

Rain or Snow? Activity Guide

Background: Climate change affects our environment in many ways. Lake Tahoe is predicted to be affected by climate change through more extreme precipitation events that will occur as rain instead of snow. Watch our activity “Rain or Snow?” to learn more about the way Lake Tahoe’s clarity can be impacted by increasing temperatures. In this activity, we will be creating our own watershed model of the Lake Tahoe Basin and run a series of experiments to see how different types of precipitation can affect the clarity of Lake Tahoe.

Instructions:

1. Before completing the activity, consider potential urban pollutants that can be washed into Lake Tahoe by rain and snowmelt. What pollutants exist and how will they affect water quality?

2. Hypothesize what type of precipitation (rain or snow) will cause more pollutants to be washed into Lake Tahoe. How will rate of flow and temperature affect water quality?

3. Watch our instructional video and follow along with your own watershed model. The video can be located on our website at keptahoeblue.org/activities.

4. Use the following chart to compare simulations of rain and snow.

	Pollutants remaining on mountains	Pollutants in lake	Water temperature	Time it took water/snowmelt to reach the lake
Snow Simulation				
Rain Simulation				

5. Analyze your observations from the rain and snow simulations. How did they compare?

Follow up Assignment:

a. Use resources online to compare data that would indicate climate change (examples can be found below). Graph this information and determine the rate of change. The 2019 State of the Lake Report by UC Davis Tahoe Environmental Research Center is a great research tool. The meteorology section of the document can be found here:

https://tahoe.ucdavis.edu/sites/g/files/dqvnsk4286/files/inline-files/7_meteorology_3.pdf

- i. Average air temperature
- ii. Snowfall as a percent of the total precipitation
- iii. Average water temperature

- b. What patterns do you notice? Based on these patterns, predict what the trends will look like in five years and explain your reasoning.
- c. Research local legislation that might decrease the amount of pollution in your local area. Local Tahoe examples would include plastic bag and polystyrene bans. Brainstorm ways to enforce existing legislation or think of other ways to decrease pollution in your area.
- d. Tune in to our “Wetland in a Bottle Activity” to learn more about how pollutants are affecting Lake Tahoe. Check out other Lake-friendly activities on our website: keeptahoeblue.org/activities.