

Name: _____

Carbon connections notes

Carbon connections

Carbon, an element found on the periodic table, is a form of _____.

Carbon has the ability to combine with up to _____ different elements to create large, complex molecules.

The _____ refers to carbon moving through the different spheres of Earth.

Carbon cycle

Carbon cycles through both _____ (living) and _____ (non-living) components.

Both biotic and abiotic components are found among the biosphere, geosphere, hydrosphere, and atmosphere.

Carbon can exist in four different states, based on its molecular form:

1. as a _____ (e.g. sugar or protein)
2. as a _____ (e.g. liquefied natural gas)
3. as a _____ (e.g. carbon dioxide [CO₂] or methane [CH₄])
4. as a _____ (e.g. Earth's cool and dense plasmasphere)

Carbon in the spheres

After decomposing (_____ or through _____), carbon is released back into the atmosphere, biosphere, hydrosphere or geosphere.

Carbon continues its process of cycling through the four spheres of Earth.

Carbon in the biosphere

Carbon exists in the _____ as living, biotic matter such as the sugars, proteins and fats in animals, plants and fungi.



Carbon in the geosphere

When biotic forms of carbon decay over long periods of time, they become _____.

Fossil fuels are stored underground in the _____.

Different types of fossil fuels include:

- coal
- petroleum
- natural gas

Coal

- formed from _____
- converted from organic plant matter into the mineral _____ over many years
- currently the largest source of energy worldwide

Petroleum

- form of crude (unrefined) oil
- composed of _____
- also refined into many products, such as _____ and _____

Natural gas

- decomposed natural plant and animal matter that has been exposed to _____
- _____ before being used as energy for things like heating homes, cooking food, heating water and as a transportation fuel
- cleanest-burning fossil fuel



Renewable natural gas

Bacteria break down organic waste to create _____.

The biogas is captured and purified to provide _____ natural gas.

Renewable natural gas is considered carbon neutral because it's produced from organic waste and no additional carbon is released into the atmosphere.

Carbon neutral

Being carbon neutral means balancing carbon emissions released into the atmosphere with projects or actions that _____ carbon emissions from the atmosphere.

Renewable natural gas can reduce greenhouse gas emissions in the atmosphere as it displaces traditional fossil fuels that _____ release greenhouse gases into the atmosphere.

