

# ENVIRONMENT

## UNIT OVERVIEW

This exciting look at the environment is sure to captivate students. The three-part format builds a base of information, cements it in, and culminates it with exciting, hands-on projects ... sure to draw the best out of students.

### **PART I - ENVIRONMENT: A NEED TO KNOW (25%)**

- This informational section relies on interesting demonstrations, simple assignments and overhead notes to build a base of knowledge.

### **PART II - TEST CONSTRUCTION (25%)**

- Teachers take a break while students, in pairs, make up their own exams. Information in the notes is reviewed and retained as students work through the test making process.

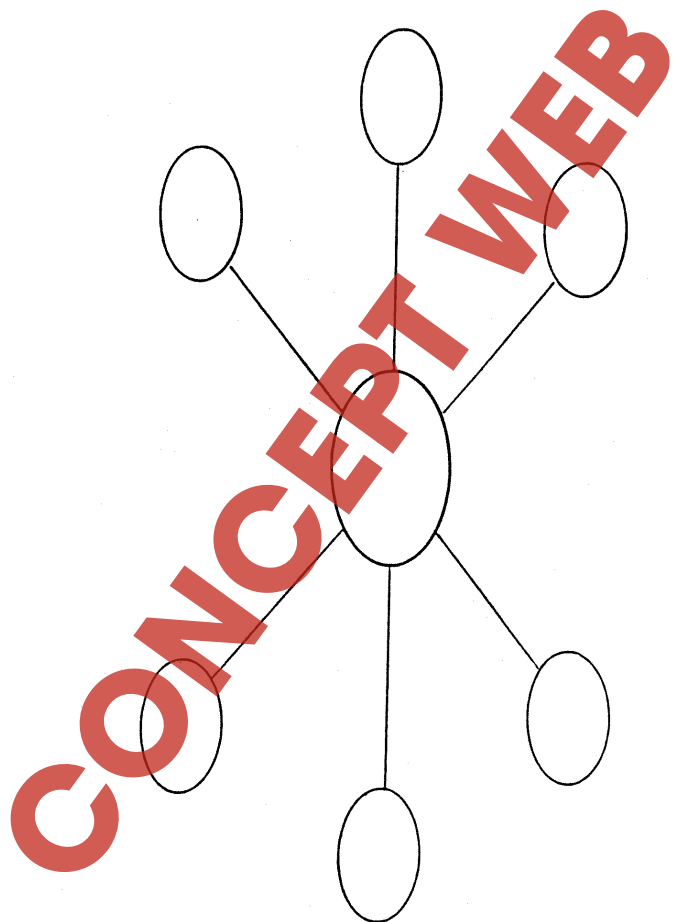
### **PART III - ENVIRONMENT DAY (50%)**

- students choose from a host of exciting hands-on environmental projects and present them to the class on a day designated as **Environment Day**. A great way to tie the unit together.

#### **Possible Projects Include:**

1. Making Paper
2. Environmental Storybook
3. Environment A B C's
4. Environment Boardgame
5. Energy House
6. Hydroelectric Dam
7. Windmill
8. Music Messages
9. Water Purification
10. Friends of the Planet

**CONCEPT WEB**



**ARE YOU A FRIEND OF THE ENVIRONMENT?**

Name: \_\_\_\_\_

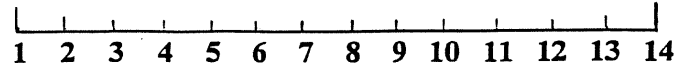
- |   | ALWAYS | SOMETIMES | NEVER |
|---|--------|-----------|-------|
| 1. Do you compost garbage?  | ___    | ___       | ___   |
| 2. Do you use ozone friendly sprays?                                  | ___    | ___       | ___   |
| 3. Do you buy enviro-paks instead of jugs?                            | ___    | ___       | ___   |
| 4. Do you use a lunch kit instead of paper or plastic bags for lunch? | ___    | ___       | ___   |
| 5. Do you plant trees?  | ___    | ___       | ___   |
| 6. Do you walk to school?   | ___    | ___       | ___   |
| 7. Do you take short showers?   | ___    | ___       | ___   |
| 8. Do you use both sides of the paper at school?                      | ___    | ___       | ___   |
| 9. Do you turn lights off when you leave a room?                      | ___    | ___       | ___   |
| 10. Do you use rechargeable batteries?                                | ___    | ___       | ___   |

**MARKING:**  
Give yourself 10 points for every "Always", 5 points for every "Sometimes" and 3 points for every "Never"

- 70 - 100 points ... BEST FRIENDS
- 50 - 70 points ... GOOD FRIENDS
- 0 - 50 points ... NOT EVEN ON SPEAKING TERMS!

