

| Fields                               | Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Comments |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Topic                                | Water Cycle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          |
| Sub-topic                            | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |
| Skills/ knowledge accessed/developed | Systems thinking, Water cycle from both local and global perspectives, connecting science, art and culture                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |
| Prior learning required              | Students can be asked to think of songs and poems and other artworks related to rains, vapour and dew drop, before coming to the session.                                                                                                                                                                                                                                                                                                                                                                                                                     |          |
| Learning objectives                  | <ul style="list-style-type: none"> <li>• Students explore existing local beliefs about evaporation, condensation and precipitation</li> <li>• Students understand how these processes are a part of the hydrological water cycle.</li> <li>• Students identify that these processes also form a part of their cultural heritage</li> <li>• Students can list stocks and flows of water around them.</li> <li>• Students can draw diagrams of how these stocks and flows connect the atmospheric system to the land system through the water cycle.</li> </ul> |          |
| Specific learning outcomes           | <ol style="list-style-type: none"> <li>1. Students can <i>list</i> at least 3 stocks and flows of water around them</li> <li>2. Students can <i>draw</i> a water cycle with natural and human-made elements and <i>map</i> multiple pathways across elements</li> <li>3. Students can <i>identify</i> connections between water cycle and their cultural heritage</li> </ol>                                                                                                                                                                                  |          |
| Use of teaching time                 | <p>15 mins</p> <p>The facilitator introduces and demonstrates to the students - evaporation, condensation and precipitation (rains), and properties of water relevant to these processes.</p> <p>They reinforce the connections between these processes.</p> <p>(Refer to the section <i>Background content</i> for a reference video and other resources.)</p>                                                                                                                                                                                               |          |

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|             | <p>30 mins<br/>Facilitators and students share local beliefs, practices, songs/poems, artwork related to these processes - precipitation (think - rains), evaporation (think - water vapour, steam) and condensation (think - water drops, dew drops).<br/>(See an example in the section <i>Background content</i>.)</p> <p>10 mins<br/>The facilitator will show and describe an abstract water cycle using the images from the section <i>Background content</i> or from their textbooks or from other preferred sources.</p> <p>5-10 mins<br/>The facilitator will ask students where water is present/stored on Earth and that these are called the Stocks. The class will make a list of stocks and note from which of the stocks the water can evaporate from.<br/><br/>(Refer for list of Stocks in the section <i>Background content</i>)</p> <p>5 mins<br/>The facilitator will share a list of Flows explaining how these help water to flow between two stocks.<br/><br/>(Refer for list of Flows in the section <i>Background content</i>)</p> <p>20 mins<br/>Each student will be asked to select two stocks and draw how water will flow from one stock to the other stock - may require intermediate stocks and multiple steps.</p> <p>15 mins<br/>Everyone will present their drawings.</p> <p>15 mins<br/>The facilitator will help to combine everyone's drawing and make a larger picture of the Water Cycle.</p> <p>Total time - 2 hour 20 mins</p> |  |
| Methods and | Common board and markers/chalks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |

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| materials          | sheets for students to draw on<br>colours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
| Background content | <p><u>Example of poems on Water</u></p> <p>Under the harsh Sahel sun,<br/>water is a fragile promise.<br/>It walks in calabashes,<br/>carried by patient hands,<br/>and brings life back to the well's edge.<br/>The scarce water speaks softly,<br/>in the hot sand of the plain.<br/>Each drop knows its value,<br/>each rain is a celebration,<br/>each pool, a shared hope.</p> <p><b><i>Written by Combari Emelia</i></b></p> <p>In the morning, the village slowly awakens,<br/>and the water waits, deep and silent.<br/>The ropes creak, the buckets are hauled up,<br/>laden with reflections and weariness.<br/>In each drop, there is the journey,<br/>the time given, the inherited patience.<br/>The water quenches thirst, washes away dust,<br/>and reminds us that life hangs by a thread.</p> <p><b><i>Written by Samoura Alassane</i></b></p> |  |

