva/FoodWebsLESSONBUNDLEEditable%20%281%29%20-%20Shortcut.lnk?dl=0

- Foodweb interactive
- Kahoots - https://play.kahoot.it/#/k/206ca2cb-f1c7-423b-be9e-bf5a4a2d775f

Formative Assessment: Google Forms

Standard(s):6.LS2.4: Ecosystems: Interactions, Energy, and Dynamics

4) Using evidence from climate data, draw conclusions about the patterns of abiotic and biotic factors in different biomes, specifically the tundra, taiga, deciduous forest, desert, grasslands, rainforest, marine, and freshwater ecosystems.

Science and Engineering Practice: Engaging in Argument from Evidence
Crosscutting Concept: Patterns

Vocab to Teach:

- Biome
- Climate
- Desert
- Rain forests
- Emergent layer
- Canopy
- Understory
- Grassland
- Savana
- Deciduous trees
- Boreal forests
- Coniferous trees
- Tundra
- Permafrost

Quizlet for all Chapter 4 vocab

Textbook: Chapter 4, Lessons 2 & 3

Activities:

- **Biome Worksheets-** https://worksheetplace.com/index.php?function=DisplayCategory&showCategory=Y&links=2&id=454&link1=241&link2=454
- **Make a Biome Booklet (See Early for Template)**
- **Use this Nearpod to help students create their biome book https://share.nearpod.com/mKCN8aJetR**
- **Science Flix- Biomes**

- Video - **https://youtu.be/dTaWsFct32g**
- Kahoots - https://play.kahoot.it/#/k/cb756e81-6a74-440b-86dd-5c9187304165

Formative Assessment: Google Forms

Date: 11/12 (Review March 25-29)

Standard(s):6.LS2: Ecosystems: Interactions, Energy, and Dynamics
5) Analyze existing evidence about the effect of a specific invasive species on native populations in Tennessee and design a solution to mitigate its impact.

Science and Engineering Practice: Asking Questions and Defining Solutions
Crosscutting Concept: Cause and Effect

Vocab to Teach: (See Teacher Guide, Prior Knowledge Section for Vocabulary Resource)

- Invasive Species
- Native Species/Population
- Mitigate

Quizlet for all Chapter 5 vocab

Textbook: Chapter 5 Lesson 2 and pgs. 170-171

Activities: Lesson included in TN Standards Training Guide Book

- Teacher Guide from TN Training Guide Book: https://docs.google.com/document/d/1pexmYCFIX20QXBy01_I4nVBWv6os6lQd0Z_cnF1f22s/edit?usp=sharing
- Student Activities for Lesson Above: https://docs.google.com/document/d/19q45oZYURHPmRBSurGyPf1eW9rOrArggYo-A__I9pMU/edit?usp=sharing
- Mussels Article for Lesson Above: https://docs.google.com/document/d/1RXqRTb-ZSA_FAK4TwfwRVd0cHckAHKzPmQwcp1Lt7as/edit?usp=sharing
- Graphic Organizer for Lesson Above: https://drive.google.com/file/d/1gb9kJF2Um1huiUX--nxw4HpeVg7uX6H3/view?usp=sharing

Formative Assessment: Do we need a formative assessment for this?

Standard(s):6.LS2.6: Ecosystems: Interactions, Energy, and Dynamics

6) Research the ways in which an ecosystem has changed over time in response to changes in physical conditions, population balances, human interactions, and natural catastrophes.

Science and Engineering Practice: Engaging in Argument from Evidence
Crosscutting Concept: Stability and Change

Vocab to Teach:

Review:

- Population
- Species
- Community

New:

- succession
- Primary succession
- Pioneer species
- Secondary succession

Quizlet for all Chapter 5 vocabulary

6 minute explanation of Primary/Secondary Succession:
https://www.youtube.com/watch?v=V49IovRSJDs

Textbook: Chapter 5, Lesson 1

Activities:

Formative Assessment: Google Forms

Standard(s):6.LS2.7: Ecosystems: Interactions, Energy, and Dynamics

7) Compare and contrast auditory and visual methods of communication among organisms in relation to survival strategies of a population.

Vocab to Teach:

Textbook: Chapter 3, Lesson 3

Activities:

- **Use this website to teach or make graphic organizers: https://www.khanacademy.org/science/biology/behavioral-biology/animal-behavior/a/animal-communication**
- **Page 62, My Planet Diary Activity**
- **https://www.youtube.com/watch?v=i74RbATjBk4 k**
- **Good Instructional Video https://spark.adobe.com/video/nHuGbAY11vjzf**

Formative Assessment:

Standard(s):6.LS4.1: Biological Change: Unity and Diversity

1) Explain how changes in biodiversity would impact ecosystem stability and natural resources.

