

Singing in the Rain

Target Audience: High School
Subjects: Science, Social Studies
Time: 2 hours

J17 WELL ACTIVITY:

Read each activity and answer the questions at the end. Follow the instructions for each activity and use the websites or resource information to retrieve the data necessary to answer the questions. When typing the web address, be sure that it is exactly as listed!

1. Aquifer Management Plan Stage Restrictions

The Edwards Aquifer Authority has developed a “Critical Period” Aquifer Management Plan that restricts water use based on specific measurements of the Edwards Aquifer. Three separate stage restrictions were created. Each stage has specific conservation rules and regulations. In order for you to understand these stage restrictions, please follow the instructions below and answer the questions in your field notebook.

- ❖ Go to website <http://www.saws.org>
- ❖ Click On Conservation
- ❖ Click On Aquifer Management Plan

1. At what aquifer level reading does each stage take effect?

Give one example from each stage of a specific action that you would have to take if that stage was implemented.

2. Historical J17 Well Readings

In order for you to understand the history and use of the J17 Well, please follow the instructions below and answer the questions in your field notebook.

1. How long has the J17 well been measuring aquifer levels? (See H2O University Resource book)

- ❖ Go to website <http://www.edwardsaquifer.org>
- ❖ Click On Aquifer levels
- ❖ Click On Historical Water Levels & Springflow Rates

1. What was the Aquifer level on June 23, 1996?
2. What was the Aquifer level on October 7th 1998?
3. What was the Aquifer level on November 21st 1998?

3. Historical Rainfall Data

In order for you to understand the significance and importance of rainfall, please follow the instructions below and answer the questions in your field notebook.

1. What is the average rainfall amount for El Paso and the Tx-Louisiana border? (See H2O University Resource Book)
 - ❖ Go to website <http://www.srh.noaa.gov/ewx>
 - ❖ Click On Climate Data
 - ❖ Click On Climate Records
 - ❖ Click On San Antonio
 - ❖ Scroll to Daily High and Low Temperature and Precipitation for each month
1. What happened between October 7th and October 21st, 1998?
2. What was the total amount of precipitation that fell during this time period?
3. What was the total amount of precipitation that fell from October 7th to November 21st?

4. Historical Comal Springs Flow Rates

In the language of the Indians, the Comal Springs were called *Conaqueyadesta*, which means "where the river has its source." *Comal* is the Spanish word for *basin*, perhaps referring to the flat area at the base of a limestone bluff containing the springs. These springs were a favorite camping place of the Tonkawan Indians and their predecessors for thousands of years before Spanish missionaries arrived in 1691. The Spanish found a huge concentration of Indians at Comal Springs, some from as far away as New Mexico.

In the past the Springs have been harnessed for commercial purposes and dynamited to increase their discharge. In 1845 a group of German immigrants settled here, calling the springs Las Fontanas. By 1860, seven grist, flour, and sawmills were using the Spring waters for power. There were also cotton and woolen factories, a paper mill, an ice plant, and a brewery. Hydroelectric power was generated using springflows from 1890 until about 1950 ([Brune, 1981](#)). A new hydroelectric plant was constructed in 1978. Landa Park is still a mecca for local residents and tourists, but swimming is no longer allowed. Landa Lake has largely been filled with gravel washed in by floods from upstream

Blieders Creek. Most of the remaining Springs issue forth through the gravel. Their locations are usually marked by bubbles and by schools of fish, which congregate around them. In order for you to understand the importance of the Comal Springs and how they affect our region, please follow the instructions below and answer the questions in your field notebook.

- ❖ Go to website <http://www.edwardsaquifer.org>
- ❖ Click On Aquifer Levels
- ❖ Click On Historical Water Levels & Springflow Rates

1. What was the Comal Springs Flow rate on September 23rd 1996?
2. What was the Comal Springs Flow rate on February 9th 1996?
3. During 1996 what was the lowest flow rate recorded?

- ❖ Go to <http://www.edwardsaquifer.net>
- ❖ Click on J17 Well Index

1. What is the highest recorded aquifer level at the J17 well?
2. At what Aquifer level does the Comal Spring flow rate begin to become intermittent?

5. Data Correlation

In order to connect the relationship between rainfall, J17 well readings, Comal Springs flow rate and our stage restrictions, go to the following web site. In order for you to understand these relationships, please follow the instructions below and answer the questions in your field notebook.

Use the following Resources to answer the questions below

<http://www.saws.org>
<http://www.edwardsaquifer.org>
<http://www.srh.noaa.gov/ewx>
<http://www.edwardsaquifer.org>
<http://www.edwardsaquifer.net>
“H2O University Resource book”

1. What was the Comal Springs Flow rate on April 16th 1996 and June 25th 1996?
2. What were the J17 well readings on April 16th 1996 and June 25th 1996?
3. What was the total rainfall between April 16th 1996 and June 25th 1996?

4. Is there a relationship between rainfall amounts, J17 well readings, Comal Spring flow rate and the Edwards Aquifer Authorities “Critical Period” Aquifer Management Plan Stage restrictions?
5. If there is, what is it?
6. Do you think the Edwards Aquifer Authorities “Critical Period” Aquifer Management Plan had any affect after June 16th 2001?