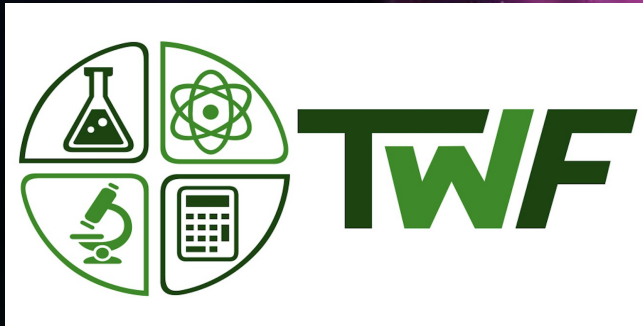


Cloud Types

5E Lesson

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

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



Complete Teacher Instructions

Cloud Types 5E Lesson

Grades 7-10	Cloud Types	Ongoing Les
Lesson Objective: Students will learn about: - Cloud Naming - Three Basic Cloud Types - Ten Fundamental Cloud Types - Rare Clouds - Lightning - Clouds and Weather		
Possible Student Misconceptions: - Clouds form because cold air doesn't hold as much water as warm air - Clouds are made of water vapor - Clouds always predict rain - Rain falls when clouds become too heavy and the rain drips out or bursts - Rain comes from holes in clouds, sweating clouds, funnels in clouds, - Lightning never strikes the same place twice - Thunder occurs when two clouds collide - Clouds block wind and slow it down - Clouds come from somewhere above the sky - Clouds are made of smoke		
Materials: 1 device (smartphone, Chromebook, laptop, tablet, or computer) per - A means of projecting a PowerPoint presentation - Internet access - General classroom objects		
Teacher Notes: - All videos can be accessed directly from the PowerPoint. To retrieve icon while in slideshow mode and it will automatically open for you. If reason, right-click on the image and click Edit Hyperlink or something I've created a video walkthrough if needed. It can be accessed here - https://youtu.be/oCIKIP9SaDQ - I don't believe in long lessons. If you feel your students are losing the Stop the PowerPoint and give them a 5-minute break. If you'd like to recommend my video collection here - http://www.teachwithferav.com are tons of brain-break videos to choose from all grouped by category		

Cloud Types – 5E Lesson

Engagement Phase Your students will watch the video 'Why Are There Different Types of Clouds?' and complete the questions found in the file – <u>Engagement – Why Are There Different Types of Clouds Video</u> . The video can be found here - https://www.youtube.com/watch?v=pq9909eaqB0 Teacher Notes: - The video is about one and a half minutes long - You may need to show the video more than once or pause when an answer is given to one of the questions.	D T le ur □ □ □ □
Exploration Phase Exploration – Lab Station Activity - In groups of 2-3, have your students complete <u>Exploration – Lab Station Activity</u>. 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 <u>START HERE – Instructions</u> file.	D T le ur □ □ □
Explanation Phase PowerPoint Lessons - The lesson is found in the folder – <u>Explanation – Cloud Types Lesson</u> - 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: - Luke Howard - Three Basic Cloud Types	D T le ur □ □ □

- Ten Fundamental Cloud Types - Rare Clouds 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/oCIKIP9SaDQ - I have also enclosed a .PDF version of both the teacher and student versions.	Goals - Students develop understanding of the content - Observations and experiences are discussed and critiqued - Students develop vocabulary - Students are able to connect the content presented to previous experiences
Elaborate Phase Elaborate – Reading Your students will complete – <u>Elaborate – Different Types of Clouds</u> . This reading will require your students to move beyond what was covered directly in the lesson and allow them to further develop their understanding. Teacher Notes: - Students will work individually or in small groups - This reading contains 10 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.	Duration: 1 hour Teacher Role – Facilitate learning and keep students focused Goal Students use their newly obtained knowledge to propose solutions and extend their learning to new situations
Evaluate Phase Quiz Have your students complete - <u>Evaluate – Cloud Types Quiz</u> 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 - Provide immediate feedback on the questions they just completed - Significantly reduce your marking time - Peer evaluation is not needed, only suggested when appropriate	Duration: 30 min Teacher Role – Distribute and collect evaluation Goal Students are given the opportunity to demonstrate their understanding and evaluate their own progress

Each phase is clearly described

Two Complete Lessons

Cumulus Formation

- Warm air carries water vapor up (evaporation)
- Comes into contact with cooler air
- Water vapor condenses into droplets, which form a cloud



- Includes two lessons. One geared towards middle school and the other towards high school students
- Comprehensive lessons
- Student copies with blanks and videos embedded right into your slideshow

Three Basic Cloud Types

- Cumulus – “heap” in Latin
- _____
- Cirrus – “curl of hair” in Latin



Three Basic Cloud Types

- Cumulus – “heap” in Latin
- Stratus – “layer” in Latin
- Cirrus – “curl of hair” in Latin



Student
Version

Teacher
Version

Interactive and Engaging Activities

Types of Clouds

Scientific Reading Comprehension Article and Extension Activity

Different Types of Clouds



Have you ever looked up at the sky and been able to predict the weather for the day? You have likely seen huge, puffy-like clouds, thin and wispy clouds, tall and puffy clouds, and many other beautiful signs. Clouds are vital pieces of evidence in determining the weather that's on the way. We will examine the different types of clouds, how they form, and what they mean for the weather.

Types of Cloud

There are two fundamental types of clouds, separated into groups by the atmosphere. The four highest clouds in the atmosphere are cirrocumulus and cirrostratus clouds. They form above 40,000 feet, and are the most common. Next are clouds of intermediate altitude: altostratus clouds. These are found between 6,000 and 20,000 feet up. Finally, the lowest clouds are found below 6,000 feet, include stratus, cumulus, and nimbostratus.

High Atmosphere Clouds

Cirrocumulus clouds appear as masses of tiny tufts, often in a regular pattern. They result in what is often called "mackerel sky" because their arrangement resembles fish scales. Sometimes, however, they are difficult to see because they form such a thin layer and are transparent. These clouds are made up of ice droplets of supercooled water - water that has been cooled to below its freezing point - or hail. Cirrocumulus clouds usually forecast fair weather, but this depends on species and coverage. Cirrocumulus undulatus, for example, looks like waves or ripples and means that a warm front, possibly with rain, is on the way. Cirrocumulus castellatus are tufts of cloud that forecast high cirrocumulus coverage can be a predictor of bad weather.



Cirrocumulus clouds are thin, wavy clouds composed of ice crystals that may appear like a fish scale. They are sometimes covered by the whole sky. The red appearance typically means when

These clouds cover the sky, they are the first sign of an approaching weather system, especially a storm. However, some say that a mackerel sky is a sign of a coming rain.



Nimbostratus clouds are the most common type of cloud. They are dark and heavy, and they cover the sky. They are the first sign of an approaching weather system, especially a storm. However, some say that a mackerel sky is a sign of a coming rain.

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

Cloud Types



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

Get away from tired practices and unengaged students



Provide a Scientifically-Proven means of instruction



Incorporate Technology and Increase Collaboration

