

***Cycles worksheet***

*Please answer the following using the words in the text box.*

**Carbon Cycle**

Coal	Oil	Natural Gas	burning of fossil fuels	volcanoes
Photosynthesis	Respiration	ocean	sugar	Greenhouse
				decayed

1. Plants use CO<sub>2</sub> in the process of \_\_\_\_\_ to make \_\_\_\_\_ and oxygen.
2. Animals use oxygen in the process of \_\_\_\_\_ and make more CO<sub>2</sub>.
3. The \_\_\_\_\_ is the main regulator of CO<sub>2</sub> in the atmosphere because CO<sub>2</sub> dissolves easily in it.
4. In the past, huge deposits of carbon were stored as dead plants and animals \_\_\_\_\_.
5. Today these deposits are burned as fossil fuels, which include \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
6. More CO<sub>2</sub> is released in the atmosphere today than in the past because of \_\_\_\_\_.
7. Another natural source for CO<sub>2</sub> is \_\_\_\_\_.
8. Too much CO<sub>2</sub> in the atmosphere may be responsible for the \_\_\_\_\_ effect.
9. Write the equation for **photosynthesis**.
10. Draw a **simple diagram** of the Carbon Cycle using the words in the text box above.

### Oxygen Cycle

Photosynthesis	Ozone	Waste	Crust	Oceans	Respiration
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1. Plants release 430-470 billion tons of oxygen during process of \_\_\_\_\_.
2. Atmospheric oxygen in the form of \_\_\_\_\_ provides protection from harmful ultraviolet rays.
3. Oxygen is found everywhere on Earth, from Earth's \_\_\_\_\_ (rocks) to the \_\_\_\_\_ where it is dissolved.
4. Oxygen is vital for \_\_\_\_\_ by animals, a process which produces CO<sub>2</sub> and water.
5. Oxygen is also necessary for the decomposition of \_\_\_\_\_ into other elements necessary for life.
6. Write the equation for **respiration**.
7. Draw a **diagram** of the Oxygen Cycle using the words in the text box.

### Nitrogen Cycle

Atmosphere	78%	ammonia	proteins	denitrifying
Nitrate	nitrogen-fixing	plants	animals	waste plants

1. Our atmosphere is \_\_\_\_\_ nitrogen gas.
2. Animals and plants cannot directly use all the nitrogen found in our \_\_\_\_\_.
3. Only special bacteria can directly use nitrogen in our atmosphere and “fix” it so other organisms can benefit. These bacteria are called \_\_\_\_\_-\_\_\_\_\_ bacteria.
4. Higher organisms use nitrogen to make their \_\_\_\_\_.
5. Animal waste decay by the action of bacteria which create \_\_\_\_\_ and \_\_\_\_\_ products rich in nitrogen, and useful for plants to use again.
6. \_\_\_\_\_ bacteria in the soil can break down the ammonia into the gaseous form of nitrogen, which is not available for use by plants or animals.
7. In another part of the cycle, animals eat \_\_\_\_\_ containing nitrogen, which is again returned to the soil by animal \_\_\_\_\_ or decaying \_\_\_\_\_ and \_\_\_\_\_.
8. Draw a **diagram** of the Nitrogen cycle using the words in the text box.

## **Phosphorus Cycle**

Pollution	basins	rocks and minerals	waste	DNA	overgrowth	plants
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1. Phosphorus is NOT found in the free state in Nature, but is contained mostly in \_\_\_\_\_ and \_\_\_\_\_.
2. It is an essential nutrient for life, as it makes up important chemicals such as \_\_\_\_\_.
3. In the Phosphorus Cycle, phosphorus moves between the soil and \_\_\_\_\_, which are eaten by animals. The animals use phosphorus, and then their \_\_\_\_\_ products help return the Sulfur for the next generation of phosphorus in the soil.
4. Some of the phosphorus in soils can be washed away into water \_\_\_\_\_.
5. Another source of phosphorus in water comes from man-made \_\_\_\_\_.
6. Too much phosphorus in water leads to plant \_\_\_\_\_, strangling all other life forms in the water.
7. Why is the use of too much phosphorus-rich fertilizers bad for the environment?

### Sulfur Cycle

Water	Minerals	Volcanoes	minerals	Industry	Ground or rocks
Rain	pollution	matches	H <sub>2</sub> S	insecticide	sulfuric acid

1. Sulfur in a pure elemental state is most often found near active \_\_\_\_\_.
2. Sulfur is found in all of Earth's environments, including the air, the hydrosphere (\_\_\_\_\_), the biosphere (living part), and the lithosphere (\_\_\_\_\_ or \_\_\_\_\_).
3. Many sulfates, a solid form of sulfur, come from chemical weathering of \_\_\_\_\_ that contain sulfur.
4. Another major source of sulfur is from \_\_\_\_\_ caused by man-made activities. These are mixed with water in the air falling in \_\_\_\_\_ into water basins.
5. The gas \_\_\_\_\_ smells like rotten eggs.
6. One of the most important sulfur compounds is \_\_\_\_\_, which is used to make fertilizers, automobile batteries, iron and steel, and plastics.
7. Other uses for sulfur include \_\_\_\_\_ (kills insects) and \_\_\_\_\_ (used to start fires).
8. Make a **diagram** of where sulfur is found. *Hint: See question #2 above.*