**Kiser Middle School**

**Lesson Plan Template**

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| --- | --- | --- | --- |
| **SUBJECT** | **Science** | **GRADE** | **8** |
| **DATE** | **9/5** | **PERIOD** | **All** |
| **Essential Standards** | **8.E.2.1 Infer the age of Earth and relative age of rocks and fossils from index fossils and ordering of rock layers (relative dating and radioactive dating).** | | |
| **Essential Question** | **What is the evidence used to support the current scientific theories regarding the age of the Earth?** | | |
| **I Can Statements** | **…..list the four Eras of Geologic Time**  **…..explain the rational for beginning and ending Eras/Periods of Geologic Time.**  **…..define a mass extinction and give examples of various causes.**  **…..give a general description of each era noting important developments** | | |
| **Vocabulary** | **Geologic Time, Era, Period, Big Bang Theory, mass extinction, Pre-Cambrian, Paleozoic, Mesozoic, Cenozoic,** | | |
| **H.O.T. Question(s) Higher Order Thinking Questions** | * **What role has time played in shaping life the geologic and biologic features of the Earth?** * **Why is it appropriate to suggest that everything that humans have contributed to the Earth is relatively insignificant?** * **What might mark the beginning of the next Era or Period in Geologic Time?** * **Geologic time is determined by events not time. How would you divide your life using a similar method?** * **We are living in the Cenozoic Era. What types of events might make scientist declare that the Cenozoic Era has ended?** | | |
| **Material/**  **Manipulatives** | **Strips for Geologic Time Activity,** | | |
| **Technology Integration** | **Geologic Time Power Point** | | |
| **Warm Up** | **Bag of rice, How many?**  <https://www.youtube.com/watch?v=xAoK38U8gDU> (1:43; How does thousand, million, billion and trillion dollar looks like visually?)  <https://www.youtube.com/watch?v=Nr1AdwxosTQ> [6:04; How big is a billion? (No, it's bigger than that!)] | | |
| **Hook/**  **Cultural Connection** | **Mention show Big Bang Theory; Emphasis on human need to understand our history and where we came from and where we are going.** <https://www.youtube.com/watch?v=Fm2B5R6kKb4> (1:39; The Big Bang Theory - Opening theme song normal speed then in slow motion)  Our whole universe was in a hot, dense state Then nearly fourteen billion years ago expansion started, wait The earth began to cool, the autotrophs began to drool Neanderthals developed tools We built a wall (we built the pyramids) Math, science, history, unraveling the mysteries That all started with the big bang! Hey!  Since the dawn of man is really not that long As every galaxy was formed in less time than it takes to sing this song A fraction of a second and the elements were made The bipeds stood up straight, the dinosaurs all met their fate They tried to leap but they were late And they all died (they froze their asses off) The oceans and Pangea, see ya wouldn't wanna be ya Set in motion by the same big bang! It all started with the big bang!  It's expanding ever outward but one day It will cause the stars to go the other way Collapsing ever inward, we won't be here, it won't be hurt Our best and brightest figure that it'll make an even bigger bang!  Australopithecus would really have been sick of us Debating how we're here, they're catching deer (we're catching viruses) Religion or astronomy (Descartes or Deuteronomy) It all started with the big bang!  Music and mythology, Einstein and astrology It all started with the big bang! It all started with the big bang! | | |
| **Me: Modeled** | **Day One-Presentation outlining basics of Geologic Time.**  <https://www.youtube.com/watch?v=2KjqHfemon8&feature=youtu.be> (6:13; Physics learning - Geologic Time Scale: Major Eons, Eras, Periods and Epochs; this video clip does a great job correlating our understanding of different units of time to the larger units of time for the Geologic Time Scale)  <https://www.youtube.com/watch?v=7PQURsc2SYs&feature=youtu.be> (4:22; Geologic Time Music Video)  <https://www.youtube.com/watch?v=SY3MZ_wNFW8&feature=youtu.be> [3:00 of 4:04 (no need to watch the minute-long credits); Geologic "Eras", animated] | | |
| **We: Shared** | **Students will share how they would go about finding out how many grains of rice are in the bag. Then they will pick an object that could be filled with rice and estimate how many grains would be needed.** | | |
| **Minute By Minute Assessment** | **During lecture, observe for completion of graphic organizer.**  **During Geologic Time Slips, offer suggestions when students need stuck. Verify correct placement.** | | |
| **Few: Guided Practice** | **Geologic Time Event Slips**  <https://www.dynamicearth.co.uk/media/1514/geological-timeline-pack.pdf>  **(many activities and strips for sorting)**  pre2 | | |
| **You: Independent Practice** |  | | |
| **Summary** | **End of each day, pick one of the HOT questions for review in class.** | | |
| **Corrective Instruction** | **Students often have trouble with understanding the basis of Geologic Time. Ways to help this is have them divide their own life not by years but by events.**  **Another tricky part of this unit is helping students recognize the short amount of time humans have been on Earth. Using the red string in the room often helps.** | | |
| **What is Going On?** | **9/4-Bag of Rice, Geologic Time Lecture, Geologic Time Slips**  **9/5 –Short Geologic Timeline**  **9/6-. Mass Extinction Reading Groups, Review for Quiz** | | |