Vocab to Teach:

- Biodiversity
- Keystone species
- Extinction
- Endangered species
- Threatened species
- Habitat destruction
- Habitat fragmentation
- Poaching
- Captive breeding

Quizlet for all Chapter 5 vocabulary

Textbook: Chapter 5, Lesson 3

Activities:

- Biodiversity Video https://www.youtube.com/watch?v=JePixuWr2n0
- Bill Nye on Biodiversity https://www.youtube.com/watch?v=-Sybgof-X2k
- Ted Ed video https://youtu.be/GK_vRtHJZu4

Formative Assessment:

Standard(s):6.LS4: Biological Change: Unity and Diversity

2) Design a possible solution for maintaining biodiversity of ecosystems while still providing necessary human resources without disrupting environmental equilibrium.

Vocab to Teach:

See above

Textbook:

Chapter 5, Lesson 3

Activities:

Formative Assessment:

Standard(s):6.ESS2: Earth's Systems

1) Gather evidence to justify that oceanic convection currents are caused by the sun's transfer of heat energy and differences in salt concentration leading to global water movement.

Vocab to Teach:

- **Currents**
- **Convection**
- **Convection Current**
- **Coriolis Effect**
- **Continental Deflection**
- **Salinity**
- **Surface Current**
- **Deep Current**

Textbook:

Chapter 7 Lesson 4

Chapter 7 Lesson 6

Activities:

- Textbook Activities Above
- https://documentcloud.adobe.com/link/track?uri=urn%3Aaaid%3Ascds%3AUS%3Ab6bc7252-32d5-45d9-8314-e48345913a85
    - Convection Currents Article and Questions (pg 8-9 on above link)
    - Ocean Water on the Move Article (pg 47-48 on above link)

Formative Assessment:

Standard(s):6.ESS2: Earth's Systems

2) Diagram convection patterns that flow due to uneven heating of the earth.

Vocab to Teach:

- **Coriolis Effect**
- **Easterlies**
- **Westerlies**
- **Trade Winds**
- **Jet Stream**
- **Pressure Belts**
- **Latitude Lines**
- **Doldrums**

Textbook:

Chapter 7 Lesson 6
Chapter 8 Lesson 4

Activities:

- Textbook Activities Above
- https://documentcloud.adobe.com/link/track?uri=urn%3Aaaid%3Ascds%3AUS%3Ab6bc7252-32d5-45d9-8314-e48345913a85
    - The World's Winds Article, Color, and Label (pg. 28 on above link)
    - Global Winds Patterns Flipbook (pg. 26-27 on above link)

Formative Assessment:

Standard(s):6.ESS2: Earth's Systems

3) Construct an explanation for how atmospheric flow, geographic features, and ocean currents affect the climate of a region through heat transfer.

Vocab to Teach:

- **El Nino**
- **La Nina**
- **Upwelling**
- **Sea Breeze**
- **Land Breeze**
- **Global Winds**
- **Local Winds**

Textbook:

Chapter 7 Lesson 6
Chapter 8 Lesson 4
Chapter 9 Lesson 1-2

Activities:

- Textbook Activities Above
- https://documentcloud.adobe.com/link/track?uri=urn%3Aaaid%3Ascds%3AUS%3Ab6bc7252-32d5-45d9-8314-e48345913a85
    - Currents and Climate Article, Summarize, and Draw (p.68-71 on link)
    - Ocean Currents Questions to fill out as a class (p. 72-73 on link)

Formative Assessment:

Standard(s):6.ESS2: Earth's Systems

4) Apply scientific principles to design a method to analyze and interpret the impact of humans and other organisms on the hydrologic cycle.

Vocab to Teach:

- **Hydrologic Cycle**
- **Evaporation**
- **Condensation**
- **Precipitation**
- **Run-Off**
- **Groundwater**
- **Transpiration**

Textbook:

Chapter 7 Lesson 1-3
Chapter 8 Lesson 1

Activities:

- Textbook Activities Above
- https://documentcloud.adobe.com/link/track?uri=urn%3Aaaid%3Ascds%3AUS%3Ab6bc7252-32d5-45d9-8314-e48345913a85
    - A Drop's Journey Article and Questions (p. 10-17 on link)
- ReadWorks Hydrologic Cycle -- https://www.readworks.org/article/The-Hydrologic-Cycle/0de9a006-a322-4bda-bf83-432d491e494d#!articleTab:content/

Formative Assessment:

Standard(s):6.ESS2: Earth's Systems

5) Analyze and interpret data from weather conditions, weather maps, satellites, and radar to predict probable local weather patterns and conditions.

