

## **Ski Utah 4<sup>th</sup> Grade Program**

### **Post Trip Activity: Snowpack, Reservoir Storage and the Water Cycle**

#### **Related Water Cycle Standards**

**Standard 1: Objective 1a**

**Standard 1: Objective 2c, e**

**Standard 2: Objective 1b**

**Standard 2: Objective 2b**

#### **Introduction**

Since the 4<sup>th</sup> grade science curriculum includes the study of the water cycle, this activity directly relates to current curriculum standards and objectives. It falls under Science Standard 1: Students will understand that water changes state as it moves through the water cycle. More specifically, the activity is a learning experience associated with Objective 2: Describe the Water Cycle.

#### **Why We Chose this Activity**

We feel that the activity described below will give students a greater appreciation for the mountains and the winter snowpack that essentially holds the “water” for the Salt Lake Valley as well as other communities in Utah. It will also encourage them to think about how the snowpack and water cycle affects their lives and the lives of the community.

#### **Description of the Activity**

- 1) Look at the data for snowfall totals for the years at Alta, Utah between 2009-10 and 2017-18 and 2018-19 to date.  
<https://www.alta.com/conditions/weather-observations/snowfall-history>
- 2) Make a graph of the total cumulative season snowfall for all the years between 2009-10 and 2017-18 and 2018-19 to date.
- 3) The average annual snowfall for Alta, Utah is 545 inches of snow for the water year which begins in October and ends in April. How many years had below normal snowfall? Average? Above? Write this information at the bottom of the graph
- 4) Look at the data for reservoir storage for the western US. Note: follow the link. Look at the Western US Reservoir Storage Bar char. Put in the year and hit submit. You'll end up doing this several times but you will be able to see the average water storage numbers for Utah reservoirs for all the years above.  
<https://www.wcc.nrcs.usda.gov/wsf/wsf-reservoir.html>
- 5) How many years did Utah have below average water storage? Above average? Average?
- 6) Discuss the following:
  - a. Do you see any trends?
  - b. Can you describe any connections you might observe between snowpack and reservoir storage?
  - c. Why might water storage be below average in a big snow year? (Hint: look at past years)

- d. Do snowmelt patterns affect water storage? (Hint: early melt vs. late melt)
- e. How does snowfall and subsequent water storage affect the community?
- f. Does snowfall and ultimately the water year affect the health of the forest?
- g. Utah is the 2<sup>nd</sup> driest state in the country. What can you do to make sure that we use water wisely throughout the year?
- h. Bonus question! Does the size, depth and temperature of the Great Salt Lake affect “lake effect” snow in the valleys close to it? What areas generally benefit from “lake effect” snow and why?

**Submit graphs and answers to:**

**Ski Utah**

**2749 E Parleys Way, Suite 310**


**Salt Lake City, Utah 84109**


**801-534-1779**

**Attention: Jo/Water Cycle Post Trip Activity**

Graphs and activity discussion answers from each classroom should be submitted under your school name by April 30. Your school will then be entered into a raffle for a grand prize. Raffle will be on May 2. The prize will be a school visit from an avalanche/search and rescue dog and ski patrolman who will discuss snow safety, avalanche dogs, and search and rescue along with summer safety on the forest. .

### **Teacher Resource Guidelines**

 We used Alta for data because it's readily available online. If for some reason the link doesn't work when you copy and paste it into your browser, google Alta Snowfall History and the data will come up. Snowfall totals for each year can be found at the bottom of the page.

 When looking at reservoir storage, go to the Bar Chart, click on calendar year and then submit. Water storage will be shown for the last publication date for that information. Look for the bar representing Utah's water storage (the chart is for the western US).

If you have any trouble accessing data, or need any help with questions etc. please contact me at [jo@agegroupsports.com](mailto:jo@agegroupsports.com). I appreciate your willingness to participate in the activity. Feel free to organize participation in any way that seems most beneficial and efficient for your class, i.e. individual, small group or even a class activity. **You can submit one or several completed activities from your school. The more you submit, the better chance you have in the raffle!**