**pH TESTER**

Name: \_\_\_\_\_



Strong Acid                  Neutral                  Strong Base

Acids turn litmus paper this colour \_\_\_\_\_.

Bases turn litmus paper this colour \_\_\_\_\_.

**Instructions**

Use small strips of litmus paper to estimate the pH of each substance. Then say whether the substance is a strong acid, weak acid, strong base, weak base or neutral.

SUBSTANCE	pH	DESCRIPTION
Sulphuric Acid	2	Strong Acid

**SOLUTIONS - STUDENT WORKSHEET**

Name: \_\_\_\_\_

**Instructions**  
Now that you know what the problems are, try to come up with as many solutions to each problem as possible. (Use your notes to help with this assignment.)

**ACID RAIN**

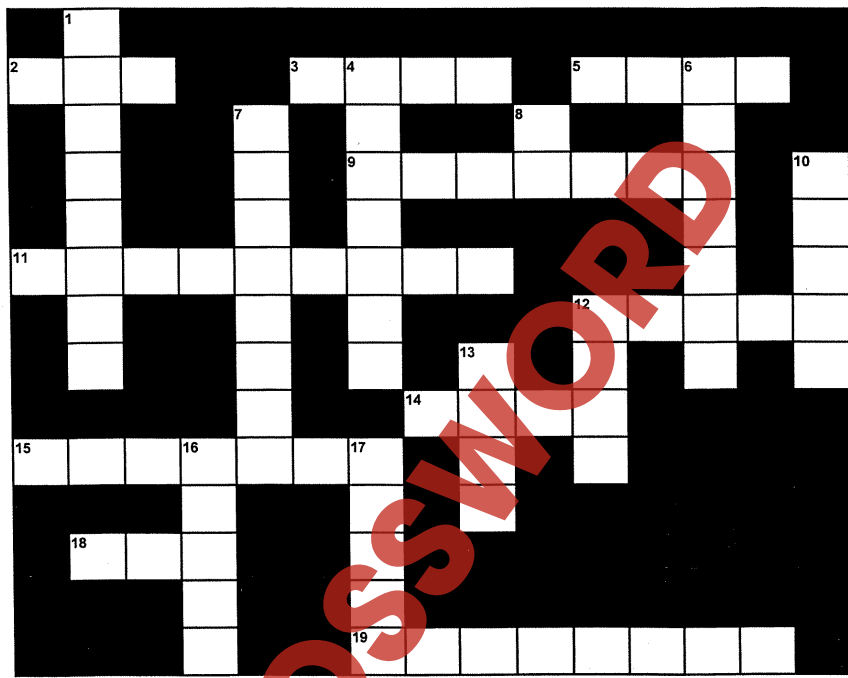
- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_

**GREENHOUSE EFFECT**

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_

## ENVIRONMENT CROSSWORD

Name: \_\_\_\_\_



### Across

2. Do you like school?
3. Vinegar or pickie juice.
5. The opposite of an acid.
9. Natural gas.
11. A harmful C.F.C. packaging.
12. A gas used in refrigeration that depletes the ozone layer.
14. Bovine producers of greenhouse gases.
15. A dry spell that could be a result of the greenhouse effect.
18. Chloral-Floral-Carbon
19. Used to clean the air coming out of smoke stacks.

### Down

1. Greenhouse gas-producing insects.
4. Biodegradable material in a pile.
6. Place where rock is melted to get metal.
7. One possible result of the greenhouse effect.
8. A scale to measure acidity.
10. Protects us from the sun's harmful radiation.
12. Do not appreciate acid rain.
13. A fossil fuel.
16. Might be caused by too much stomach acid or teaching.
17. Use up carbon dioxide and produce oxygen.

