

BPS Science Department Earth Science - Unit 2- Systems of Matter and Energy

Unit 2- During this unit, students will analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth's systems. Students will develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection. Students will use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate. Students will also plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes. Students will develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.

Driving Questions:

- How does Earth receive energy? How is energy transported around the planet?
- What are the primary characteristics used to distinguish minerals?
- What processes change rock from one type to another? In what ways do these processes involve inputs and outputs of matter and energy?
- How do essential elements such as carbon, nitrogen, and phosphorus move through the living and nonliving components of Earth's systems?

NYSSLS Standards:

Lesson 2.1: In this lesson, students investigate how energy flows into and out of Earth's systems. They also model how the distribution of sunlight changes with latitude and how Earth's tilt creates the seasons (SEP Developing and Using Models, DCI ESS1.B Earth and the Solar System). Students explain how the energy imbalances between Earth's equator and poles drive oceanic and atmospheric circulation (CCC Energy and Matter, DCI ESS2.D Weather and Climate, DCI ESS2.C The Roles of Water in Earth's Surface Processes). Students learn about Earth's internal energy sources, such as radioactive decay and residual energy left over from Earth's formation process (CCC Energy and Matter, DCI ESS2.B Plate Tectonics and Large-Scale System Interactions).

- **HS-ESS2-2: Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth's systems.**
 - **ESS2.A: Earth Materials and Systems**
 - Earth's systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original changes (HS-ESS2-2)
- **HS-ESS2-3 Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.**
 - **ESS2.B Plate Tectonics and Large-Scale System Interactions**
 - The radioactive decay of unstable isotopes continually generates new energy within Earth's crust and mantle, providing the primary source of the heat that drives mantle convection. Plate tectonics can be viewed as the surface expression of mantle convection. (HS-ESS2-3)
- **HS-ESS2-4. Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.**
 - **ESS2.D Weather and Climate**
 - The foundation for Earth's global climate systems is the electromagnetic radiation from the sun, as well as its reflection, absorption, storage, and redistribution among the atmosphere, ocean, and land systems, and this energy's re-radiation into space. (HS-ESS2-2), (HS-ESS2-4)
- **HS-ESS2-5. Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.**
 - **ESS2.C The Roles of Water in Earth's Surface Processes**
 - The abundance of liquid water on Earth's surface and its unique combination of physical and chemical properties are central to the planet's dynamics. These properties include water's exceptional capacity to absorb, store, and release large amounts of energy, transmit sunlight, expand upon freezing, dissolve and transport materials, and lower the viscosities and melting points of rocks. (HS-ESS2-5)

Lesson 2.2: In this lesson, students obtain and evaluate information on the molecular structure and properties of minerals (DCI ESS2.A Earth Materials and Systems, CCC Structure and Function, SEP Obtaining, Evaluating, and Communicating Information). They also plan and conduct investigations to use properties of minerals to identify minerals (CCC Structure and Function, SEP Planning and Carrying Out Investigations).

- **HS-ESS2-3 Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.**
 - **ESS2.A Earth Materials and Systems**
 - Evidence from deep probes and seismic waves, reconstructions of historical changes in Earth's surface and its magnetic field, and an understanding of physical and chemical processes lead to a model of Earth with a hot but solid inner core, a liquid outer core, a solid mantle and crust. Motions of the mantle and its plates occur primarily through thermal convection, which involves the cycling of matter due to the outward flow of energy from Earth's interior and gravitational movement of denser materials toward the interior. [HS-ESS2-3]

BPS Science Department Earth Science - Unit 2- Systems of Matter and Energy

- HS-PS4-1 Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.
 - PS4.A Wave Properties
 - Geologists use seismic waves and their reflection at interfaces between layers to probe structures deep in the planet.

Lesson 2.3: In this lesson, students use the **model** of the rock cycle to explain how weathering and other processes act on existing rock (**SEP Developing and Using Models**). Students explain how the **properties** of sedimentary, igneous, and metamorphic rocks are related to their **overall structure (CCC Structure and Function)**. Students also learn about the role of water in rock formation, including its ability to **expand upon freezing** and to **dissolve and transport materials**, such as sediments (**DCI ESS2.C The Roles of Water in Earth's Surface Processes**).

