

# Jordan River Water Quality

## Summary

4th grade students will study a portion of a Utah wetland habitat by testing the water quality of the Jordan River and presenting their findings using GIS software ArcMap 9.2.

## Time Frame

10 class periods of 60 minutes each

## Group Size

Small Groups

## Life Skills

Thinking & Reasoning, Communication, Social & Civic Responsibility

## Materials

\*\$\$ and permission to go on field trips \*UTA bus passes for kids \*Parent Participants \*GPS units  
\*Adults and trainers to help gather and record data \*ArcMap 9.2 GIS software \*Digital Camera  
\*Volunteer professionals (grad students, district coaches) \*Time to make products \*Science Journals  
\*Data Tables \*Water testing kits available through USU Salt Lake County Extension office, Cathy Hashimoto (chashimoto@slco.org) \*Macro-invertebrate collecting materials  
Student Products:  
1a)GPS Waypoint Scavenger Hunt 1b)GPS Observation Scavenger Hunt 1) PowerPoint page on an animal or plant living in the Jordan River habitat. 2)Drawn and colored map of the Jordan River Water Shed 3) Journal pages reflecting on 1st field trip 4)Tables and Graphs of Data 5)ArcMap with Waypoints and Data Tables 6)PowerPoint, Brochure, or Poster summarizing results and conclusions

## Background for Teachers

Water quality is a concern to all (people, plants, and animals) which share space in the watershed. My project evolved because of my participation in the WEST (Water, Environment, Science and Teaching) program which focuses on water and environment awareness in children. I also was inspired by UEN's Community Mapping GPS/GIS class project I did when testing the water quality of Parley's Creek.

## Student Prior Knowledge

\*Water Quality Background Knowledge \*Background Knowledge on how living things in a habitat are affected by the water quality. \*Record Data on a T chart, other tables \*Identify trees, animal species  
\*Content and Academic vocabulary (data, sample, record, GPS, cooperate, turbidity, temperature, PH balance, habitat, water shed, dissolved oxygen, total dissolved solids) \*Use ArcMap 9.2 \*Use PowerPoint, Photo Story, or Publisher \*Work with a group/partner \*Computer File Management

## Intended Learning Outcomes

Discuss, analyze, and brainstorm about these essential questions: How does water quality affect a habitat? How do humans positively and negatively impact the Jordan River habitat?

## Instructional Procedures

Set up Community Partnership Roles: Teacher(s): Plan and coordinate project. Prepare and guide students. Assess project product. Students: Work cooperatively to test water at the 3 sites, mark

waypoints with GPS, record data, present findings. Community Partner(s): In class visits to practice water quality tests, Attend field trips and/or provide support in collecting/presenting data. Possible Community Partners: WEST: This is a partnership between the University of Utah and the Salt Lake City School District. A graduate fellow and an elementary school teacher collaborate together for a year teaching science and doing projects that have to do with Water, the Utah Department of Water Quality: Lesson 1 (1 week)- Introduce the GPS unit. Use the PowerPoint Presentation and then go outside and practice finding waypoints. (GPS\_Edit, Jack\_Scope, and JacksonCashe1) Lesson 2 (1 week) -Introduce Jordan River Water Quality Project. Show Our\_Habitat\_Dear\_SLC PowerPoint. In pairs have students choose a Jordan River organism and do a 1 page PowerPoint slide (Jordan\_River\_Plants\_Animals) Introduce the Great Salt Lake watershed from the Water:Keep it Pure Binder. Have students create a poster size map of the watershed (See Student\_Map1). Lesson 3 (1 week) Introduce water quality parameters and how to measure it. (See Water Quality PowerPoint and worksheets) Bring in 3 sample of water (tap water, stream water, Great Salt Lake water) and in small groups test the Ph, dissolved oxygen, turbidity, and Total Dissolved Solids) Record results on the A\_Data\_Table. Graph results using the create a graph website. Plan and conduct first field trip to Jordan River (See Field\_Trip\_Plans). Lesson 4 (1 week) Introduce ArcMap 9.2. Have students add the map of the US. Have them zoom into Utah and add county and city layers. Show them how to navigate and use the identity tool. With this tool they can locate cities and compare population. Later have them work with a Salt Lake City map and add a data table with the data from the field trip. Lesson 5 - Continue water testing and recording the data at the same site over a period of a few months or go to other sites such as Farmington Bay Nature Center where the Jordan meets Great Salt Lake. Lesson 6 (1 -2 weeks) Results In groups of 2 or more have the students prepare a presentation sharing their findings about the water quality of the Jordan River. The product can include a PowerPoint a MS Publisher document or an original poster. The product needs to show the data they gathered connected to a map of the Jordan River. It also should have some kind of reference made to the effects of pollution along the Jordan River and what can be done about it.

### Assessment Plan

Students will be assessed according to their data collection sheets, contributions to their group, final map product, and their summary presentation. For detailed information please see the associated rubric.

### Rubrics

[Jordan River Water Quality Project](#)

### Bibliography

Water Keep it Pure Binder from the Cottonwood Canyon Foundation [www.adarden.myeddesk.org](http://www.adarden.myeddesk.org)  
(Jordan\_River folder)

### Authors

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