"Toxic Waste in Grand Banks" is an assessment task in which students from a high school economics class investigate the issues of economic prosperity, environmental concerns, government intervention in the market economy, and responsible civic participation in solving community problems. Students will demonstrate an ability--both individually and as part of a group--to gather information, think critically, solve problems, and reach consensus with others to facilitate responsible decision making, to understand complex ideas, and to generate new ideas. Real-world applications constitute an essential component of these skills and processes, and this assessment task seeks to meet these goals. Using a hypothetical situation in the local community of Grand Banks, students play various roles to simulate a government hearing into the cause and effect of a toxic waste dump discovered within the city limits. During the 5- to 7-day lesson, students have the opportunity to use their creative and communicative skills and their knowledge of the economic system to explore contemporary issues in a rational, critical, and interesting manner. This lesson plan provides a rationale; states goals and objectives; discusses Michigan social studies content standards; outlines a 10-step teaching procedure; and lists materials needed, most of which are attached. (Author/ BT)
Toxic Waste in Grand Banks
Lesson Plan

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Toxic Waste in Grand Banks

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This learning activity was originally developed in 1991 and won the First Place Award (grades 9-12) for the state of Maryland by the Council of Economic Education in Maryland. It has since been updated in 1999 to align with Michigan Social Studies Content Standards. This learning activity is not copyrighted; however, it is the request of the author that those educators who use this activity in the classroom do so in a spirit of integrity and professional respect.

ABSTRACT

Toxic Waste in Grand Banks is an assessment task in which students from a high school economics class have an opportunity to investigate the issues of economic prosperity, environmental concerns, government intervention in the market economy and responsible civic participation in solving community problems. It is essential that students demonstrate an ability—both individually and as part of a group—to gather information, think critically, solve problems and reach consensus with others as needed to facilitate responsible decision-making, to understand complex ideas, and to generate new ideas. Real-world applications constitute an essential component of these skills and processes, and this assessment task attempts to meet these goals. Using a hypothetical situation in the local community of Grand Banks, the students participate in various roles to simulate a government hearing into the cause and effect of a toxic waste dump discovered within the city limits. During the five to seven day experience, students have the opportunity to use their creative and communication skills, as well as their knowledge of our economic system to explore contemporary issues in a rational, critical, and interesting manner.

RATIONALE

The market economic system operates on the theory that both consumers and producers have the freedom to make certain economic decisions to solve the basic problem of scarcity. When consumers and producers meet to exchange goods, services and ideas, a market exists. However, there are times in which the
effects of such transactions have a negative effect on those NOT directly involved in such exchanges. When this occurs, a spillover cost (negative externality) exists. In our contemporary market economic system, the government has assumed the responsibility to take corrective actions in order to protect citizens from the adverse effects of such spillovers. The purpose of this learning experience is to allow students to assume roles of various government officials, civic leaders, concerned citizens and representatives of industry and the to examine how the market created a spillover cost, its effects on the local community and to analyze the costs and benefits of controlling this spillover in a rational manner.

GOALS AND OBJECTIVES OF THE ASSESSMENT TASK

GOAL: Students will use critical thinking skills to analyze a contemporary economic issue.

OBJECTIVES: Students will be able to:

1. Define and give examples of spillover costs.
2. Explain how, in a market economy, spillover costs can occur.
3. Analyze the effectiveness of government intervention in the market economy to control spillover costs.
4. Evaluate the benefits of citizens exercising their rights and responsibilities to participate in government decision-making.

MATCH WITH MICHIGAN FRAMEWORK FOR SOCIAL STUDIES EDUCATION CONTENT STANDARDS

Civic Perspective: 3.1.10 Explain advantages and disadvantages of a federal system of government.

Geographic Perspective: 2.2.14 Assess the relationship between property ownership and the management of natural resources.

Economic Perspective: 4.1.11 Evaluate ways to resolve conflicts resulting from differences between business interests and community values.

Economic Perspective: 4.4.14 Describe relationships among the various economic institutions that comprise economic systems such as households,
business firms, banks, government agencies, and labor unions.

Public Decision Making: 6.1.9 Generate possible alternative resolutions to public issues and evaluate them using criteria that have identified.

PROCEDURE

1. Begin the activity by placing a drawing or picture of an industrial area on the board/overhead. As the students view this, have the class brainstorm the factories and industrial parks that are in the community. The teacher should then develop a discussion of the advantages and disadvantages of having such industry in a community. Possible student responses should include advantages such as the creation of jobs and tax revenues for local government. Disadvantages of having industry in a community could include increased pollution, traffic and so forth.

2. After discussing this, direct the students to the disadvantages and ask the class how each of them might be affected negatively by such industry, even though they don't work there or buy the product. Inform the class that when citizens are affected in a negative manner, although not directly involved in the market transaction, is considered to be a spillover cost or negative externality.

3. Give the students the following examples of spillover costs and develop a discussion on the causes and effects of the following:

- Smoking in public places
- Auto emissions
- Pollution in a local river, lake or bay.