- HS-ESS2-5. Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.
 - ESS2.C The Roles of Water in Earth's Surface Processes
 - ESS2.C The Roles of Water in Earth's Surface Processes The abundance of liquid water on Earth's surface and its unique combination of physical and chemical properties are central to the planet's dynamics. These properties include water's exceptional capacity to absorb, store, and release large amounts of energy, transmit sunlight, expand upon freezing, dissolve and transport materials, and lower the viscosities and melting points of rocks. (HS-ESS2-5)

Lesson 2.4: In this lesson, students use mathematical thinking to diagram feedbacks between the biosphere and other Earth systems (**SEP Using Mathematics and Computational Thinking, DCI ESS2.A Earth Materials and Systems, DCI ESS2.E Biogeology**). They analyze and model the cycling of matter through Earth's systems (**SEP Developing and Using Models, DCI ESS2.A Earth Materials and Systems**) and investigate interactions among systems (**SEP Planning and Carrying Out Investigations, CCC Energy and Matter, CCC Systems and System Models**).

- HS-ESS2-2: Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth's systems.
 - ESS2.A Earth Materials and Systems
 - Earth's systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original changes. (HS-ESS2-1), (HS-ESS2-2)
- HS-ESS2-5. Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.
 - ESS2.C The Roles of Water in Earth's Surface Processes
 - The abundance of liquid water on Earth's surface and its unique combination of physical and chemical properties are central to the planet's dynamics. These properties include water's exceptional capacity to absorb, store, and release large amounts of energy, transmit sunlight, expand upon freezing, dissolve and transport materials, and lower the viscosities and melting points of rocks. (HS-ESS2-5)
- HS-ESS2-6 Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.
 - ESS2.D Weather and Climate
 - Changes in the atmosphere due to human activity have increased carbon dioxide concentrations and thus affect climate. (HS-ESS2-6)
- HS-ESS2-7. Construct an argument based on evidence about the coevolution of Earth's systems and life on Earth.
 - ESS2.E Biogeology
 - The many dynamic and delicate feedbacks between the biosphere and other Earth systems cause a continual co-evolution of Earth's surface and the life that exists on it. (HS-ESS2-7)

Science & Engineering Practices ([link to SEP break-down](#)):

- Planning and Carrying Out Investigations
- Developing and Using Models
- Constructing Explanations and Designing Solutions
- Using Mathematics and Computational Thinking
- Scientific Investigations Use a Variety of Methods
- Obtaining, Evaluating and Communicating Information





Crosscutting Concepts ([link to guiding questions for CCC](#)):

- Energy and Matter
- Structure and Function
- Stability and Change
- Systems and System Models






BPS Science Department Earth Science - Unit 2- Systems of Matter and Energy

Opportunities for Student Collaboration p. 45J (Complete Collaboration Strategy Guide):






- Accessing Prior Knowledge pp. 46 ● Group Discussion pp. 46, 57, 66, 67, 77, 84, 93 ● Claims, Evidence, and Reasoning pp. 54, 74, 95 ● Think, Pair, Share p. 52 ●
- Structured Note-Taking pp. 61, 62 ● Think Fast p. 68 ● Whip Around p. 91 ●