## Water and the Water Cycle

### Properties of Water and Water Cycle

<https://www.youtube.com/watch?v=UByPD77xMNk>

### Demonstration of Evaporation, Condensation and Precipitation

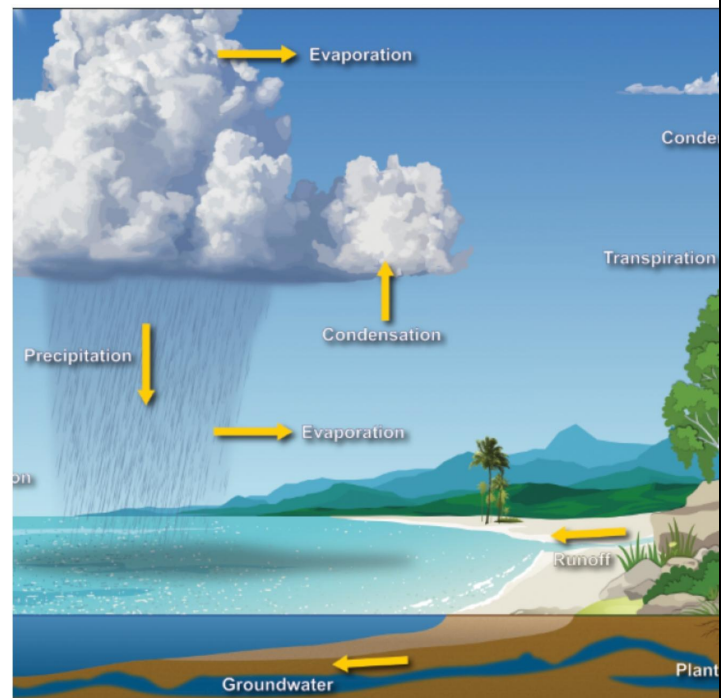
In home setting -

[https://youtu.be/VZB44\\_X0pFw?feature=shared](https://youtu.be/VZB44_X0pFw?feature=shared)

In Class setting -

<https://www.youtube.com/watch?v=FmTh0ECGPCY>

### General Water Cycle

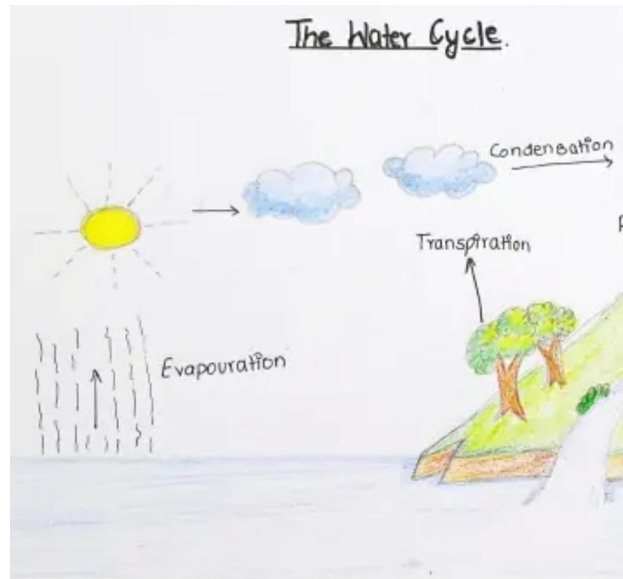


Credit - National Oceanic and Atmospheric Administration (NOAA; accessed 18 July 2025)

Link in French to hydrological cycle with natural and human-made elements -

<https://www.usgs.gov/media/images/le-cycle-de-leau-water-cycle-french-png>

Water Cycle drawn by a student in the city of Pune, India



Aarva Abhi

Source - <https://waterclassrooms.in/exhibition-details/>

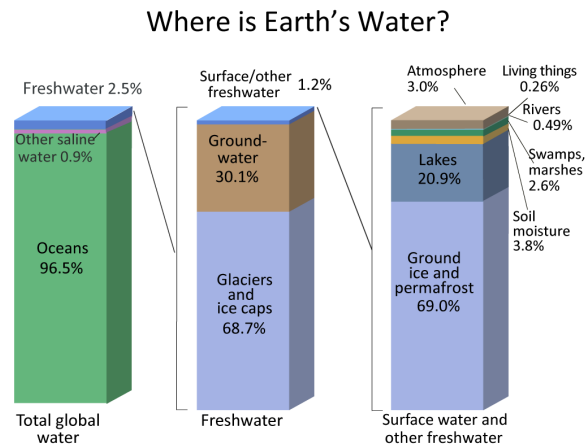
Earth is unique to have water in all three phases - Liquid, solid and gas. The main stock of liquid water are oceans, lakes and groundwater. Solid water is mainly stocked in sea ice, glaciers and large ice sheets like the ones in Antarctica and Greenland. Gaseous water or water vapour is stocked in the atmosphere. A relatively small but important reservoir of water is in living beings.

Water is continuously being moved from one stock to another. The movement of water from one stock to another is called a flow. Rivers, springs, icebergs, evaporation and rainfall are all examples of flows of water. If water has to move from a stock in one phase to a stock in another phase, it also involves a phase change. This continuous movement is called the Water cycle.

While the above explains the hydrological water cycle, it is important to note that several human activities affect these water cycles such as building dams, extracting groundwater and transporting water through

pipes and tankers. Including these aspects especially in the local contexts helps learners to reflect on the socio-hydrological water cycle and the impact of human activities on weather, climate and climate change.

### Where is Earth's Water?



Source: Igor Shiklomanov's chapter "World fresh water resources" in Peter H. Gleick (editor), 1993, *Water in Crisis: A Guide to the World's Fresh Water Resources*. (Numbers are rounded).

### Examples of **Stocks** -

groundwater / well

lake

ocean

icecaps

glacier

atmosphere

puddles

(water can evaporate from all of these stocks)

### Examples of **Flows** -

river

rainfall

iceberg

snowfall

evaporation

percolation (=seeping of water into the ground)

run-off

storm drains

streams

[illegible]