Vocab to Teach:

- **Weather**
- **Low Pressure Areas**
- **High Pressure Areas**
- **Humidity**
- **Relative Humidity**
- **Radar**
- **Barometer**
- **Anemometer**
- **Thermometer**
- **Isobar**
- **Isotherm**
- **Meterologist**

Textbook:

Chapter 8 Lesson 7

Activities:

- Textbook Activities Above
- https://documentcloud.adobe.com/link/track?uri=urn%3Aaaid%3Ascds%3AUS%3Ab6bc7252-32d5-45d9-8314-e48345913a85
    - What is a Weather Map Article and Questions (p.102-103 on link)
    - Weather Symbol Sally Drawings (p.104-106 on link)
    - Interpreting Weather Maps Packet (p.107-111 on link)
    - Predicting the Weather Article and Questions (113-114 on link)

Formative Assessment:

Standard(s):6.ESS2: Earth's Systems

6) Explain how relationships between the movement and interactions of air masses, high and low pressure systems, and frontal boundaries result in weather conditions and severe storms.

Vocab to Teach:

- **Air Mass**
- **Maritime mass**
- **Continental mass**
- **Polar mass**
- **Tropical mass**
- **Front**
- **Cold Front**
- **Warm Front**
- **Occluded Front**
- **Stationary Front**
- **Cyclone**
- **Anticyclone**

Textbook:

Chapter 8 Lesson 5-6

Activities:

- Textbook Activities Above
- https://documentcloud.adobe.com/link/track?uri=urn%3Aaaid%3Ascds%3AUS%3Ab6bc7252-32d5-45d9-8314-e48345913a85
    - Weather Fronts Article and Questions (p. 83-84 on link)
    - What's the Forecast Article and Short Essay (p.115 on link)
    - Meteorologists Article and Questions (p.116-117 on link)
    - Extreme Weather Article and Short Answer (p.118-119 on link)
    - Weather: Air Patterns Article and Questions (p.85-92 on link)

Formative Assessment:

Standard(s):6.ESS3: Earth and Human Activity

1) Differentiate between renewable and nonrenewable resources by asking questions about their availability and sustainability.

Vocab to Teach:

- **Renewable Resource**
- **Nonrenewable Resource**
- **Natural Resource**
- **Availability**
- **Sustainability**
- **Energy Conservation**

Textbook:

Chapter 6 Lesson 1
Chapter 10 Lesson 1-2

Activities:

- Textbook Activities Above
- Readworks Energy for Life article -- https://www.readworks.org/article/Energy-for-Life/23847089-b0b5-498f-850d-b4410829b465#!articleTab:content/

Formative Assessment:

Standard(s):6.ESS3: Earth and Human Activity

2) Investigate and compare existing and developing technologies that utilize renewable and alternative energy resources

Vocab to Teach:

- **Solar Energy**
- **Gasohol**
- **Reactor Vessel**
- **Hydroelectric Power**
- **Geothermal Energy**
- **Fuel Rod**
- **Biomass Fuel**
- **Nuclear Fission**
- **Control Rod**

Textbook:

Chapter 6 Lesson 1
Chapter 10 Lesson 1, 2
Chapter 10 Lesson 5, 6

Activities:

- Textbook Activities Above

Formative Assessment:

Standard(s):6.ESS3: Earth and Human Activity

3) Assess the impacts of human activities on the biosphere including conservation, habitat management, species endangerment, and extinction.

Vocab to Teach:

- **Biosphere**
- **Conservation**
- **Habitat Management**
- **Extinction**
- **Efficiency**
- **Insulation**
- **Keystone Species**
- **Captive Breeding**

Textbook:

Chapter 6 Lesson 2
Chapter 5 Lesson 3
Chapter 10 Lesson 3,4,5,6

Activities:

- Textbook Activities Above

Formative Assessment:

Standard(s):6.ETS1: Engineering Design

1) Evaluate design constraints on solutions for maintaining ecosystems and biodiversity.

Vocab to Teach:

- **Ecosystem**
- **Biodiversity**
- **Habitat Destruction**
- **Habitat Fragmentation**
- **Poaching**

Textbook:

Chapter 5 Lesson 3

Activities:

- Textbook Activities Above

Formative Assessment:

Standard(s):6.ETS1: Engineering Design

2) Design and test different solutions that impact energy transfer.

Vocab to Teach:

- **Conductor**
- **Insulator**
- **Heat Transfer**
- **Convection**
- **Conduction**
- **Radiation**
- **Energy Transformation**
- **Law of Conservation of Energy**

Textbook:

Chapter 1 Lesson 3
Chapter 2 Lesson 2
***Chapter 3 Lesson 3*

Activities:

- Textbook Activities Above

Formative Assessment: