The water cycle

The water deposit of the Earth is like a huge perpetual motion machine. Approximately 1,4 billion km^3 of water is processed in this cycle every year (About 30% of water cannot take part in the circular process, as this amount is in a chemically bound state.)

What keeps the process moving? Principally, the energy of solar radiation. This causes the continuous change of state of water: it evaporates - condensates - freezes - melt. When absorbing heat, ice melts; ice and snow (=solid water) go from a solid to liquid (=water) state; and finally water evaporates, turning into vapour (=aeriform water).

When releasing heat, water freezes into ice; water vapor condensates, forming clouds, and resulting in precipitation.

Water cannot stay in any of its states permanently neither in the atmosphere, nor on the surface. Gravity moves water on lands: on the surface downwards from higher areas towards lower areas, or under the surface. Water may continue its journey even under the surface, until it finds its way to the surface as a manantial.

During its cycle, water wander around several layers of the Earth, connecting them by exchanging their water contect. Water in the atmosphere is renewed every 8 days, while the world ocean every 3,500 years stored in continental ice every 12,000 years, and the water supply situated under the surface gets exchanged every 1,400 years.

Activities

1. **Match the words with their meaning.**

1. Evaporation
2. Condensation
3. Precipitation
4. Groundwater
5. Solar radiation
6. Ice melting

a. Agua subterránea
b. Radiación solar
c. Formación de gotas en las nubes
d. Fusión del hielo
e. Lluvia, nieve o granizo
f. Cambio de agua líquida a vapor.

2. Fill in the gaps Complete the sentences with the correct term: *evaporates, freezes, condenses, gravity, solar energy, atmosphere.*

1. The water cycle is mainly driven by _____.
2. Water vapour _____ to form clouds.
3. Water _____ into ice when the temperature is very low.
4. _____ makes water flow downhill on land.
5. Water in the _____ is renewed every 8 days.
6. Liquid water _____ when it receives enough heat.

3. True or False + Correct the False ones

1. Solar radiation is the main energy source of the water cycle.
2. Water can stay permanently in the same state in the atmosphere.
3. Groundwater can move until it appears again as a spring.
4. Continental ice is renewed every 8 days.

4. Short answer questions

1. What happens when water absorbs heat?

2. What happens when water releases heat?

3. Why can water not stay forever in one place or state?

4. Which force moves water downhill on land?

5. Write two places where water can be stored for a long time.