VII FORMS AND HANDOUTS

Student Safety

Field Safety Practices

- No pushing or shoving near the water.
- No running near the water.
- No wading or swimming in the water.
- No leaning over the rails on bridges.
- Stay off roadways.
- Wear warm clothes.

Laboratory Safety Practices

- Wear protective clothing: lab aprons, gloves and eye protection. You will be handling some breakable bottles, test tubes and other equipment. You will also be handling some hazardous chemicals.
- Treat all samples as if they were contaminated.
- Treat all chemicals as if they were dangerous.
- Never taste a laboratory sample.
- Wash hands thoroughly after using chemicals.
- Never put hands in mouth during experiments.
- Do not shake, splash or spill the chemicals.
- Stay calm. Do not clown around.
- Dispose of chemicals properly.

Recommended Clothing

- Jacket, hat and gloves (cool weather)
- Waterproof boots (cool weather) or old sneakers (warm weather)
- Clothes that you do not mind getting wet or dirty

STAY WARM!!!

Site Survey Form

Class _____ Date _____

Location of site _____

Time of Day: _____ High Tide/Low Tide (if relevant): _____

Weather:	Current	Recent (within last 4 days)
Wind	_____	_____
Precipitation	_____	_____
Temperature	_____	_____

Land use within the watershed:

___ residential (___single family ___ multifamily)
___ commercial (stores and businesses)
___ industry and manufacturing
___ agricultural (___ grazing ___ crops)
___ marine/nautical industries

Location of: (if known)

industrial discharges _____

storm drains _____

Combines sewer overflows (CSOs) _____

Water type:

_____ Fresh _____ Brackish _____ Sea

Water use within the area:

___ recreation (swimming, boating, fishing)
___ drinking water supply
___ industry
___ other

Physical Observations of the water:

_____ Clear	_____ Cloudy	_____ Color
_____ Wave height	_____ Approximate Current	_____ Visible oil slick
_____ Litter or Debris	_____ Overhanging trees	_____ Odor

Other descriptions of the water:

Land formations in the area:

___ mountains ___ hills ___ wetlands ___ forests ___ meadows
___ seashore ___ marsh (___ seawater ___ brackish ____ freshwater)

Bank or shore:

___ Soil ___ Clay ___ Litter ___ Sand ___ Gravel ___ Rock

Steepness of bank: _____

Vegetation: _____

Signs of erosion:_____

Wildlife:

___fish ___ birds ___insects ___ wildlife ___ domestic animals

Other observations:

Prediction Form

Class _____ Date _____

Location of site _____

I (We) expect the water at this site to have the following conditions:

1. The pH level will be __high (8.0 up) __neutral (6.0 -7.9) __low (below 6.0) I
   I predict this because:

2. The Dissolved Oxygen (DO) level will be
   ___ high (it will support abundant, healthy fish life)
   ___ average (it will support fish life as long as temperatures remain average)
   ___ low (it will not support healthy fish life)
   I predict this because:

3. The Biochemical Oxygen Demand (BOD) will be
   ___ high (there will not be much oxygen left after 5 days)
   ___ average (there will be adequate oxygen left after 5 days)
   ___ low (not much oxygen will be used up in 5 days)
   I predict this because:

4. The water temperature will be about ___°C (___°F) because:

5. (fresh water) The Total Dissolved Solids (TDS) will be_____ because:

6. (sea water) The salinity level will be
   ___ below 200 ppm ___ between 10,000 and 35,000 ppm
   ___ between 200 and 5,000 ppm ___ 35,000 ppm
   ___ between 5,000 and 10,000 ppm
   I predict this because:

7. I predict there ___ will ___ will not be total coliform present because:

8. I predict the nitrogen level will be ___ low (<.2 ppm) ___ average (<1 ppm)
   ___ high (>1 ppm) because:

9. I predict the turbidity level will be ___ low ___ average ___ high
   I predict this because:

Data Recording Form

Group members _____

_____

_____

Date _____ Location of site _____

Temperature

Air Temperature: ___°C ___°F

Water Temperature: ___°C ___°F

Draw a simple map of the site and mark the location(s) where you took the temperature. Include the depths at which you took the temperature and the temperature itself.

Did you have any difficulty taking the temperature because of currents, waves, difficult access on the banks?

Did you see anything at your site that might cause thermal pollution (unnatural water heating), such as a storm drain or an industrial discharge pipe?

pH

1. What is your sample's pH? _____
2. Did you notice anything at your site that might lead to this pH level?

Dissolved Oxygen (DO)

1. What was the level of Dissolved Oxygen in your sample? _____ ppm
2. What is the 100% oxygen saturation level of your sample water? (To be read from the chart on page 40.)

   _____
3. What is the percentage of oxygen saturation of your sample (#1 ÷ #2) = _____%
4. How might you account for this level of DO?

Biochemical Oxygen Demand (BOD)

1. Parts per million of dissolved oxygen: *(Tests on days 2, 3 and 4 are optional)*

Day 1	___ ppm DO (from DO #1)	
Day 2	___ ppm DO	_____ BOD (DO day 1 - DO day 2)
Day 3	___ ppm DO	_____ BOD (DO day 1 - DO day 3)
Day 4	___ ppm DO	_____ BOD (DO day 1 - DO day 4)
Day 5	___ ppm DO	_____ BOD (DO day 1 - DO day 5)

2. Graph the BOD on a piece of graph paper.
3. What might account for the rate of oxygen demand?

Nitrates

1. What was the nitrate concentration of your water sample: _____ ppm
2. Did you notice anything at your site that might lead to this nitrogen concentration?

Total Dissolved Solids and Salinity

FRESH WATER

1. What was the meter reading? ____ µs
2. What is the level of total dissolved solids? (#1 X .5) _____ ppm

SEA WATER and BRACKISH WATER

1. What was your level of dilution? ___:___
2. What was the meter reading? ____ µs
3. What is the level of salinity in ppm? (level of dilution X meter reading X .5) _____ ppm
4. What is the level of salinity in parts per thousand (ppt)? (#3 ÷ 1000) _____ ppt

Turbidity

1. Does the water appear to be turbid (cloudy)? _____
2. How many 0.5 mL of turbidity reagent did you add before the clear water looked as cloudy as the water sample? _____
3. What was the turbidity in Jackson Turbidity Units (JTUs)? (Answer to #2 X 5) _____JTU
4. Did you observe anything at your site that might make the water turbid? If so, what?
5. If your sample was turbid, how long has it been since the last large storm?

Total Coliform Bacteria

1. After 48 hours, what color was your sample? _____ blue/purple _____ yellow
2. Did your water sample have coliform bacteria present? _____ yes _____no
3. Do you notice anything at your site that might account for the presence or absence of coliform bacteria?