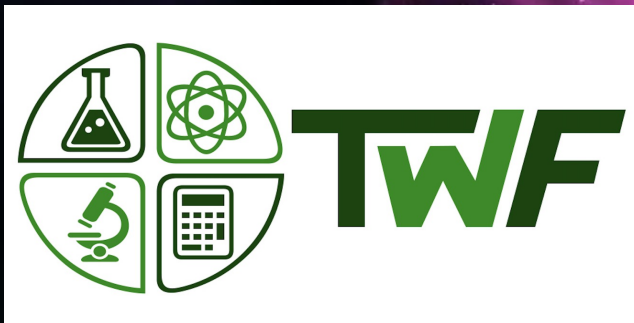


Watersheds

5E Lesson

The 5E model is a scientifically proven method to improve student engagement and learning in your classroom

- ✓ Engagement
- ✓ Exploration
- ✓ Explanation
- ✓ Elaborate
- ✓ Evaluate



Each phase is clearly described

Watersheds – 5E Lesson

Engagement Video

Your students will watch the video 'What is a Watershed?' and complete the questions found in the file – [Engagement – What is a Watershed Video](#).

Teacher Notes:

- The video is about one minute long
- You may need to show the video more than once or pause when an answer is given to one of the questions.

Exploration Phase

Exploration – Lab Station Activity

- In groups of 2-3, have your students complete [Exploration – Lab Station Activity](#). Once they're done, they will submit their passport to you.

Teacher Notes:

- The complete instructions for my Lab Station activity can be found in the [START HERE – Instructions](#) file.

Explanation Phase

PowerPoint Lessons

- The lesson is found in the folder – [Explanation – Lesson](#)
- This lesson is designed to be completed over one day
- There are multiple embedded videos and plenty of opportunity to engage, interact and check for your students' understanding throughout the lesson
- The lesson covers the following topics:
 - The Water Cycle
 - Watersheds
 - Factors Affecting Stream Flow
 - The Importance of Watersheds
 - Threats to Watersheds
 - What You Can Do

Teacher Notes:

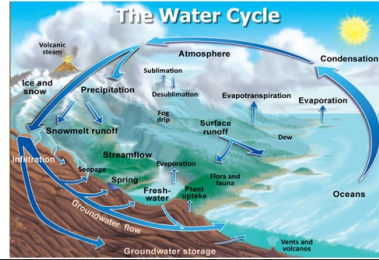
- All videos can be accessed directly from the PowerPoint. To retrieve them, click on the video icon while in slideshow mode and it will automatically open for you. If they don't open, right-click the image and select Edit Hyperlink or something similar.
- I've created a video walkthrough if needed. It can be accessed here - <https://youtu.be/oCIKIP9SaQd>
- I have also enclosed a .PDF version of both the teacher and student versions.

<u>Evaluate Phase</u> <u>Evaluate – Reading</u> Your students will complete - <i><u>Evaluate – Reading</u></i>. This reading will require your students to move beyond what was covered directly in the lesson and allow them to further develop their understanding.	Duration: 1 hour Teacher Role – Facilitate learning and keep students focused
Teacher Notes: - Students will work individually or in small groups - This reading contains 7 comprehension questions and 2 extension questions. It is fully editable so I encourage you to remove any question(s) in order to meet the needs of your students as well as your time frame.	Goal ☐ Students use their newly obtained knowledge to propose solutions and extend their learning to new situations
<u>Evaluate Phase</u> <u>Quiz</u> Have your students complete - <i><u>Evaluate – Watersheds Quiz</u></i>	Duration: 30 min Teacher Role – Distribute and collect evaluation
Teacher Notes: ➢ It's sometimes best to have the students peer evaluate ➢ Placing students in small groups and having them exchange papers to mark will accomplish two things 1) Provide immediate feedback on the questions they just completed 2) Significantly reduce your marking time ➢ Peer evaluation is not needed, only suggested when appropriate	Goal ☐ Students are given the opportunity to demonstrate their understanding and evaluate their own progress

