

## **Ethan's Lesson Plan: Flagstaff Festival of Science**

Topic: **Rain and the Water Cycle**

| <u>Activity Type</u> | <u>Target Ages</u> | <u>Estimated Time</u> |
|----------------------|--------------------|-----------------------|
| Virtual Presentation | Grades 4 through 7 | 30 to 45 minutes      |

### **Essential Question:**

What causes rain and what are its impacts?

### **Activity Background:**

This activity is intended to provide students with a better understanding of rain events, emphasizing their impacts and their relationship with the water cycle. Although not essential, the targeted age range increases the probability that students will have been exposed to basic information about weather or the water cycle previously. Regardless of student background, it is recommended that the instructor present the content in an interactive way that allows students to contribute what they know before new information is presented to them.

### **Lesson Objectives:**

1. Understand how rain happens via the steps of the water cycle.
2. Understand how the water cycle relates physical impacts.
3. Understand basic flood safety precautions.

### **Required Resources:**

- Everyone:
  - Stable internet connection with audio/video communication
- Presenter:
  - Adequate lighting
  - Youtube video streaming capability
- Students:
  - Sheet of paper
  - A writing utensil

| <u><b>Class Component</b></u>  | <u><b>Time</b></u> | <u><b>Purpose</b></u>  |
|--|--------------------|--|
| <p style="text-align: center;"><b>Welcome and Introduction!</b></p> <ul style="list-style-type: none"> <li>· Hello, I'm [intro]! We're here to talk about rain!</li> <li>· Who can tell me what rain is/tell me somethings you all know about rain? At the NWS part of our job involves forecasting when it will rain and what impacts it will have + helping people stay safe, so today we're going to explore: <ul style="list-style-type: none"> <li>1) How rain happens</li> <li>2) What impacts it has</li> </ul> </li> </ul>   | < 5<br>minutes     | <p><b>Engage</b> with students.</p> <p><b>Assess</b> student background.</p> <p><b>Provide</b> a sense of direction.</p>                       |
| <p style="text-align: center;"><b>1. Where rain comes from<br/>(the water cycle)</b></p> <p>So we're going to start off with how rain happens – who can tell me what causes rain? What do you think / any guesses?</p> <p style="text-align: center;">Transition to water cycle...</p> <p style="text-align: center;">[Use the illustrations, examples, and analogies to introduce evaporation, condensation, precipitation]</p> <p style="text-align: center;">[draw a simple diagram with the students]</p> <p style="text-align: center;">...understanding the water cycle is one of the pieces that helps us forecast when it will rain.</p> | 15 - 20<br>minutes | <p><b>Assess</b> student background.</p> <p><b>Engage</b> the students.</p> <p><b>Introduce</b> content.</p> <p><b>Illustrate</b> content.</p> |

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| <p style="text-align: center;"><b>2. Impacts</b></p> <p style="text-align: center;">[video clip of various rain impacts]</p> <p>What were some of the things that you noticed in that video?</p> <p>Rain has many different impacts ...it is useful for many things and harmful for others... what are some impacts that rain has (drinking, farming, flooding, etc).</p> <p>Provide illustrations of the different impacts and why we should care about them.</p> | <p style="text-align: center;">5 - 10 minutes</p> | <p><b>Utilize</b> different media methods to retain attention</p> <p><b>Engage</b> the students.</p> <p><b>Introduce</b> content.</p> <p><b>Illustrate</b> content.</p> |
| <p style="text-align: center;"><b>3. Safety</b></p> <p>The last thing that we are going to talk about is safety.</p> <p>What are some ways that rain could be dangerous?<br/>(flooding, lightning, driving)</p> <p>Going through each hazard:<br/>Brief background with illustrations and asking them about ways they think people could stay safe.</p> <p style="text-align: center;">[brief exit video clip of rain safety]</p>                                  | <p style="text-align: center;">5 - 10 minutes</p> | <p><b>Engage</b> the students.</p> <p><b>Introduce</b> content.</p> <p><b>Illustrate</b> content.</p>   |
| <p style="text-align: center;"><b>4. Wrap-up</b></p> <p>Brief summary of how rain comes from the water cycle, why we should care about rain, and basic safety reminders.</p> <p style="text-align: center;">Address any last questions.</p>  | <p style="text-align: center;">~ 5 min</p>        | <p><b>Recap</b> learning experience</p>   |