II. Properties of Water

Description: Looking at the many forms and functions of water

Purpose: Examine the three states in which water exists
Demonstrate phase changes of water.
Describe evaporation and the effects of surface area, wind & heat
Investigate water chemistry of Great Salt Lake
Describe salinity and its effects on evaporation
Determine the relationship between temperature and solubility
Explore crystal growth & structure through experiment, graphing
Discover how properties of water influence mining at Great Salt Lake

Related Utah Core Objective(s)

Standard: Students will explain the water cycle.
3040-0301 EXPLAIN THE PROCESSES OF MELTING, PRECIPITATION, EVAPORATION, CONDENSATION, PERCOLATION, AND EROSION.
- *Collect and record data on the various processes listed.*
- *Set up or draw apparatus which will cause water to change form.*
- *Explain in their own words the processes listed and the relationships between them.*

Standard: Students will examine, categorize a variety of Utah rocks & minerals
3040-0401 IDENTIFY PROPERTIES OF ROCKS AND MINERALS
- *Distinguish between crystalline and non-crystalline substances*
- *Identify variables that are likely to affect crystal growth and structure*
- *Design and conduct experiments that manipulate variables likely to affect the growth of crystals*

3040-0404 DISCUSS THE VALUE OF ROCKS AND MINERALS TO UTAH'S ECONOMY
- *Identify the modern and historical importance of minerals and mining*
- *Describe careers and hobbies related to minerals and rocks*
- *Relate how technology influences mining techniques*

Related SLICE Objective(s)

Appropriate elements of Essential Questioning and Analysis Skills, plus

FOCUS I: Great Salt Lake As A Physical System
Element 2: Changes in Matter
- *Describe and demonstrate the basic elements of the hydrologic cycle (including melting, evaporation, condensation, precipitation, and percolation)*
- *Describe objects in terms of the materials they are made of and their observable properties. For example, describe Great Salt Lake rocks, ooids, or salt crystals and discuss how the materials differ, how they were formed and how they might change.*
- *Design and conduct experiments with crystal growth and structure*

FOCUS III: Human Connections to Great Salt Lake
Element 1A: Environment and Society
- *Identify ways in which people depend on Great Salt Lake*
- *Describe the role of rocks and minerals to Utah's economy*

Duration: TBA

Other References
The Great Salt Lake Story (Utah Museum of Natural History, 1997)
"What About This Great Salt Lake?" fact sheets (Friends of Great Salt Lake):
#1: Resource List
#2: Physical Features

Instructional Activities
A. Altered States (3 states of water)
B. Going Through A Phase (phase changes of water)
C. Disappearing Water (evaporation)
D. What A Difference "Na" Makes (salinity and evaporation)
E. All Mixed Up (solutions, suspensions and solubility)
F. Sand That Isn't Sand (oolitic sand)
G. Mystery Of The Missing Salt (crystal growth)
H. Mining Your Own Business (a visit from a mineral company representative)
I. Water In Review

Speaker Opportunities For Enrichment
A visitor from a mineral company

Field Trip Opportunities
Field trip to a mineral company

Assembly Instructions
for a light stand useful for Activites 2.C. and 2.D.