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| **Carbon and the Carbon Cycle:**  **Complete in your Science notebook: Write out the questions and answer them.**  **Activity One: Atomic Structure and Carbon**  Directions: Watch the video below about atomic structure and the importance of carbon.  You may need to pause and replay certain parts of the video to answer the questions in your science journal. This should be a review!  Atomic Structure Overview | Cell Biology | Biochemistry.mov  1. Describe the structure of an atom.  How are the parts of an atom similar and how are they different?  2. What is an Isotope and what is one way in which an isotope can be helpful to scientists?  3. What feature of an atom's structure determines the way it bonds with other atoms?  Atomic Structure Overview | Cell Biology | Biochemistry  <https://youtu.be/pV822HfqT44>  **Activity Two: Textbook Reading Activity**  Directions: read the textbook pages 51 and the top of page 52.  Answer the questions or complete the activities below.  1. Explain the difference between the two broad categories of compounds called organic and inorganic.  2. There are absolutely NO inorganic compounds that contain Carbon. True or False?  EXPLAIN!  3. How many electrons does Carbon have in its outermost energy level?  4. How many covalent bonds can one Carbon atom form?  Explain why it can form this many.  5. The tendency of Carbon to bond with it’s self-results in what?  6. On the bottom of page 51 are three examples (A,B,and C) of the ways in which Carbon can bond.  Copy each of the examples in your Science notebook and label each.  **Activity Three: Carbon Cycle Game**  Directions: The cycling of Carbon through the Earth is vital to life as all living things rely on carbon to build more complex molecules like carbohydrates, lipids, and proteins.  The link below will take you to a game that allows you to experience the cycling of a single Carbon atom through the living and non-living parts of the planet.  **As you are playing the game, record your atom's cycling through the planet in your science notebook.  Describe each step along the way.**  [**http://www.windows2universe.org/earth/climate/carbon\_cycle.htm**](http://www.windows2universe.org/earth/climate/carbon_cycle.html)  **Activity Four: Putting it All Together**  Directions: The videos below to summarize the importance of Carbon and the cycling of Carbon in ecosystems.  Use the videos to answer the questions in your Science notebook.  Carbon Chemistry and Life.mov  <https://www.youtube.com/watch?v=O6VHViA2BcQ>  *and*  How Ecosystems Work - Biology - Ecology.mov  <https://www.youtube.com/watch?v=o_RBHfjZsUQ>  1. The energy that powers a pride of Lions on the African Savannah began as sunlight.  True or False?  Explain.  2. Why does Carbon need to cycle through an Ecosystem and not transfer like energy?  3. What happens to the Carbon atoms that compose the molecules of a Zebra after it has been killed and eaten by a Lion?  Be as specific as you possibly can be. |