Instructional Recipe

# How Can We Be Green?

7th Grade
Science

**Online research and information resources available through a partnership between the Texas State Library and Archives Commission, the Texas Education Agency and Education Service Center, Region 20**
**http://web.esc20.net/k12databases**

## Step 1 – Ask

**Objectives**: Students will discuss the importance of environmental issues and analyze how they impact the environment. They will choose an issue, identify the causes and propose solutions.

**Introduction**: There is so much talk these days about the environment. What are the issues? For urban communities it may be air or water pollution, for rural communities, crops contaminated by pesticides or plagues, and for someone else, trash. Environmentalists, politicians and "green" supporters have generated a great deal of awareness and have proposed solutions from alternative sources of energy to recycling to fluorescent light bulbs. What is your cause and what do you propose?

*Image source: "Hazy smog blankets Houston, TX, June 26, 2000 during a hot summer day" Getty Images. EBSCO Image Collection.*

**Ask:**

- ★ What is the most critical environmental problem in your community?
- ★ How did it originate and over what period of time?
- ★ Is the problem local or generalized?
- ★ How can the problem be corrected?
- ★ What obstacles need to be overcome?
- ★ How can you be a part of the solution?

**Vocabulary**:

- ★ environmental protection
- ★ reusable
- ★ recycling
- ★ conservation of energy

(14) **Science concepts**. The student knows that natural events and human activity can alter Earth systems. The student is expected to:
(C) make inferences and draw conclusions about effects of human activity on Earth's renewable, non-renewable, and inexhaustible resources.

**New Reading/ELA TEKS**
(22) **Research/Research Plan**. Students ask open-ended research questions and develop a plan for answering them.
(23) **Research/Gathering Sources.** Students determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather.
(24) **Research/Synthesizing** Information. Students clarify research questions and evaluate and synthesize collected information.
(25) **Research/Organizing and Presenting Ideas**. Students organize and present their ideas and information according to the purpose of the research and their audience. Students are expected to synthesize the research into a written or an oral presentation.

**Technology Applications TEKS:**
(4) **Information acquisition**
(B) apply appropriate electronic search strategies in the acquisition of information including keyword and Boolean search strategies
(6) **Information acquisition**
(B) resolve information conflicts and validate information through accessing, researching, and comparing data
(7) **Solving problems**
(A) plan, create, and edit documents created with a word processor using readable fonts, alignment, page setup, tabs, and ruler settings. (G) integrate two or more productivity tools into a document including, but not limited to, tables, charts and graphs, graphics from paint or draw programs, and mail merge
(11)**Communication**
(A) publish in a variety of ways including, but not limited to, printed copy, monitor display, Internet documents, and video



*Created by Education Service Center, Region 20*

## Step 2 – Investigate

K-12 Databases Resources:

- ★ Mack, Hether: **Goin' Mobile.** Sierra. Nov/Dec2007. Middle Search Plus. EBSCO.
- ★ McWilliams, James: **Cooking Schools Save the Scraps**. E-The Environmental Magazine. Middle Search Plus. EBSCO.
- ★ Burmeier, Beverly: **A House Made From Paper.** E-The Environmental Magazine. Middle Search Plus. EBSCO.
- ★ Rembert, Tracey: **Drive to the next window, please.** E-The Environmental Magazine. Middle Search Plus. EBSCO.
- ★ **"plastics."** Compton's by Britannica. 2008. Encyclopædia Britannica Online School Edition. 29 Oct. 2008.

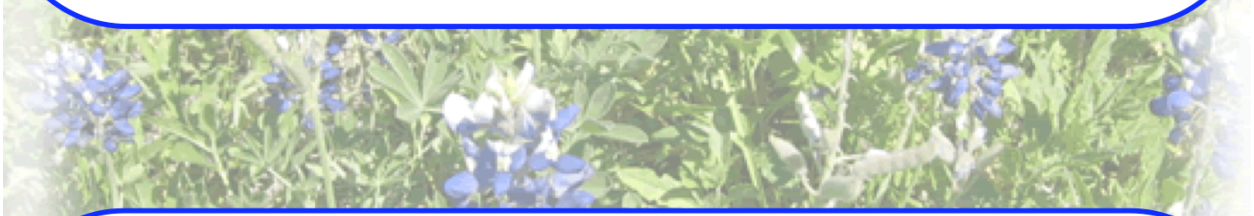
Additional Websites:

**Environmental Protection Agency**

Search strategies: environment AND Texas
energy conservation AND texas

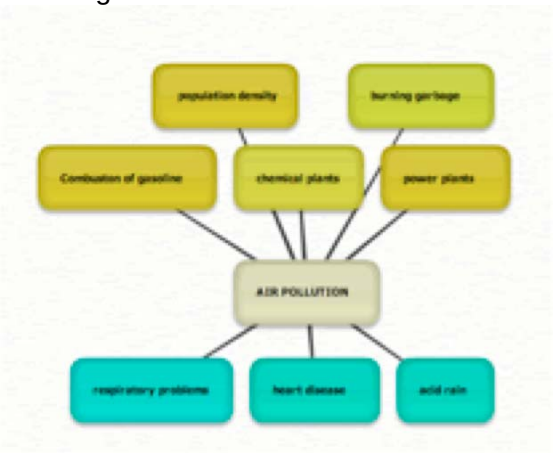
Book:

Climate Crisis by Nigel Hawkes



## Step 3 – Create

After reading different articles and other sources of information, students will document causes and consequences of an environmental problem of their choice using a graphic organizer. Here is a simplified idea web to detail the causes and consequences of global warming.




