

James E. Bazzell Middle School Unit Planning Template

Teacher	April Craft/Erica Hoagland		Subject	8th Grade Science—Earth's History	Timeline (Dates)	April 14 th -May 16 th
Demonstrators/ Exit Standards (Core Content)	<p>KY Core Content 4.1 Standards SC-08-2.3.1 Students will describe various techniques for estimating geological time (radioactive dating, observing rock sequences, comparing fossils). Techniques used to estimate geological time include using radioactive dating, observing rock sequences and comparing fossils to correlate the rock sequences at various locations. Deductions can be made based on available data and observation of models as to the age of rocks/fossils. DOK 2</p>					
Formative Assessments	<p>SC-08-2.3.4 <i>Students will understand that the Sun, Earth and the rest of the solar system formed approximately 4.6 billion years ago.</i></p>					
Thoughtful Education Strategies	<p>SC-08-2.3.2 <i>Students will understand that earthquakes and volcanic eruptions can be observed on a human time scale, but many processes, such as mountain building and plate movements, take place over hundreds of millions of years.</i></p>					
Literacy in Science Activities	<p>Next Generation Science Standards MS. Natural Selection and Adaptations 08-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change in life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past. MS. History of Earth 08-ESS1-4. Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6 billion-year-old history.</p> <p>Reading Standards for Literacy in Science 9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.</p> <p>Writing Standards for Literacy in Science 4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.</p>					
Essential Question(s)	What does Earth's appearance today tell us about its past?					
Guiding Questions: Learning Targets)	<ol style="list-style-type: none"> 1. I can describe how different types of fossils are preserved. 2. I can explain how index fossils are used to correlate rock layers. 3. I can explain how the fossil record provides evidence of change in life forms throughout Earth's history. 4. I can explain principles of relative age dating (superposition, cross-cutting relationships, and original horizontality). 5. I can determine the relative age of rocks and fossils. 6. I can interpret gaps in the rock record (unconformities). 7. I can explain how absolute age differs from relative age. 8. I can describe how the half-lives of radioactive isotopes are used to determine a rock's absolute age. 9. I can explain how geologic time can be divided into units. 	Unit Vocabulary	<p>index fossil, mold, cast, permineralized remains, carbon film, trace fossil, original preservation, correlation, relative age, strata, cross-cutting relationships, original horizontality, lateral continuity, intrusion, superposition, unconformity, uniformitarianism, absolute age, half-life, radioactive decay, eon, epoch, era, period, geologic time scale</p>			
What products will students create to show they understand? (Formative & Summative Assessments)					Please attach Open Response and Rubric.	

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Unit 5 Vocabulary Test	Unit 5 Multiple Choice Test	2 Learning Target Assessments	Unit 5 Writing Assignment (Picture book about Earth's History)	Open Response Lab Report/Assessment	
Vocabulary CODE	C	O	D	E	
	Vocabulary Knowledge Rating Organizer; Word Wall	Flashcards, 4 Thought Organizers (Fossils)	Three's a Crowd: Half-life, radioactive decay, & absolute age	Vocabulary Pictures (Principles of Relative Age Dating); Divisions of Geologic Time (foldable)	
Hook : How will you introduce the unit to generate curiosity & excitement and connect to prior knowledge?					
Personal Timelines: In order to help students make the connection about how geologists study fossils and rocks to understand its history, they will be given a brown lunch bag to collect "fossils" that provide insight about their history. Students will use those fossils to create an accurately scaled timeline of their how past.					
Thoughtful Education Strategies (Minimum of three per week) (Fifteen different strategies per semester)					
Mastery		Interpersonal	Understanding	Self – Expressive	Utility (Can be used in multiple styles)
Fact or Fiction Spider/Fist List Word Association Word Wall Reading for Meaning Interactive Lecture Group & Labeling	Categories Memory Box Write to learn Building writing	Reciprocal Learning Think/Pair/Share Give one, Get one Collaborative Summarizing Jeopardy	Anticipation Guides KWL Concept Attainment Compare/Contrast 1,2,3,4 Yes, No, Why	Etch-a-Sketch Mystery	Graduated Difficulty Comprehension Menu Task Rotation Voc Notebook Carousel Brainstorming Boggle Reader's Theatre Vocabulary Code Jigsaw 4-2-1 Free Write Kindling TGT