## ENVIRONMENT EXAM

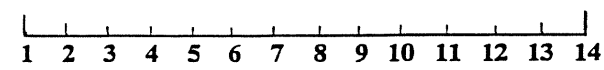
Name: \_\_\_\_\_

### 1. Fill in the blanks:

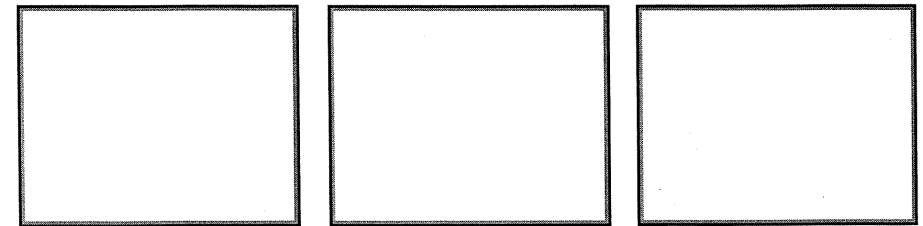
- a) A gas found in refrigerators \_\_\_\_\_
- b) A big polluter found in Sudbury, Canada \_\_\_\_\_
- c) A scale used to tell if a substance is an acid or base \_\_\_\_\_
- d) Too much stomach acid will cause this \_\_\_\_\_
- e) Coal, oil and natural gas are all examples \_\_\_\_\_
- f) Short form for Chloral-Floral-Carbon \_\_\_\_\_
- g) Global warming effect \_\_\_\_\_
- h) A substance that turns litmus paper red \_\_\_\_\_
- i) What is the pH of water? \_\_\_\_\_
- j) What could rotting leaves and cheese be? \_\_\_\_\_

### 2. On the following pH scale, show where these substances would go:

- a) water
- b) strong acid
- c) strong base
- d) sulphuric acid
- e) orange juice



### 3. Draw three pictures that show how acid rain forms. Label your diagram.



## ENVIRONMENT - MAJOR PROJECT OUTLINE

Groups choose from the list of possible assignments. Once your group has selected a project and has an idea of what to do, discuss your plans with the teacher before beginning the project.

### 1. Making Paper

This recycling project turns old, useless newspapers back in to useable paper. Group members will demonstrate the process in front of the class explaining the steps involved. An audio visual poster or diagram outlining the major steps must be included in the presentation.

### 2. Environmental Storybook

Prepare a storybook with an environmental theme suitable for children in grade one. The book must be written with a grade one reading level, and must be complete with illustrations. The completed story will be read at storytime to grade one students with the grade one teacher being responsible for grading the presenters. Things to consider include:

- Colourful illustrations
- Large, simple to read printing
- Use of pop-ups or other "catchy" ideas
- A good deal of repetition in the story
- Voice expression when reading the story

\*\*\* Note \*\*\* Students may wish to include a suitable activity that goes with the story.

### 3. Environmental A B C's

Use your art skills to draw and colour small pictures that are about the environment and go with a certain letter. For example, the caption on one drawing could read "A is for Acid Rain - save our lakes!" with a picture of dead fish floating in a lake.

Each drawing should be no larger than a normal sized piece of paper. The final drawings make excellent room decorations.

### 4. Environmental Boardgame

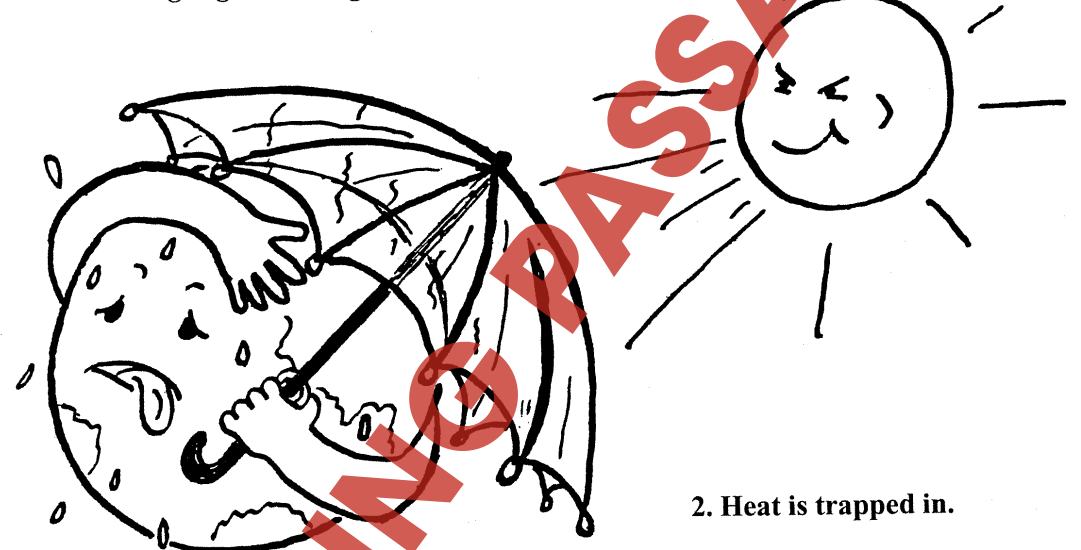
Make a real boardgame about the environment that can be played by other students. Your game can use such things as a spinner, dice, or "chance cards" to move around the board. Squares or cards could read "Walk to school - go ahead 3 spaces" or "Forget to turn off lights - go back 1 space". The final game should be attractive and fun to play. The rules for your game will be described to the rest of the class.

