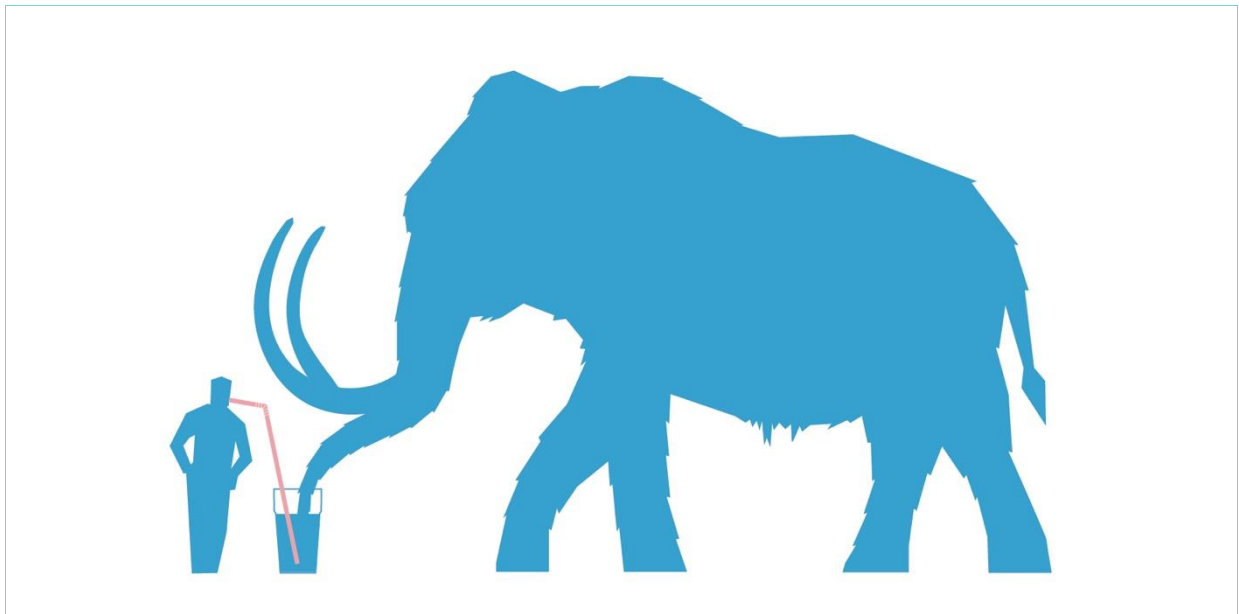


The water cycle



The Earth has been recycling water for over four billion years! The water we swallow is the same water that the woolly mammoth drank!

(A woolly mammoth skeleton was found in 1990 just north of the Broads in the cliffs at West Runton.)

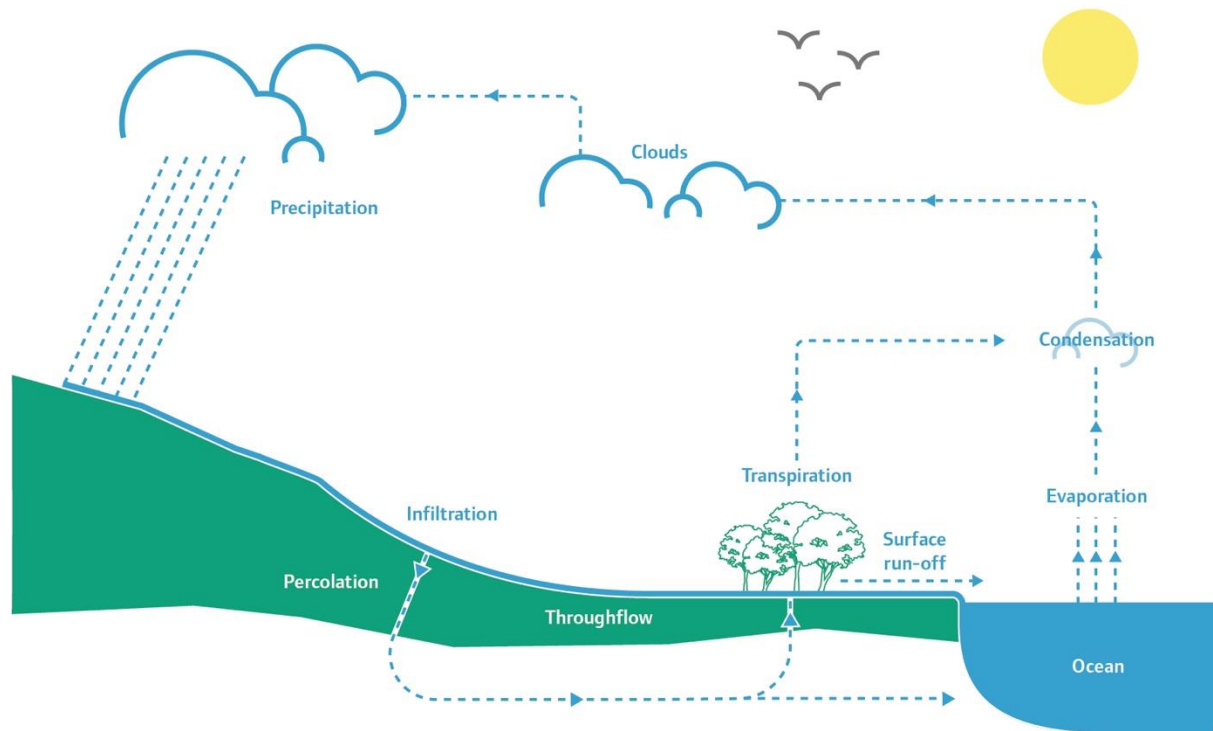
The world's water moves between the seas, rivers, lakes, the atmosphere and the land. This movement is called the **water cycle** or **hydrological cycle**.