WEEK 1													
Day 1	Target #	Day 2	Target #	Day 3	Target #	1	Day 4	Target #	1	Day 5	Target #	2-3	
Bell Ringer:	Vocabulary Knowledge Rating Organizer: Students will self-assess their prior knowledge of the unit terminology.	Bell Ringer:	Students will record pretest data on their unit organizer, then set a learning goal for the end of the unit.	Bell Ringer:	In order to assess students' prior knowledge about fossils, students will complete an anticipation guide.	Bell Ringer:	Students will read a short news article about fossils and use information in the make inferences.	Bell Ringer:	Which Came First? Students will work in groups of 4 to put organisms in order of when they first appeared in the fossil record.				
Student Activity	1. Unit 5 Pretest (multiple choice) to assess prior knowledge 2. Students will preview Unit 5 examining learning targets, terminology, and assessments/Activities. 3. Students will be given a brown lunch bag and directions for collecting "fossils" that explain their life history.	Student Activity	Unit Hook: Students will use the "fossils" they collected to represent their life history to create a personal timeline.	Student Activity	Jigsaw Learning: Students will read an excerpt describing how one type of fossil is preserved and record their thinking using a 4-Thought Organizer.	Student Activity	Students will share the information they gathered with other students in their group in order to complete a graphic organizer to differentiate among types of fossils.	Student Activity	1. Index Fossils & Correlation: Students will use index fossils to correlate rock strata. 2. Students will examine fossil evidence to make inferences about how life has changed over time.				
FA:	Pretest data will		Personal Timelines will be				Types of Fossils Exit Slip		Students work samples				

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	collected and analyzed to guide instruction. Think, Pair, Share	FA:	collected for participation grade.	FA:		FA:		FA:	will be collected as a formative assessment.					
Modifications/Extensions														
			Students with an IEP will be given a modified text.			Students will work in small groups.								
Notes:														
WEEK 2														
Day 6	Target #	4	Day 7	Target #	5,6	Day 8	Target #	5,6	Day 9	Target #	1-6	Day 10	Target #	1-6
Bell Ringer:	Students will create vocabulary flashcards of the fossil terminology.		Bell Ringer:	Principles of Relative Age Formative Assessment (matching principle with an example)		Bell Ringer:	Students will create vocabulary pictures for each principle of relative age dating.		Bell Ringer:	Learning Targets 1-5 review sheet		Bell Ringer:	Study for LTC 5-1	
Student Activity	Principles of Relative Age Outline/ Etch-a-Sketch : Students will draw a diagram of rock strata showing 6 principles of dating.		Student Activity	Determining Relative Age of Rocks and Fossils Practice Exercises		Student Activity	Determining Relative Age of Rocks and Fossils Practice Exercises		Student Activity	Learning Targets 1-6 Pause Day for Flexible Grouping Re-teach group: Additional practice exercises in a small group setting Enrichment group:		Student Activity	Summative Assessment: Learning Target Check 5-1	
FA:	Students will be given a picture of a real-world rock outcrop and use a graphic organizer to make inferences about the relative age of the rocks.		FA:	Students will peer assess their practice exercises.		FA:	Determining Relative Age of Rocks and Fossils Example Problem		FA:			FA:		
Modifications/Extensions														
									Reader, scribe, and extended time will be provided as needed.					
Notes:														
WEEK 3														
Day 11	Target #	7	Day 12	Target #	8	Day 13	Target #	8	Day 14	Target #	8	Day 15	Target #	7-8
Bell Ringer:	Students will create vocabulary flashcards of relative age dating terminology.		Bell Ringer:	Three's a Crowd : Half-life, radioactive decay, & absolute age		Bell Ringer:	What is half-life? So What do I need to know about half-life? Now What can I do with my knowledge about half-life?		Bell Ringer:	Students will create vocabulary flashcards of absolute age dating terminology.		Bell Ringer:	Learning Targets 7 & 8 Formative Assessment (quiz)	
Student Activity	Students will watch a short video clip, then read a short passage describing absolute age. Students will create a Venn Diagram or other graphic organizer comparing and		Student Activity	Half-Life Lab Activity: Data Collection Students will be given 100 pennies. They will shake the pennies (to represent radioactive decay), then record how many of the pennies changed from		Student Activity	Half-Life Lab Activity: Data Analysis and Conclusions Students will report their data to the class & calculate class average for each half-life. Then, they		Student Activity	Students will calculate the absolute age of rocks and fossils when given necessary information in a variety of ways.		Student Activity	Summative Assessment: Half-Life Lab Assessment	