Time Frame	Lesson Framework	Instructional Sequence	Resources- HMH Dimensions- Earth & Space Science Textbook	Resources- HMH Dimensions Digital Component	Additional Resources
9/28/22-10/21/22	Unit 2: Systems of Matter and Energy		<ul style="list-style-type: none"> ● Unit Opener (Pre-Assessment): Predict- What are some of the processes involved in the flow of matter and energy among Earth's geosphere, hydrosphere, atmosphere, and biosphere? (pp. 44-45) 	<ul style="list-style-type: none"> ● Unit Project: Developing a Convection Model- In this project, students will research various ways of modeling density and convection, and then develop and observe your own physical model of convection. 	
	Lesson 2.1- Earth's Energy In this lesson, you will use models to investigate Earth's internal and external sources of energy. Vocabulary: conduction convection density radiation albedo accretion isotopes	Engage	<ul style="list-style-type: none"> ● *Phenomenon: Can You Explain It? Why do volcanic eruptions such as the one at Mt. Pinatubo, have a cooling effect? (p. 46) 		ESRT: <ul style="list-style-type: none"> ● Inferred Properties of Earth's Interior (p.10) ● Surface Ocean Currents (p. 4) ● Radioactive Decay Data (p. 1)
		Explore/ Explain	<ul style="list-style-type: none"> ● Exploration 1- Energy Sources and Flows (pp. 47-48) ● Exploration 2- Earth's External Energy (pp. 49-50) ● Exploration 3- Distribution of Sunlight (pp. 51-53) ● Exploration 4- Earth's Internal Energy (pp. 54-55) 	<ul style="list-style-type: none"> ● Lesson 1- Earth's Energy PPT (editable) ● Exploration 1:  Hands-On Lab- Energy Transfer- In this lab, students will measure the results of conduction between metal and water ● Exploration 2:  Hands-On Lab- Energy of the Sun- In this lab, students will estimate the sun's energy output and evaluate the differences between known values and experimental values. ● Exploration 3:  Hands-On Lab- Light and Latitude- In this lab, students will explore how latitude impacts the intensity of solar radiation ● Exploration 3:  Hands-On Lab- Density Currents- In this lab, students will model the movement of a fluid, such as ocean water, due to differences in density. 	Ocean Currents: Warm or Cool? Why? Explore the effect of the Angle of Incidence on Sun's Energy
		Elaborate	<ul style="list-style-type: none"> ● Continue Your Exploration- *Engineering: Urban Heat Islands (p. 56) 	<ul style="list-style-type: none"> ● Continue Your Exploration: <ul style="list-style-type: none"> ○ Comparing Worlds ○ Ice Ages 	
		Evaluate	<ul style="list-style-type: none"> ● Lesson Self Check (pp. 57-59)- Can You Explain It- Revisit ● Make Your Own Study Guide (p. 59) ● Checkpoint Questions (pp. 58-59) 	<ul style="list-style-type: none"> ● Can You Explain It? Revist ● Checkpoint Questions ● Make Your Own Study Guide ● Unit 2- Lesson 1 Quiz 	*In the Community-Geography and Daily Life (p. 45J)