In the Broads the sun heats the surface of the Earth causing the temperature to rise in the North Sea. The water **evaporates** into the air, turning into a gas called **vapour**. As it rises, (perhaps over Strumpshaw Hill, 38 metres – highest point in the Broads) it turns into a liquid and forms clouds – **condensation**. When too much has condensed and the water droplets become too big and heavy it falls as rain – **precipitation**.

The rain is collected in the **seven rivers (Yare, Chet, Wensum, Bure, Ant, Thurne and Waveney)**, the **broads themselves** and the surrounding land, and travels down to the sea, along the rivers and through **percolation** in the soil.

Water is also taken up by plant roots, and the plants and trees can lose this water later into the atmosphere through their leaves. This is called **transpiration**.

How the water cycle works



- Energy from the sun heats the surface of the Earth.
- Water **evaporates** from the sea, rivers, broads, etc.
- The warm air rises as it is less dense.
- **Condensation** occurs when water vapour is turned back into water droplets as it cools down – clouds are formed.
- **Precipitation** occurs as water droplets get bigger and heavier, and fall as rain, snow and sleet.
- Some falls directly into the sea and rivers but some falls on the land, infiltrates the soil and drains back to the river slowly.
- Some water percolates deeper into the ground and is slowly transferred to the river or sea.

Activities

- Role play the water cycle with made up or set movements
- Lay out an obstacle course illustrating the land forms that the water travels over and through, and label the action of the water i.e. evaporation, precipitation, condensation, etc.
- Include plants and their actions in the water cycle game
- Include threats to good water quality e.g. water treatment works, farming, boating, salt incursion, etc.
- Label a water cycle diagram
- Dip your local river/stream and investigate the wildlife in it. Please make sure a **risk assessment** is done to include adequate supervision, how to use the equipment correctly and limit numbers of children near the water at one time. For help or a led session please contact the Broads Authority Education Officer.
- Experiment with evaporation (water in tray left outside in the sun) and condensation (illustrated by cold window or mirror)
- Make up a dance and rap

Examples of dance and rap

Rap and dance – Blazer Fresh Science video

https://www.google.co.uk/search?source=hp&ei=XbZMWontL6PXgAad-Z34Cg&q=blazer+fresh+water+cycle&oq=Blazer+fresh+&gs_l=psy-ab.1.1.0l10.1624.6788.0.10636.13.13.0.0.0.270.2559.1j2j9.12.0...0...1c.1.64.psy-ab..1.12.2551...0i131k1j0i10k1.0.gvaMrlbz-RU

The Water Cycle Song by Have Fun Teaching

https://www.google.co.uk/search?source=hp&ei=IAZOWsW6G4r5UtSukVA&q=the+water+cycle+song&oq=the+water+cycle+song&gs_l=psy-ab.1.0.0l10.989.15297.0.20389.26.17.3.6.6.0.387.4038.0j2j14j1.17.0...0...1c.1.64.psy-ab..0.26.4406...0i131k1j0i10k1.0.1zt3qSuFVMU

Glossary

Condensation – a change of state in which gas becomes liquid by cooling

Dense – crowded closely together

Evaporation – the process by which a liquid changes state and turns into a gas

Hydrological – a technical term meaning ‘of water’

Impermeable – a substance that fluids are unable to flow through

Mouth – the place where the river meets the sea

Percolation – when water moves downwards through the soil

Precipitation – moisture that falls from the air to the ground includes rain, snow, sleet, hail, drizzle, fog and mist

River basin – the area drained by a river

Saturated – unable to contain any more liquid

Throughflow – when rainfall or water flows through the land

Transpiration – the process of water movement through a plant and its evaporation through leaves, stems and flowers

Tributary – a small river that joins the main river channel

Vapour – a gas or extremely small droplets of a liquid that result from heating it