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	contrasting the information they gained from both sources.		heads to tails (decayed) during each half-life.		will graph the expected ratio, class average, and their own data for comparison.			
FA:	Student work (graphic organizer) will be collected & analyzed for misconceptions/errors.	FA:		FA:	Student work (lab report) will be collected & analyzed for misconceptions/errors..	FA:	Determining Absolute Age of Rocks and Fossils Example Problem	FA:

Modifications/Extensions									
Students with IEPs will have the text read aloud to them during study skills.			Students will work with a partner to collect and analyze data.			Students will work with a partner to collect and analyze data.			Reader, scribe, and extended time will be provided as needed.

Notes:

WEEK 4

Day 16	Target #	9	Day 17	Target #	3	Day 18	Target #	3	Day 19	Target #	Lit 4	Day 20	Target #	Lit 4
Bell Ringer:	Students will use the Geologic Time Scale as a reference tool to answer questions.		Bell Ringer:	Students will create vocabulary flashcards of divisions of time terminology.		Bell Ringer:	Students will get into their groups and continue their work from the previous day.		Bell Ringer:	Geologic Time Scale Anticipation Guide		Bell Ringer:	Students will get into their groups and continue their work from the previous day.	
Student Activity	Students will create a proportioned foldable that shows the relationship between eons, eras, periods, and epochs.		Student Activity	Geologic Time Scale Timeline: Students will create a timeline that includes fossils from each time period.		Student Activity	Geologic Time Scale Timeline: Students will create a timeline that includes fossils from each time period.		Student Activity	Students will work in groups of 4 to create an informational picture book of each era of geologic history. The book will include information about the diversity of life & changes in the land and atmosphere.		Student Activity	Students will work in groups of 4 to create an informational picture book of each era of geologic history. The book will include information about the diversity of life & changes in the land and atmosphere.	
FA:	Divisions of Time Exit Slip		FA:			FA:	Student work (timelines) will be collected for participation grade.		FA:			FA:		

Modifications/Extensions														
										Students will work in groups of 4.			Students will work in groups of 4.	

Notes:

WEEK 5

Day 21	Target #	7-9	Day 22	Target #	7-9	Day 23	Target #	1-9	Day 24	Target #	1-9	Day 25	Target #	1-9
Bell Ringer:	Learning Targets 7-9 Review Sheet		Bell Ringer:	Study notes and handouts for LTC 5-2		Bell Ringer:	Review flashcards to study for vocabulary assessment		Bell Ringer:	Review study guide		Bell Ringer:	Think, Pair, Share: Students will discuss answers to constructed and extended response questions.	
Student	Learning Targets 7-9 Pause Day for Flexible Grouping		Student	Summative Assessment: Learning Target Check 5-2		Student	Unit 5 Review Game Summative Assessment:		Student	Summative Assessment: Unit 5 Multiple Choice		Student	Summative Assessment: Unit 5 Constructed and Extended Response	

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Activity	Students will be paired (one high/one low) to solve problems pertaining to absolute age in a game like setting.	Activity		Activity	Vocabulary Test	Activity		Activity	Questions
FA:		FA:		FA:		FA:		FA:	
Modifications/Extensions									
		Reader, scribe, and extended time will be provided as needed.		Reader, scribe, and extended time will be provided as needed.		Reader, scribe, and extended time will be provided as needed.		Reader, scribe, and extended time will be provided as needed.	
Notes:									