BPS Science Department Earth Science - Unit 2- Systems of Matter and Energy

<p><u>Lesson 2.2 Minerals</u></p> <p>In this lesson, you will construct explanations about the composition, formation, and properties of minerals of Earth's crust.</p> <p><u>Vocabulary:</u> crystal element mineral compound</p>	<p>Engage</p> <ul style="list-style-type: none"> ● Phenomenon: Can You Explain It? Which mineral is harder, crystal A or B, based on their structures? (p. 60) 		<p>ESRT:</p> <ul style="list-style-type: none"> ● Properties of Common Minerals (p. 16) ● Average Chemical Composition of Earth's Crust, Hydrosphere, and Troposphere (p. 1) <p> Mineral Identification Lab</p> <p>*In the Community- Minerals and Culture (p. 45J)</p>
	<p>Explore/ Explain</p> <ul style="list-style-type: none"> ● Exploration 1- Introducing Minerals (pp. 61-63) ● Exploration 2- Properties of Minerals (pp. 64-68) 	<ul style="list-style-type: none"> ● Lesson 2- Minerals PPT (editable) ● Exploration 2:  Hands-On Lab- Growing Crystals- In this lab, students will observe the formation of a crystal, identify variables that affect crystal growth and evaluate the shapes of crystals. 	
	<p>Elaborate</p> <ul style="list-style-type: none"> ● Continue Your Exploration-  Hands On Lab- Mineral Identification- In this lab, students will observe, describe, and compare the properties of minerals and identify a set of minerals by their properties. 	<ul style="list-style-type: none"> ● Continue Your Exploration: <ul style="list-style-type: none"> ○ Summarize Evidence ○ Mineral Research 	
	<p>Evaluate</p> <ul style="list-style-type: none"> ● Lesson Self Check (pp. 70-71)- Can You Explain It- Revisit ● Make Your Own Study Guide (p.71) ● Checkpoint Questions (p.71) 	<ul style="list-style-type: none"> ● Can You Explain It? Revisit ● Checkpoint Questions ● Make Your Own Study Guide ● Unit 2- Lesson 2 Quiz 	
<p><u>Lesson 2.3 The Rock Cycle</u></p> <p>In this lesson you will use models to investigate how rock forms and changes over time, as well as the properties of different types of rock.</p> <p><u>Vocabulary:</u> sedimentary rock sediment igneous rock magma metamorphic rock rock cycle</p>	<p>Engage</p> <ul style="list-style-type: none"> ● Phenomenon: Can You Explain It? Describe the path of carbon atoms in shell fragments before and after they end up as fragments inside a rock. (p. 72) 		<p>ESRT:</p> <ul style="list-style-type: none"> ● Rock Cycle in Earth's Crust (p. 6) ● Scheme for Igneous Rock Identification (p. 6) ● Scheme for Sedimentary Rock Identification (p. 7) ● Scheme for Metamorphic Rock Identification (p. 7) <p>Sedimentary Rock Reference Table Practice: What does rock composition tell us about the history of rocks and Earth's environment?</p>
	<p>Explore/ Explain</p> <ul style="list-style-type: none"> ● Exploration 1- Rock and the Rock Cycle (pp. 72-76) ● Exploration 2- Sedimentary Rock (pp. 77-79) ● Exploration 3- Igneous Rock (pp. 80-82) ● Exploration 4- Metamorphic Rock (pp. 83-85) 	<ul style="list-style-type: none"> ● Lesson 3- The Rock Cycle PPT (editable) ● Exploration 1:  Hands-On Lab- Classification of Rocks- In this lab, students identify igneous, sedimentary, and metamorphic rocks, and compare and contrast their features ● Exploration 3:  Hands-On Lab- Magma in Earth's Crust- In this lab, students model magma rising through Earth's crust from the asthenosphere, observe how pressure affects magma's ability to rise to the surface, and identify features formed by solidified magma within Earth's crust. 	
	<p>Elaborate</p> <ul style="list-style-type: none"> ● Continue Your Exploration- Guided Research: The Rock Cycle on the Moon (p. 86) 	<ul style="list-style-type: none"> ● Continue Your Exploration: <ul style="list-style-type: none"> ○ Rock in your City ○ Classification of rocks 	
	<p>Evaluate</p> <ul style="list-style-type: none"> ● Lesson Self Check (pp. 87-89)- Can You Explain It- Revisit ● Make Your Own Study Guide (p. 89) ● Checkpoint Questions (pp. 88-89) 	<ul style="list-style-type: none"> ● Can You Explain It? Revisit ● Checkpoint Questions ● Make Your Own Study Guide ● Unit 2- Lesson 3 Quiz 	

