Study Guide  Cycling of Matter

The water cycle.
Number the steps of the water cycle in the order in which they occur. Begin with the collection of water in lakes or oceans.

__________ 1. Groundwater and runoff from land surfaces flow into rivers, lakes, and oceans.
__________ 2. Water returns to Earth as rain or snow through the process of precipitation.
__________ 3. Through evaporation, water changes from a liquid to a gas that becomes part of the air.
__________ 4. Through condensation, water in the air changes from a gas to tiny droplets of liquid.

The carbon and oxygen cycles.
Refer to the illustration. Use each of the terms below only once to complete the passage.

<table>
<thead>
<tr>
<th>atmosphere</th>
<th>carbon</th>
<th>cycles</th>
<th>water</th>
</tr>
</thead>
<tbody>
<tr>
<td>living organisms</td>
<td>photosynthesis</td>
<td>respiration</td>
<td></td>
</tr>
</tbody>
</table>

(5) _________________ is a part of all organic compounds, which make up living things.

It (6) __________________ through the environment due to the flow of energy in ecosystems. The carbon cycle is made of several processes, including (7) ___________________ and (8) _________________. During these processes, carbon moves between its major reservoirs. These major reservoirs include the (9) ___________________, the (10) ___________________, and (11) ___________________.

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The nitrogen cycle.

Use each of the terms below only once to complete the passage.

<table>
<thead>
<tr>
<th>ammonia</th>
<th>atmosphere</th>
<th>consumers</th>
<th>decay</th>
<th>decomposers</th>
<th>denitrification</th>
<th>nitrogen fixation</th>
<th>plants</th>
<th>proteins</th>
<th>urinate</th>
</tr>
</thead>
</table>

Nitrogen is a nutrient that organisms need to produce (12) _______________________.

Plants and animals cannot use the nitrogen that makes up a large percentage of the
(13) _______________________. The nitrogen is captured and converted into a form that is usable
by plants in a process called (14) _______________________. Nitrogen enters the food web when
(15) ______________________ absorb nitrogen compounds from the soil and use them to make
proteins. (16) ______________________ get nitrogen by eating plants or animals that contain
nitrogen. Nitrogen is returned to the soil when animals (17) ______________________ or when
organisms die and (18) _______________________. (19) ______________________ break
down organic matter found in organisms into (20) _______________________. This compound is
changed by organisms in the soil into other nitrogen compounds that can be used by plants. Finally, some
soil bacteria convert nitrogen compounds into nitrogen gas, which returns to the atmosphere in a process
called (21) _______________________.

The phosphorus cycle.

Label the diagram of the phosphorus cycle. Use these choices:

<table>
<thead>
<tr>
<th>long-term cycle</th>
<th>new rock</th>
<th>short-term cycle</th>
<th>soil and groundwater</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.</td>
<td>23.</td>
<td>24.</td>
<td>25.</td>
</tr>
</tbody>
</table>

22. _______________________________________
23. _______________________________________
24. _______________________________________
25. _______________________________________

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