A Complete Lesson

The Water (Hydrologic) Cycle

- Liquid water moves around Earth's surface as lakes, rivers, and oceans
 - Taken up by plants and released via transpiration
 - Consumed by animals

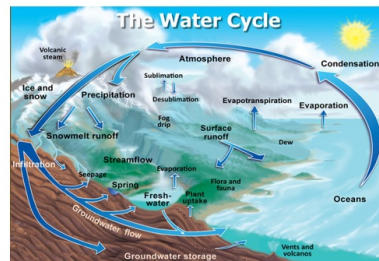


← Make sure your students are on track

Student copies with blanks
Videos embedded right into your slideshow

The Water (Hydrologic) Cycle

- Liquid water moves around Earth's surface as lakes, rivers, and oceans
 - _____
 - _____



Watersheds

- Headwaters: beginning of a water source
- Confluence: area where water bodies join
- Mouth: endpoint of waterway; opens into another water body



Interactive and Engaging Activities

Watersheds Lab Station Activity

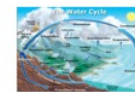


7 Lab Station Activities to get your kids out of their seats and engaged in their learning

Watersheds

Scientific Reading Comprehension Article and Extension Activity

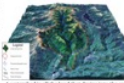
Watersheds



Water constantly cycles through our atmosphere, along Earth's surface, and in the ground beneath our feet. It evaporates from water bodies, travels through the atmosphere as water vapor, condenses into clouds, falls back to Earth as precipitation, flows along the surface, seeps into the ground, and fills water bodies. Here, we will examine one specific part of that cycle: what happens to water when it's on or in the Earth. Specifically, how it travels through watersheds.

What Are Watersheds?

Watersheds are areas of land that receive precipitation and drain it into a common body of water, be it a lake, river, stream, wetland, or the ocean. Watersheds include land, surface water, and groundwater (the water that saturates soil and rocks underground). You - and everyone else on the planet - are in a watershed right now. Small watersheds (e.g., for creeks or streams) make up larger watersheds (e.g., for rivers, lakes, or oceans).



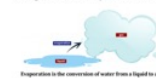
How Are Watersheds Divided?

Watersheds are bounded by high points in the land such as ridges or hillsides. These borders are called **watershed boundaries** or **drainage divides**. On either side of a watershed boundary, water flows downhill to a different water body.

How Does Water Move Through Watersheds?

Water moves in many different ways within watersheds: as **runoff**, **evaporation**, **infiltration**, **groundwater**, **transpiration**, or **within water bodies**.

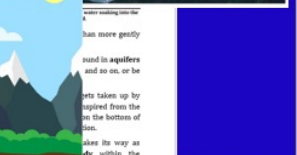
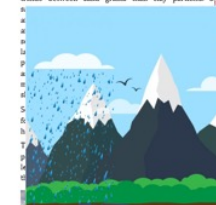
Runoff is simply precipitation that travels along the surface until it ends up in a water body. How much precipitation becomes runoff depends on: evaporation, infiltration, transpiration, water storage, and water use by humans and other animals.



Evaporation is the conversion of water from the liquid to the gaseous state. Some of the precipitation that falls never makes it to a water body. Instead, evaporating back into the atmosphere. The amount of water that evaporates depends on temperature, solar radiation, humidity, wind, and atmospheric pressure. Increase temperature and solar radiation increase evaporation rate. Higher humidity, on the other hand,

means less water can evaporate. Air moving across water while higher atmospheric pressure decreases evaporation.

Infiltration is the process of water seeping into the ground, either to become groundwater or to be taken up by plants. Soil type greatly influences infiltration, with sand soils increasing infiltration and clay soils decreasing infiltration. Sand grains are larger and thus less packed together than clay particles. Thus, water can move more easily between sand grains than clay particles.



Improve your students' **Literacy** and **Analysis Skills**, use as an **Emergency Substitute Plan**, or create **Applicability** in your classroom

Get away from tired practices and unengaged students



Provide a Scientifically-Proven means of instruction



Incorporate Technology and Increase Collaboration