Technology Link – Students may create an idea web, cause and effect chart, or any other graphic organizer with Inspiration software.

Another option is to use Bubbl, a free Web 2.0 tool available at http://bubbl.us.

## Step 4 – Discuss

**The suggested project idea below can be used as is or modified as needed.**

There are a large number of oil wells in your community and recently people have discovered that the water they drink, and use to irrigate crops and feed the animals is contaminated. As an Environmental Protection Agency staff member, you have been hired by the city/town government to investigate what kind of pollutants might be in the water source(s) and the possible effects on the health of humans, animals and crops. Design a plan to address the issue with the oil well owners and propose solutions to the problem. Communicate your plan at the upcoming city council or town meeting.

Technology Link –

Students may present their plan orally and enhance it with some of these ideas:

- A multimedia slideshow to illustrate the evidence of water contamination (i.e., PowerPoint, Keynote)
- A video interview of witnesses (i.e., Windows Movie Maker, iMovie)
- A newspaper article to create awareness in the community using desktop publishing software (i.e., Word, Publisher, Pages)

## Step 5 – Reflect

Allow students to present their projects to the rest of the class. Use the following suggested rubric to assess the students' work. Make sure that the students are familiar with the rubric *before* they begin creating their project. They should refer to the rubric repeatedly to monitor their progress in creating their project.

Technology Link: You can also create your own rubric with your students at http://rubistar.4teachers.org/index.php.

**Rubric**
**Oral Presentation**

| CATEGORY | 4 | 3 | 2 | 1 |
|---|---|---|---|---|
| **Time Limit** | Presentation meets the required time limit. | Presentation is 1 minute longer than allowed. | Presentation is 2-3 minutes longer than allowed. | Presentation is too long or too short. |
| **Introduction** | Introduction included a clever and unique opening statement that captured the audience's attention. | Introduction included a clever and unique opening statement that somewhat captured the audience's attention. | Introduction included an opening statement that missed capturing the audience's attention. | There was no clever or unique opening statement. |
| **Posture, Gestures, Eye Contact and Voice** | Stands up straight, looks relaxed and confident. Gestures enhance the presentation. Establishes eye contact with everyone in the room. Speaks loud and clear. | Stands up straight and establishes eye contact with everyone in the room during the presentation. Voice and gestures are good but show some degree of nervousness. | Sometimes stands up straight and establishes eye contact. Gestures show some lack of self-confidence. Voice is not always loud and clear. | Slouches and/or does not look at people during the presentation. Lack of confidence and is evident in gestures. Speaks too softly. |
| **Content** | Shows a full understanding of the topic. | Shows a good understanding of the topic. | Shows a good understanding of parts of the topic. | Does not seem to understand the topic very well. |
| **Supporting Evidence** | Evidence to support the plan is used effectively during presentation to promote audience comprehension of material. | Fewer pieces of evidence are used effectively during presentation to promote comprehension of material. | Evidence is somewhat effectively used during presentation to promote comprehension of material. | Little or no supporting evidence is presented to support the plan. |
| **Media Sources** | Utilized media sources effectively to support ideas. Did not read from slides or notes. | Utilized media sources somewhat effectively to support the main ideas. Sometimes read from slides or notes. | Few media sources were utilized to support ideas. Student read from slide or notes most of the time. | Used no media sources. |

# Rubric
# Newspaper Article

| CATEGORY | 4 | 3 | 2 | 1 |
|---|---|---|---|---|
| **Notes** | Notes are recorded and organized in an extremely neat and orderly fashion. | Notes are recorded legibly and are somewhat organized. | Notes are recorded. | Notes are recorded only with peer/teacher assistance and reminders. |
| **Quality of Information** | Information clearly relates to the main topic. It includes several supporting details and/or examples. | Information clearly relates to the main topic. It provides 1-2 supporting details and/or examples. | Information clearly relates to the main topic. No details and/or examples are given. | Information has little or nothing to do with the main topic. |
| **Mechanics** | No grammatical, spelling or punctuation errors. | Almost no grammatical, spelling or punctuation errors | A few grammatical spelling, or punctuation errors. | Many grammatical, spelling, or punctuation errors. |
| **Sources** | All sources (information and graphics) are accurately documented in the desired format. | All sources (information and graphics) are accurately documented, but a few are not in the desired format. | All sources (information and graphics) are accurately documented, but many are not in the desired format. | Some sources are not accurately documented. |
| **Attractiveness** | Diagrams and illustrations are neat, accurate and add to the reader's understanding of the topic. Article is enhanced by appropriate use of fonts, colors, images, and format. | Diagrams and illustrations are accurate and add to the reader's understanding of the topic. Article is somewhat enhanced by appropriate use of fonts, colors, images, and format. | Diagrams and illustrations are neat and accurate and sometimes add to the reader's understanding of the topic. Article has very little use of fonts, colors, images, and format. | Diagrams and illustrations are not accurate OR do not add to the reader's understanding of the topic. Article lacks appropriate use of fonts, colors, images, and format. |