BPS Science Department Earth Science - Unit 2- Systems of Matter and Energy

<p><u>Lesson 2.4- Cycles and Cycle Models</u></p> <p>In this lesson, you will model the ways that different elements and compounds cycle through Earth's systems.</p> <p><u>Vocabulary:</u> carbon cycle reservoir positive feedback negative feedback biogeochemical cycle</p>	Engage	<ul style="list-style-type: none"> • *Phenomenon: Can You Explain It? Where did the Carbon dioxide in the bottom of Lake Nyos originate? (p. 90) 		<p> You Solve It Simulation- How Can You Model Carbon Cycling? Students will begin with a simple two-reservoir model of carbon transfer between the atmosphere and ocean and iteratively add complexity.</p>
	Explore/ Explain	<ul style="list-style-type: none"> • Exploration 1- Carbon in Earth's Systems (pp. 91-94) • Exploration 2- System Models (pp. 95-98) • Exploration 3- Other Chemical Cycles on Earth (pp. 99-101) 	<ul style="list-style-type: none"> • Lesson 4- Cycles and Cycle Models PPT (editable) • Exploration 1:  Hands-On Lab- The Blue- Green Ocean-In this lab, students will predict how the amount of daylight will affect the growth of phytoplankton and the color of water. • Exploration 2:  Hands-On Lab- A Simple Model- In this lab, students explore initial conditions, steady state and influx/outflux in an ocean/atmosphere model. • Exploration 3:  Hands-On Lab- Modeling a Biogeochemical Cycle- In this lab, students will design a model to show chemical cycling among Earth's spheres. 	
	Elaborate	<ul style="list-style-type: none"> • Continue Your Exploration- Data Analysis: Elements and Plants (p. 102) 	<ul style="list-style-type: none"> • Continue Your Exploration: <ul style="list-style-type: none"> ○ Civil Engineering ○ Using a Computer Model 	
	Evaluate	<ul style="list-style-type: none"> • Lesson Self Check (pp. 103-105)- Can You Explain It- Revisit • Make Your Own Study Guide (p.105) • Checkpoint Questions (pp. 104-105) 	<ul style="list-style-type: none"> • Can You Explain It? Revisit • Checkpoint Questions • Make Your Own Study Guide • Unit 2- Lesson 4 Quiz 	
<u>Enrichment: Unit Connection Activities</u> (Optional)	<ul style="list-style-type: none"> • Engineering- Removing CO₂ from the Atmosphere • Health- Mineralogy of Toothpaste • *Art- Minerals and Art 			
<u>Unit Close</u>	<ul style="list-style-type: none"> • Synthesize the Unit (p. 107) • Driving Questions- Revisit • Practice and Review Questions (pp. 107-108) • Unit Project (p. 108) • Unit 2 Performance Task (p.109) 	<ul style="list-style-type: none"> • Assessment Guide: <ul style="list-style-type: none"> ○ Unit Test A- provides an in-depth assessment of the Performance Expectations aligned to the unit. ○ Unit Test B can be used to assess students who need extra support 	<p> Castle Learning</p> <p>HMH Earth & Space Science Unit 2- Systems of Matter and Energy (Editable item bank available under Public Assignments in Castle Learning)</p>	

BPS Science Department Earth Science - Unit 2- Systems of Matter and Energy

<p>Resources</p> <p>http://ngss.nsta.org/Classroom-Resources.aspx - Searchable NYSSLS/NGSS aligned resources curated by NSTA</p> <p>BPS Earth Science Website– BPS Earth Science curriculum resource hub</p> <p>BPS Science Department Recommended Virtual Labs – Virtual lab resources with embedded links to virtual labs and student sheets. Must be logged into BPS google account through BPS Gmail account to access.</p> <p>BPS Science Department CER Student Writing Template (BPS Science Department CER Practice with a Graph)</p> <p>NYSED’s Office of State Assessment webpage - Access to Released Regents Earth Science Examinations</p> <p>Science Learning Standards (HS) – NYSSLS High School Standards for Earth Science</p> <p>NYSED Bilingual Glossaries – NYS Statewide Language Regional Bilingual Education Resource for NYSED approved bilingual glossaries.</p>					
<p>English Language Learners (ELL) Enhancements</p> <p>To access hyperlinked material, you must be logged into your BPS Google Drive</p>	<p>Listening</p> <ul style="list-style-type: none"> ● Cross- Linguistic Practices: Gives students opportunities to make connections between what they hear and their home language (For example, allow students to listen to a passage and identify cognates.) ● Build background knowledge ● Activating Prior Knowledge ● Activating prior knowledge means both eliciting from students what they already know and building initial knowledge that they need in order to access upcoming content ● Visuals - GIFs, pictures- will assist students in understanding what they are listening to. Visual thinking strategies set the lens for learning. ● Video to review/ introduce a topic – use closed captioning so students see the words and pronunciations while they listen to the content. ● Word stretching / Vowel stretching allows student to listen closely to the pronunciation words ● Performance Level Descriptors - this document provides teachers 	<p>Speaking</p> <ul style="list-style-type: none"> ● Sentence Frames - to begin a sentence - such as <i>Evolution is...</i> or <i>I think that evolution is...</i> ● Academic Conversation Starters: Have a visual of a list of academic sentence starters that students can refer to in a discussion such as <i>I expect __ to happen.</i> or <i>My data shows that...</i> This aids students in having more science focused dialogue. ● Choral Reading - Build fluency, self-confidence and motivation with reading/speaking ● Create movement to go with the word. Movement can be a motivating factor and kinesthetic tool for conceptualizing the rhythm and flow of fluent reading while triggering brain function for optimal learning ● Performance Level Descriptors - this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of speaking. Scroll for grades 9-12 	<p>Reading</p> <ul style="list-style-type: none"> ● Supplementary Text to reinforce concepts. If necessary, use lower Lexile levels to ensure comprehension. ● Visual Aids - Pictures or models to support vocabulary words/ concepts ● Video to review introduce a topic - use closed captioning so students can read along and listen to content ● 4 Square / Frayer models to help students gain a deeper understanding of vocabulary. ● Highlighting important text to assist students in answering questions after the reading. ● Chunking-Break reading of text into chunks or paragraphs ● Vocabulary Morphology- segmenting words into affixes (prefixes/suffixes) and roots/base words. Understanding that words connected by meaning/origin can be connected by spelling can be critical to expanding a student’s vocabulary. ● Performance Level Descriptors- this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the 	<p>Writing</p> <ul style="list-style-type: none"> ● Sentence Frames - to begin a sentence- such as <i>Biodiversity is...</i> or <i>An example of competition is....</i> ● Cloze passages with word banks ● Word banks ● Graphic Organizers to help break down the writing process and organize thoughts ● Standards-based sentence stems ● Performance Level Descriptors- this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of writing. Scroll for grades 9-12. 	<p>Instructional Accommodations (depending on the student’s needs)</p> <ul style="list-style-type: none"> ● Extended time for tests in class, projects and assignments ● Directions read. Broken down as necessary ● Model how to complete the activity in the lesson ● Oral simplification of directions or questions ● Translated version of test when available. Student may have both version English and native language version ● Use of approved bilingual glossaries from NYS in each subject