## THE GREENHOUSE EFFECT

### WHAT IS THE GREENHOUSE EFFECT?

The greenhouse effect is caused by a buildup of certain gasses in the atmosphere. These gasses form a *layer* which lets sunlight through, but traps the heat in, just like a *greenhouse*. The two main greenhouse gasses are Carbon Dioxide (CO<sub>2</sub>) and Methane.

#### 1. Light goes through.



#### 2. Heat is trapped in.

### CARBON DIOXIDE and METHANE

Carbon dioxide is the colourless gas produced when vinegar is mixed with baking soda. (CO<sub>2</sub> gives soda pop its fizz) CO<sub>2</sub> is also formed from the burning of many types of fuel such as gasoline, coal, oil, and wood.

Methane, commonly called natural gas is a fossil fuel often used in home furnaces but also is made by animals when they digest food. This process is known as *flatuation*. (the slang word is "farting")



## ENVIRONMENT WORDSEARCH

Name: \_\_\_\_\_

S Q F V E N V I R O N M E N T  
B L W L P A A I F O Z D E L Y  
M R S H O L Z K R I I O I V K  
M M T A L O S H E X S Z N O I  
S L L J L F D R O U G H T E G  
N T M S U U V I N D E X P V R  
X V Y C T M D B N A A T R G P  
Q S P R I N U J S G P G R F O  
J T E U O R M E T H A N E M C  
H E K B N F T S E R K F D X D  
S E R B A I O S B P R V U E D  
B A S E M P U A C I D Z C J W  
C Z W R M E G S M E L T E R L  
D J E O R E C Y C L E H A Q O  
M T C H P Y Z D M R B V X X P

Carbon Dioxide  
Styrofoam  
Termites  
Drought  
Compost  
Reduce  
Ozone  
Acid

Environment  
Flooding  
Garbage  
Recycle  
UV Index  
Reuse  
Freon  
Fish

Pollution  
Scrubber  
Methane  
Smelter  
Sunburn  
Trees  
Base  
pH

## OPTIONAL WORKSHEETS and SAMPLE EXAM

A crossword puzzle, wordsearch, and a question sheet that asks students to think, have been included as optional, enrichment assignments.

The sample exam provided is an example of a student-generated test from PART II but could be used as a written exam.

Numerous videos or filmstrips are available to further enhance the unit.

### Answers

Q F V E N V I R O N M E N T  
L W L P A A I F O Z D E L Y  
R S H O L Z K R I I O I V K  
M T A L O S H E X S Z N O I  
L L J L F D R O U G H T E G  
T M S U U V I N D E X P V R  
V Y C T M D B N A A T R G P  
S P R I N U J S G P G R F O  
T E U O R M E T H A N E M C  
B N F T S E R K F D X D  
B A I O S B P R V U E D  
A S E M P U A C I D Z C J W  
Z W R M E G S M E L T E R L  
J E O R E C Y C L E H A Q O  
T C H P Y Z D M R B V X X P

# ANSWER KEY

1 T  
2 Y E S  
3 A C I D  
4 B A S E  
5 F O  
6 P M  
7 L  
8 M E T H A N E  
9 O  
10 Z  
11 S T Y R O F O A M  
12 T O  
13 F R E O N  
14 C I R E  
15 D R O U G H T  
16 C A H  
17 L  
18 R L  
19 C F C  
20 E  
21 E  
22 R  
23 S C R U B B E R