Save Our Water

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Save Our Water Unit Outline

Solutions and Pollution

1. Chemical Survey
2. Lab: Defming and Forming a Solution
3. Lab: Parts Per Million
4. Lab: Combining Different Liquids
5. Video: Eyewitness Pond and Stream
6. Lab: Successive Dilution of an Acid and a Base 7. Lab: Relative Concentration
8. Lab: Relative Concentration of Household Vinegar
9. Lab: Used H20/Review for Solutions and Pollutions Test

10. Clean Water Video
11. Test: Solutions and Pollution

The Fruitvale Story

1. Group Lab: Solids and Liquids
2. CD ROM Virtual Lab: How Does Water Flow Through Ground?
3. The Fruitvale Story/predicting Distributions
4. Web Page: What's Up With Our Nation's Water
5. Lab: Well Testing Plan/The Search for the Source
6. The Cleanup of Fruitvale: Class Presentation & De bate

Mason County Water- Chemicals & Aquatic Life

1. Kentucky's Water Supply - A Water Odyssey (a publication from the Courier J oumal)
2. Web Page-Important Water Quality Factors (Part 1 and Part 2)
3. CD ROM Virtual Lab: How Do Pollutants Get In Our Water?
4. Video: Bill Nye "Ecosystems"
5. The Big ID: Matching Aquatic Adults With Their Infants

6. The Big ID 2: Identifying Aquatic Organisms 7. Art Project: Building an Aquatic Food Chain 8. Outdoor Lab: Chemical and Biological Survey

of Mason County Middle School Creek

9. Lab: Chemical Survey of Mason County Streams and PondsjMapping the Pollution! Class Report to Mason County Health Department
10. Field Trip to Maysville Water Treatment Plant
    -Numbering the Steps
11. Open Response: Macroinvertebrates Have Been Found!!
12. Performance Event: Save Our Water Chemical Testing! Source Inferences

Materials List

Solutions and Pollutions

Salt, Sugar, Pepper, Cherry Kool-Aid(Unknown), Red Food coloring, vinegar(make Solution A 1% solution), sodium hydroxide(make Solution B 1% solution), Universal Indicator, Used Water is a combination of Solution A and B.

The Fruitvale Story

Materials included in kit.

Mason Count.JJ...Streams

Chemical testing kit (Lab-Aids), Collecting nets, Pictures and Nature Magazines to cut out Aquatic Producers and Consumers, Note Cards with Pictures of Aquatic Organisms, Poster Paper, Paste or Tape, Markers, Identification Keys for Macroinvertebrates, Topographic Maps of Mason County.

10108/02

Unit Title: Save OUf Water

Class: 7th Grade Science
Author: Felice & Gilkison
School: MCMS

Approximate Timeline: October 7, 2002 - November 8, 2002
School Level: Middle School
Area(s) of Core Content: Science

Targeted Standards:
Academic Expectation 1-Apply Communication and Math Skills:
-1.1 Students use reference tools such as dictionaries, almanacs, encyclopedias, and computer reference programs and research tools suchas interviews and surveys to find the information they need to meet specific demands, explore interests, or solve specific problems.
-1.2 Students make sense of the variety of materials they read.
-1.3 Students make sense of the various things they observe.
-1.4 Students make sense of the various messages to which they listen.
-1.5 -1.9 Students use mathematical ideas and procedures to communicate, reason, and solve problems.
-1.10 Students organize information through development anduse of classification rules and systems.
-1.11 Students write using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes. -1.12 Students speak using appropriate forms, conventions, and styles to communicate ideas and information to different audiences for different purposes. -1.16 Students use computers and other kindsoftechnology to collect, organize, and communicate information and ideas.

Demonstrators for Academic Expectation 1.1
-Use a variety of research tools and evaluate the effectiveness of each relevant to a specific need or problem.
-Analyze and compare information accessed from different sources.
-Gather information through observation on a specific need or problem.

Demonstrators for Academic Expectation 1.2
-Construct meaning and evaluate print materials read in and out of school. -Interpret reading using different modes of presentation.
-Apply a variety of strategies to construct meaning.
-Relate reading experiences to life situations.
-Analyze appropriate print materials for a variety of purposes.

Eyewitness Video

Pond and Streams

Name_____

Date_____

1. What % of species on Earth does fresh water support?

2. How large is a stream when it is called a river?

3. If a river has larvae, what might that indicate about the health of the river?

4. How long did it take for the Colorado River to dig the Grand Canyon?

5. How does a minnow camouflage itself?

6. What is the most deadly freshwater animal?

7. How does the water spider breathe?

8. How much of the world's power is generated from hydroelectric power?

9. What forms at the mouth of many rivers as they enter the ocean?

What's Up With Our Nation's Water?

Name

Date

Click on the questions and read to find the answers. These are in order as you go down the page. Use the headings to help find answers. http://www.epa.gov/owow/monitoring/nationswaters/

How is the Quality of Our Water Determined?

1.

What instruments are used to measure water quality?

2. What 3 ways do scientists collect water?
   a.
   b.
   c.
3. What else may be collected?
4. Why are the following measured:
   a. Temperature?
   b. Dissolved Oxygen?
   c. pH?
   d. Nutrients?
   e. Turbidity?
   f. Bacteria?
   g. Visual Surveys?
   h. Biological Sampling?
5. Do you live in a watershed?
6. What is a watershed?

How is the Quality of Our Waters Determined

7. What 2 rankings are given for water?
   a.
   b.
8. a. What are surface waters?
   b. List 5 surface waters.
9. What % has recently been rated as impaired?

The 3 Bit! Pollutants

What are the Big__ Pollutants?

a.

b.

c.

11. Why is dirt dangerous to a stream?
12. How can dirt be controlled?
13. Where do bacteria come from?
14. What are 2 things that can be done about bacteria?
    a.
    b.
15. What can nutrients like nitrogen and phosphorous cause?
16. How can nutrients be slowed?

here Are the Pollutants Cominf! From

17. Where are most problems inour nation's waters coming from? 18. Why is lining a stream with concrete bad?
19. What. can be done about damaged streams?

'etlands

20. Where are wetlands found?
21. For what 3 reasons are wetlands important?
22. How is a wetlanda.sponge?
23. What do wetlands filter?
24. What kind of animals use wetlands as habitat?

roundwater

25. How much groundwater. is, used by the U;S..each day?
26. What are the most common pollutants of groundwater?
    a.
    b.
27. What's the best way to fix groundwater problems?
28. What are 2 things you can do to protect groundwater?
    a.
    b.

The Big ID- Infants and Adults

Name

In this activity you will rotate through several stations where you will match the infant with the matching adult of that same species. Beware!! Some of

the young ones don't look a lot like their parents! !!

Simply work with your partner to match up ALL the pictures, THEN check to see how many you got correct. When finished, complete the REFLECTION QUESTIONS.

REFLECTION

1. Did you get most of the infant/adult matches correct?
2. Rank the following classes of animals from the easiest to most difficult to match up(in your opinion, of course).

Amphibians (frogs, toads, salamanders)
Birds
Fish
Insects
Mammals
Reptiles

3. Overall, which are closer looking to their parents:
Vertebrates or Invertebrates? Explain.

4. What advantage could there be to look nothing like parents when first born, like the mayfly nymph living in a creek?