BPS Science Department Earth Science - Unit 2- Systems of Matter and Energy

	with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of listening Scroll for grades 9-12.		modality of reading. Scroll for grades 9-12.		
Special Education Modifications Special Education students must have accommodations as per Individual Educational Plan (IEP)	Instructional <ul style="list-style-type: none"> ● Pre-teach vocabulary ● Use picture vocabulary ● Scaffold Depth of Knowledge questions ● Provide copy of notes/notes in “cloze” form ● Use of Think, Pair, and Share strategy to help process information ● Scaffold written assignments with the use of graphic organizers ● Allow for multiple ways to respond (verbal, written, response board) ● Provide model of performance task ● Modify informational text to fit the needs of the students ● Provide a digital or paper interactive notebook ● Present complex tasks in multiple ways ● Provide mnemonic strategies for Living Environment concepts 		Technology: <ul style="list-style-type: none"> ● Audio reading of text ● Text to type functions ● Videos to clarify/visualize Living Environment concepts ● Record class lecture/discussions and make accessible to student ● Nearpod- interactive presentations of notes ● Playposit - show a video clip about the topic and add your own questions for them to answer as they watch ● Allow students to type answers in chat on Teams Other: <ul style="list-style-type: none"> ● Arrange seating for maximum engagement and minimum distraction ● Accessible lab space (counter level) 		In Class Assessments <ul style="list-style-type: none"> ● Provide review packet or review sheet of concepts covered on the test ● Practice similar questions prior to the test ● Provide multiple options for projects ● Give a timeline of when things are due and remind them of the process often. ● Use of timer in class ● Break all complex tasks into chunks
BPS Science K-12 Schoology Folder: 9-12 Resources Earth Science Resources Curriculum Materials	SUTW Strategies <ul style="list-style-type: none"> ● Informal Outline ● Color-Coding – Informative/Explanatory Text ● Two-column notes ● I-V-F Topic Sentence progressing to Four Step Summary Paragraph ● CUPS – Capitalization, Usage, Punctuation, Spelling ● Transitions 				
Culturally and Linguistically Responsive Teaching (CLRT) in the Science Classroom	Materials, resources, and/or discussions address diverse cultural backgrounds and real-world applications <ul style="list-style-type: none"> ● Artifacts (posters, charts, etc.) in the science classroom are representative of the cultures of the student population ● All students are given an opportunity to engage in science discourse ● Teacher demonstrates high expectations for all students CLRT resources which align to Science content are denoted with a *				