

Three Activities: Environmental Disasters & Response:

- ***Design an Ideal Emergency Response Plan to an Oil Spill in a Local Water Body.***
- ***Predict the effects of the hypothetical oil spill on the local community and environment.***
- ***Find and critique the local Emergency Response Plan.***

Goals

- to build students' knowledge and skills about releases of polluting materials into the environment
- to apply knowledge and skill in the community context.

Activity	Objectives
Response: Design an ideal Emergency Response Plan to an oil spill in a local water body.	<ul style="list-style-type: none">• Examine a hypothetical accidental release of oil in a major body of water• Report on who you determine to be the responders

Appropriate for which course(s):

High school and community college technology education, communications, and science.

Approximate time to complete activity:

1 class meeting, report due at subsequent class meeting.

Source of idea or activity (for published source, please include author, title, publisher, date):

Year 2000 ATEEC Fellows: Kelly Bringhurst, Patty Gilbert, Chris LaFrance, Jeff Newmeister

Materials/resources needed (equipment, print media, electronic media, videos, supplies, etc.):

Local printed or electronic map, telephone books.

General Description of Activity:

A hypothetical accidental release of oil has occurred in your area into a major water body. It is your job to determine who you think should be involved in responding to the situation. At the end of the activity, you will produce a short report detailing your findings.

Procedure:

Using your local map, find a river or lake in your area that is near a major road or railroad track. Assume a large container of oil has ruptured due a transportation accident, and thousands of gallons of oil has leaked into the identified water body.

- Describe the area in detail. Include topography, local weather conditions, land-use, land-cover, drainage basin information, groundwater information, etc.
- How quickly do you feel the oil would spread, why?
- Identify individuals and groups that you feel should respond to the oil spill. To do this, first brainstorm as a class or as small groups. Next, check government listings in the telephone book to check to see if you have missed any groups.
- For each individual and group, list the reasons why they should respond. How quickly should each respond? Include an analysis of the importance of the timeframe of the response for each.
- Develop a professional report that addresses the details listed above.

Predict the effects of the hypothetical oil spill on the local community and environment.

Goals

- to build students' knowledge and skills about releases of polluting materials into the environment
- to apply knowledge and skill in the community context.

Activity	Objectives
Response: Predict the effects of the hypothetical oil spill on the local community and environment.	<ul style="list-style-type: none"> • Compare a local hypothetical oil spill to the Exxon Valdez oil spill • Determine the effects on birds, mammals, invertebrates, industry, water resources, groundwater resources, legal costs, clean-up costs, clean-up techniques, etc.

Appropriate for which course(s):

High school and community college technology education, communications, and science.

Approximate time to complete activity:

4 class meetings plus outside assignments, report due at subsequent class meeting.

Source of idea or activity (for published source, please include author, title, publisher, date):

Year 2000 ATEEC Fellows: Kelly Bringhurst, Patty Gilbert, Chris LaFrance, Jeff Newmeister

Materials/resources needed (equipment, print media, electronic media, videos, supplies, etc.):

- [Anchorage Daily News – Exxon Valdez Web Site](#)
- [NOAA Office of Response and Restoration](#)
- [Oil Spill Recovery Institute and the Prince William Sound Science Center](#)
- Local biological information about plants and animals in the hypothetical oil spill area, with special attention to threatened and endangered species.
- Information about possible human and economic impact (recreation, agriculture, residential, business, etc.) in the area.

General Description of Activity:

Exxon Valdez oil spill

Using the web sites listed above, research the consequences of the Exxon Valdez oil spill. It is suggested that the class is divided into small groups with each group assigned a particular area of interest. Suggested areas of study could include: birds, mammals, invertebrates, fish, fishing industry, tourist industry, legal costs, clean-up costs, clean-up techniques, etc. Each group will present their findings to the class.

Hypothetical local oil spill

As a class, compare and contrast your local hypothetical oil spill to the Exxon Valdez oil spill. Make a list of areas of interest for your local area. Suggested areas of study could include: birds, mammals, invertebrates, fish, fishing industry, water resources, groundwater resources, tourist industry, legal costs, clean-up costs, clean-up techniques, etc. Divide into groups, with each group assigned a different area of interest.

Research your area of interest. Make a list of questions to answer, and then find the answers. Each group will present their findings to the class.

Example for birds:

- Make or obtain a list of birds in the area.
- Are any of them threatened or endangered species?
- Are they migratory or year-round residents?
- What time of the year are they there?
- Do they nest in the area?
- What do they feed on?
- What impact would an oil spill have on them?
- Would the impact likely be long-term or short-term?
- Other questions as they come up.

Final Project:

Each student will write a technical report comparing and contrasting the Exxon Valdez oil spill with the hypothetical local oil spill. The report should include lessons learned from the Exxon Valdez oil spill and how they can be applied to the local area.

Find and critique the local Emergency Response Plan.

Goals

- to build students' knowledge and skills about releases of polluting materials into the environment
- to apply knowledge and skill in the community context.

Activity	Objectives
Response: Find and critique the local Emergency Response Plan.	<ul style="list-style-type: none"> • Critique the community's Local Emergency Response Plan for accidental releases of chemicals farom transportation accidents

Appropriate for which course(s): High school and community college technology education, communications, and science.

Approximate time to complete activity: 1-2 class meetings.

Source of idea or activity (for published source, please include author, title, publisher, date):

Year 2000 ATEEC Fellows: Kelly Bringhurst, Patty Gilbert, Chris LaFrance, Jeff Newmeister

Materials/resources needed (equipment, print media, electronic media, videos, supplies, etc.):

Local Emergency Response Plan (this will likely be a general plan developed for accidental releases of chemicals from transportation accidents).

General Description of Activity:

- Divide into small groups to complete this activity.
- Compare the plan to the plan you formulated in Activity 12.
- Critique your plan and the official Emergency Response Plan using these ten questions adapted from:

The International Tanker Owners Pollution Federation Limited:

1. Has there been a realistic assessment of the nature and size of the possible threat, and of the resources most at risk, bearing in mind the probable movement of any oil spilled?
2. Have priorities for protection been agreed, taking into account the viability of the various protection and clean-up options?

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3. Has a strategy for protecting and cleaning the various areas been agreed and clearly explained?
4. Has the necessary organization been outlined and the responsibilities of all those involved been clearly stated with no 'gray areas' – will all who have a task to perform be aware of what is expected of them?
5. Are the levels of equipment, materials and manpower sufficient to deal with the anticipated size of the spill? If not, have back-up resources been identified and, where necessary, have mechanisms for obtaining their release and entry into the area been established?
6. Have temporary storage sites and final disposal routes for collected oil and debris been identified?
7. Are the alerting and initial evaluation procedures fully explained as well as arrangements for continual review of the progress and effectiveness of the clean-up operation?
8. Have the arrangements for ensuring effective communication between shore, sea and air been described?
9. Have all aspects of the plan been tested and nothing significant found?
10. Is the plan compatible with plans for adjacent areas and other activities?

As a class, discuss the critique of the Local Emergency Response Plan. In what ways does the plan meet or exceed the critique questions? In what areas does the plan fall short?

Choose responsible local officials to write letters to. As a class or as individuals, write a letter discussing briefly your class project. Comment on the Emergency Response Plan in a concise and professional manner. Make suggestions and ask for a response to your questions. Have your teacher or the technical writing instructor review your letter prior to sending it.

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