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| **Essential Question** | **What is the evidence used to support the current scientific theories regarding the age of the Earth?** | | |
| **I Can Statements** | **…..list the four Eras of Geologic Time**  **…..explain the rational for beginning and ending Eras/Periods of Geologic Time.**  **…..define a mass extinction and give examples of various causes.**  **…..give a general description of each era noting important developments** | | |
| **Vocabulary** | **Geologic Time, Era, Period, Big Bang Theory, mass extinction, Pre-Cambrian, Paleozoic, Mesozoic, Cenozoic,** | | |
| **H.O.T. Question(s) Higher Order Thinking Questions** | * **What role has time played in shaping life the geologic and biologic features of the Earth?** * **Why is it appropriate to suggest that everything that humans have contributed to the Earth is relatively insignificant?** * **What might mark the beginning of the next Era or Period in Geologic Time?** * **Geologic time is determined by events not time. How would you divide your life using a similar method?** * **We are living in the Cenozoic Era. What types of events might make scientist declare that the Cenozoic Era has ended?** | | |
| **Material/**  **Manipulatives** | **Textbooks, pages 346-349, paper, colored pencils, rulers** | | |
| **Technology Integration** | **Brief introductory videos relating to the Earth’s History.** | | |
| **Warm Up** | **Watch one of the videos and have students write three points they find interesting.**  **Earth History in 5 ½ Minutes** <https://www.youtube.com/watch?v=8qnnoePeHlk>  **Four Ways to Understand the Earth’s Age** <https://www.youtube.com/watch?v=tkxWmh-tFGs> | | |
| **Hook/**  **Cultural Connection** | **Have students share information about the oldest person they have ever known. They will then put that person’s life in the form of a fraction comparing it with the age of the Earth.** | | |
| **Me: Modeled** | **Help students set up their timelines. Put diagram on board and lead them through the first one or two items.** | | |
| **We: Shared** |  | | |
| **Minute By Minute Assessment** | **Need to help students find the items that need to go on the timeline. Need to help them think about when other events/creatures will appear.** | | |
| **Few: Guided Practice** | **Students can help each other find events/creatures** | | |
| **You: Independent Practice** | **All students will create their own timeline and will produce a product.** | | |
| **Summary** | **End of each day, pick one of the HOT questions for review in class.** | | |
| **Corrective Instruction** | **Make sure students understand that events/creatures cannot “first appear” in two different Eras or Periods.** | | |
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| **Material/**  **Manipulatives** |  | | |
| **Technology Integration** | **Video Clip on Mass Extinctions**  <https://www.youtube.com/watch?v=FlUes_NPa6M> | | |
| **Warm Up** | **Ask students to list at least three things that are extinct. Ask them to write down when they think the last species on Earth went extinct.** | | |
| **Hook/**  **Cultural Connection** |  | | |
| **Me: Modeled** | **I will read out loud the first article and model how to pull out the information that is needed.** | | |
| **We: Shared** | **Share extinction answers, making a list of what has gone extinct. Then share the idea of mass extinction and ask for what they think that means.** | | |
| **Minute By Minute Assessment** | **Monitor the silent reading of the articles. Help students as they search to find the information from the article to share with their table mates.** | | |
| **Few: Guided Practice** | **Mass Extinction Article and Discussion** | | |
| **You: Independent Practice** |  | | |
| **Summary** | **End of each day, pick one of the HOT questions for review in class.** | | |
| **Corrective Instruction** | **When students are sharing information, they must deliver it verbally. Make sure other students are not taking the papers of each student and writing down what they have on the paper.** | | |
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