Cycles worksheet
Please answer the following using the words in the text box.

Carbon Cycle

<table>
<thead>
<tr>
<th>Coal</th>
<th>Oil</th>
<th>Natural Gas</th>
<th>burning of fossil fuels</th>
<th>volcanoes</th>
<th>Photosynthesis</th>
<th>Respiration</th>
<th>ocean</th>
<th>sugar</th>
<th>Greenhouse</th>
<th>decayed</th>
</tr>
</thead>
</table>

1. Plants use CO₂ in the process of _______________ to make ___________ and oxygen.
2. Animals use oxygen in the process of _______________ and make more CO₂.
3. The ____________ is the main regulator of CO₂ in the atmosphere because CO₂ 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 CO₂ is released in the atmosphere today than in the past because of ____________
   ____________.
7. Another natural source for CO₂ is ________________.
8. Too much CO₂ 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**

<table>
<thead>
<tr>
<th>Photosynthesis</th>
<th>Ozone</th>
<th>Waste</th>
<th>Crust</th>
<th>Oceans</th>
<th>Respiration</th>
</tr>
</thead>
</table>

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 CO₂ 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.

**Sulfur Cycle**

<table>
<thead>
<tr>
<th>Water</th>
<th>Minerals</th>
<th>Volcanoes</th>
<th>minerals</th>
<th>Industry</th>
<th>Ground or rocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rain</td>
<td>pollution</td>
<td>matches</td>
<td>H₂S</td>
<td>insecticide</td>
<td>sulfuric acid</td>
</tr>
</tbody>
</table>

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 in found. *Hint: See question #2 above.*

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**Phosphorus Cycle**

<table>
<thead>
<tr>
<th>Pollution</th>
<th>basins</th>
<th>rocks and minerals</th>
<th>waste</th>
<th>DNA</th>
<th>overgrowth</th>
<th>plants</th>
</tr>
</thead>
</table>

1. Phosphorus in 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?
Nitrogen Cycle

<table>
<thead>
<tr>
<th>Atmosphere</th>
<th>78%</th>
<th>ammonia</th>
<th>proteins</th>
<th>denitrificating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrate</td>
<td>nitrogen-fixing</td>
<td>plants</td>
<td>animals</td>
<td>waste</td>
</tr>
</tbody>
</table>

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.