

6th Grade Unit 1—Water Chemistry and Beyond

Complete Supply List

1.1

Note: The following items are regularly used so they are NOT necessarily listed again in the activities' apparatus below:

1. Large white boards
2. Dry erase markers and erasers
3. A teacher computer that is able to project websites, videos, etc.
 - a. In addition several activities require students to access websites.

Properties of Water

Activity 1- Investigating Water

Copies of Investigating Water Worksheet

Copies of Worksheet – Investigating Water Closure

For each pair or small group:

Initial Exploration:

Piece of wax paper

Piece of plastic wrap

Piece of paper towel

Small container of water + a pipette

Optional: Small container of oil + a pipette

How Water interacts with other objects at its surface:

Pepper (or something similar such as tiny pieces of a dried leaf)

2 petri dishes of water (shallow cups or bowls will also work)

Several paper clips

Small container of soapy water (1:2 detergent or liquid dish soap to water) + pipette

Water's capability to hold together:

Around a 100 pennies

Container (Petri dish, 100ml beaker, or small clear cup)

Water

Pipette

Toothpick

Liquid soap

Water's ability to climb

2-4 transparent straws of different diameters

Container of water (Petri dish, 100ml beaker, or small clear cup)

Optional (food coloring – to make it easier for students to observe)

Piece of paper towel

Marker

Pencil, pen, rod, or something similar

Two books, boxes or something similar

Piece of tape

Water's capability to stretch
Water Race worksheet
A piece of wax paper that can be laid on top of the worksheet
A small container of water + a pipette
Stopwatch or access to a clock with a second hand
Optional extension: Pouring water down a string
2-feet of cotton string (thicker than thread)
Two cups
Water

Activity 2 – Exploring Liquids

Copies of Exploring Liquids worksheet
Copies of Worksheet 2 – How Sticky

For each group:

4 Dropper bottles OR 4 jars in which to put solutions (can also use emptied water bottles)
Medicine Droppers (eyedroppers)
Rubbing alcohol (+ food coloring)
Tap water (+ food coloring)
Soapy water (~6 drops of liquid detergent mixed with 8 oz. water + food coloring)
Corn oil
4 Small graduated cylinders (~10 mL)
Wax paper
Paper towels
Scissors
Masking tape (to label bottles and for securing wax paper)
Large object to support a wax paper ramp
A stopwatch or access to a wall clock or watch with a second hand
Copies of Unit 1.1 Quiz

1.2 Particle Model of Water

Activity 1- **“Molecules Matter”**

Whiteboard for each table or group
Cup of water for each table or group
Eye Dropper for each table or group
Food coloring (any color) for each table or group
You may also want water and materials from 1.1 Act 1 on hand for quick demos of properties and review if needed during discussions.
Copies of Worksheet 1 – Molecules

Activity 2- Molecules in Motion

Cold Water (room temperature or less)
Hot Water (~50°C)
Tall Clear Plastic Cups
White sheet(s) of paper
Food Coloring (red, blue, yellow, or green)
Copies of Activity 2 – Molecules in Motion
Copies of Worksheet 2 – Hot and Cold
Copies of Unit 1.2 Quiz

1.3 States of Water/Matter

Activity 1- “Heating Up”

Materials for Each Group

Goggles for each student
2 sets of large metal washers on a string
Styrofoam cup filled with hot water
Room-temperature water
2 thermometers (may use Lab Quest 2 with temperature probes)
Graduated cylinder or beaker
Copies of Worksheet 1 – Conduction and Energy for each student

Materials for the Teacher

1 Styrofoam cup
Thermometer
Hot plate or coffee maker (Hang a set of washers for each student group in the hot water to keep them warm for the students to perform experiment 2 when needed—probably more convenient to have two hot plates or to use a microwave to heat the water for experiment 1 while the washers are kept warm for experiment 2)
Large beaker or coffee pot

Activity 2- Drying Out

For each group

2 quart-size zip-closing plastic storage bags
Hot water
Room-temperature water
2 squares of brown paper towel
2 medicine droppers
Copies of Activity 2 – Drying Out

Activity 3 – Cooling Off

Copies of Activity 3 – Cooling Off

Copies of Worksheet 2 – Cooling Closure

Demonstration

- 2 clear plastic cups
- Room-temperature water
- Ice cubes

Activity 4- Freezing

PowerPoint on Energy Bar Graphs

Materials for each Group:

Empty clean metal soup can (use pliers and duct tape to protect edges)
Salt
Ice Metal spoon or sturdy stick
Teaspoon
Paper towel
Copies of Activity 4 – Freezing
Copies of Worksheet 3 – Energy Bar Graph

- Gallon-size zip-closing plastic bag

Student Tests

- 1 short wide-rimmed clear plastic cup
- 1 tall smaller-rimmed clear plastic cup
- Hot water (about 50 °C)
- Magnifier

Activity 5- Melting

Copies of Worksheet 4 – More Bar Graphs

Copies of Quiz 1.3 B

For student testing:

- 2 small pieces of ice

- 2 small clear plastic cups

- Water

For dry ice demo:

- Ice

- Dry ice

- Brown paper towel

- Cold water

- Hot water

1.4 Density

Activity 1- Layering the Unknown

- 1 potato and knife to cut it (any type—will stick straw in it to layer liquids)

- 6 Clear plastic straws

(Probably can use small test tubes in lieu of potato and clear straw? Sometimes clear straws are hard to find.)

- 4 different food colors to add to each different liquid

- Water with tinted with yellow food coloring

- Salt water (~5T of salt to ~16 ounces of tap water) tinted with green food coloring

- Isopropyl or denatured alcohol tinted with red food coloring

- Glycerin tinted with blue food coloring—might be able to use Karo syrup instead?

- Medicine Droppers or straws (eyedroppers)

- Old plastic container for waste

- Copies of Activity 1 – Layering the Unknown

- Copies of Worksheet 1 – Comparing Objects

Activity 2- Comparison of objects

- Pan balance

- 6 glass marbles

- 6 steel marbles

- Containers

- Sand

- Water

Activity 3 - Measuring mass

- Balances (triple beam or equal arm)

- Items for massing (pencils, paper clips, coins, paper, etc.)

- Copies of Worksheet 2 – Mass of Objects

Activity 4 - Defining volume

- Unit cubes

- Several cardboard boxes (some small, some large)

- Centimeter rulers

- Copies of Worksheet #3 – Measurement of Volume and Area

Activity 5 – Mass and Volume of Liquids

Mass and Volume of Water:

A 10 mL capacity graduated cylinder (larger 100 mL graduated cylinders do not measure volume with enough accuracy)

A source of water

A gram balance

Density of Other Liquids:

A 10 mL graduated cylinder

A gram balance

Saturated salt water: add 1 part table salt to 5 parts water and shake vigorously for at least 1 minute; let it settle overnight and pour off clear liquid into another clean jar as salt water for this activity

70% isopropyl rubbing alcohol

100% corn oil

Baby oil (mineral oil)

Dispensing containers for each group (baby food jars work well)

Soap and water to clean the graduated cylinder of oil residue

Paper towels and masking tape to make rolled towels to clean out graduated cylinder

Copies of Activity 5 – Mass and Volume of Liquids

Copies of Quiz 1.4