**WATER POLLUTION LAB**

STUDENT HANDOUT

1. Students will be divided into 8 teams of 2-3 students each.

Each team will be assigned to work on one jar. The teams will use the following directions to make their experiment samples. The experiment will run for 4 weeks:

 a. Label jars 1 through 8.

 b. Into all 8 jars, pour 400 mLs of tap water.

 c. Add nothing to Jar #1. This jar serves as the control. What is the importance of a control in a scientific experiment?

 d. Into Jar #2, add 10 ml’s of bleach.

 e. Into Jar #3, add 10 ml’s fertilizer.

 f. Into Jar #4, add 10 ml’s detergent.

 g. Into Jar #5, add 10 ml’s motor oil.

 h. Into Jar #6, add 10 ml’s insecticide.

 i. Into Jar #7, add 10 ml’s vinegar.

 j. Into Jar #8, add 10 ml’s dry volume grass clippings.

 k. Into all 8 jars, add 2 mL of green algae mix (Spirogyra sp.).

2. Jars 2-6 represent pollution caused by humans. Jar 7 and 8 represents pollution caused by either humans or nature.

5. Conduct baseline testing on the jars for: (follow instructions provided by your instructor and found in the kits)

 a. pH (all wks)

b. dissolved oxygen (wks 1 & 4; for the 1st week’s reading take a single reading from the tap water for use as the initial O2 level for all jars. Ask your instructor for directions

 c. phosphates (wks 1 & 4)

6. Close the jars, **BUT DO NOT TIGHTEN** and place the labeled jars in designated location.

7. Each student will be given a copy of the student worksheet. Students are to complete the appropriate Sections for their jar.

8. Each week for the next 4 weeks, groups need to write their observations on the worksheets. Test the water in each jar according to the instructions above and note any changes. After the measurements, your instructor will lead you in a discussion on how the changes you are observing would affect a natural water system.

9. At the end of the fourth week of observations, groups will draw their final conclusions and note them on the worksheets. The groups will then share their conclusions and observations with the rest of the class.

10. After you wrap up, each group take 5-10 minutes to brainstorm an answer to the question: “What can you do to prevent water pollution?” Think about prevention as well as a solution to the problem after it has already occurred.

11. Make sure all pollutants are properly disposed of after their use. Liquid mixtures, except for the motor oil can be flushed down the sink.

Students will:

1. Participate in the activity.

2. Fill in their lab worksheets.

3. Answer wrap up question.

**WATER POLLUTION LAB WORKSHEET**

**MEASUREMENTS:**

**pH**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Jar #** | Week 1 | Week 2 | Week 3 | Week 4 |
| **Jar # 1** |  |  |  |  |
| **Jar # 2** |  |  |  |  |
| **Jar # 3** |  |  |  |  |
| **Jar # 4** |  |  |  |  |
| **Jar # 5** |  |  |  |  |
| **Jar # 6** |  |  |  |  |
| **Jar # 7** |  |  |  |  |
| **Jar # 8** |  |  |  |  |

**Dissolved Oxygen**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Jar #** | Week 1 | Week 2 | Week 3 | Week 4 |
| **Jar # 1** |  |  not measured |  not measured |  |
| **Jar # 2** |  | not measured | not measured |  |
| **Jar # 3** |  | not measured | not measured |  |
| **Jar # 4** |  | not measured | not measured |  |
| **Jar # 5** |  | not measured | not measured |  |
| **Jar # 6** |  | not measured | not measured |  |
| **Jar # 7** |  | not measured | not measured |  |
| **Jar # 8** |  | not measured | not measured |  |

**Phosphates**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Jar #** | Week 1 | Week 2 | Week 3 | Week 4 |
| **Jar # 1** |  |  not measured |  not measured |  |
| **Jar # 2** |  | not measured | not measured |  |
| **Jar # 3** |  | not measured | not measured |  |
| **Jar # 4** |  | not measured | not measured |  |
| **Jar # 5** |  | not measured | not measured |  |
| **Jar # 6** |  | not measured | not measured |  |
| **Jar # 7** |  | not measured | not measured |  |
| **Jar # 8** |  | not measured | not measured |  |

**Nitrates**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Jar #** | Week 1 | Week 2 | Week 3 | Week 4 |
| **Jar # 1** |  |  not measured |  not measured |  |
| **Jar # 2** |  | not measured | not measured |  |
| **Jar # 3** |  | not measured | not measured |  |
| **Jar # 4** |  | not measured | not measured |  |
| **Jar # 5** |  | not measured | not measured |  |
| **Jar # 6** |  | not measured | not measured |  |
| **Jar # 7** |  | not measured | not measured |  |
| **Jar # 8** |  | not measured | not measured |  |

**NOTES:**

**NOTES (CONT.):**