During this discussion, ask the students why the government gets involved in controlling these spillovers; why local citizens may wish to get involved and why those responsible for these costs do little if anything unless forced to do so. Conclude this discussion by having students share some examples of spillover costs that actually do exist, who they think is responsible for them and what, if anything, is being done about the problem.

4. Inform the students that the class will become involved in a simulation that deals with the problems of spillover costs in a local community and how the citizens, the local government and those responsible attempt to solve the environmental issue. Distribute R-1(resource sheet) which is a summary of the events that took place in Grand Banks. After allowing students time to read the selection, have students work in pairs to complete the timeline(R-2), which has the students place the major events of the simulation into the appropriate time sequence.
5. Once the reading selection and timeline have completed, the students should have a better understanding of the situation. The teacher should then place a copy of R-3 on an overhead. This map of Grand Banks should be used by the teacher to discuss the following questions with the students:

1. Why should Grand Banks be considered an industrial city?
2. Why and when did James Griffin attempt to build a canal?
3. What happened to this project and why?
4. What role did the Oxidus Corporation originally have in the development of the canal area. Why did Oxidus place such a role?
5. Why did the city of Grand Banks and local developers buy the Griffin Heights area?
6. During the 1970s, what disturbing trends developed in the Griffin Heights area?
7. What conclusions did local health officials make in 1987 concerning this problem?
8. Why did the governor and not local officials appoint a task force to further the investigation?

6. Inform the class that they are now ready to divide into groups to prepare for the hearing. The class will be divided into the following specific groups:

- The Governor's Task Force
- The Coalition of Owners United for Griffin Heights (COUGH)
- The City Government of Grand Banks
- The Environmental Protection Agency (EPA)
- The Association for Fiscal Restraint And Intelligent Decision-making (AFRAID)
- The Oxidus Corporation

7. Once the groups have been selected, the teacher will inform the class that the Governor's Task force has the responsibility to investigate the situation by holding a public hearing and that each of the other five groups will have an opportunity to speak at the hearing. Each student should now receive a copy of R-4: "Instructions To Groups". Allow time for students to read the instructions, and then pass out the following resource sheets to the specific groups:

- R-5, R-5b: Governor's Task Force
- R-6: COUGH
- R-7: City Government
- R-8: EPA
- R-9: AFRAID
- R-10: Oxidus

8. Allow the groups enough time to prepare their presentations. Each group is responsible for the oral and visual presentations, according to the instructions on
R-4. During this preparation time, the teacher should spend ample time with each group, discussing the group's background in this issue, its goals, methods and materials to be used as well as other details. The teacher must spend extra time with the Task Force so that the hearing can run in a proper and efficient manner.

9. Following this preparation time, the public hearing should commence. The Task force is responsible to have the room organized in a proper manner, according to R-5. The public hearing will then begin, per instructions on R-11.

10. Once the hearings have been completed, the chairperson will thank the groups and adjourn the meeting. At this time, the Task Force will meet to discuss, debate and decide how the situation can best be solved.

11. The Governor's Task Force will reconvene the hearing at which time the chairperson will announce the recommendation, including the specific reasons as to why the decision was made.

12. The teacher should then lead the class in a general debriefing of the activity. The following questions can be used to guide this discussion:

- How and why do spillovers occur?
- Why is it necessary for the government to become involved?
- Why do citizens become involved?
- Although everyone involved in the simulation realized that a major problem existed, why were there so many different suggestions to solving it?
- What might happen if the government did NOT become involved in solving spillover problems?
- How can citizens make sure that the government is responsible to their needs in such situations?

CONTENT

The following is a list of materials used in the learning experience. Copies of such materials can be found in the section titled: SUPPORTING MATERIALS and STUDENT RESOURCES.

- R-1: TOXIC WASTE IN GRAND BANKS(reading selection)
- R-2: Timeline
- R-3: Map of Grand Banks
- R-4: Group Instructions
- R-5: Task Force Instructions
- R-5b: Task Force Chairman's Remarks
- R-6: COUGH Instructions
- R-7: City Government Instructions
STUDENT EVALUATION

In order to evaluate the effects of the learning experience, the students will be divided into teams of three and given R-12 and R-13. These two resource sheets allow the students the opportunity to select an evaluation activity of their own choice.
Supporting Materials and Student Resources
TOXIC WASTE IN GRAND BANKS

Grand Banks is an industrial city that lies along the Twin Pines River. The city presently has a population of 100,000 people and most of its economic life dominated by the factories, warehouses and industrial parks along the river.

One of the sections of the city is an area called Griffin Heights, which is located in the eastern part of Grand Banks. Griffin Heights was originally a large tract of land owned by the Griffin family during the late nineteenth and early twentieth century. As a matter of fact, James Griffin attempted to build a canal through this area so that the cargo ships using the Twin Pines River would have an easier access to the factories along the river. However, Griffin's project went bankrupt and eventually the whole area became vacant and undeveloped for several decades.

In 1928, the Oxidus Corporation, a chemical company based in Grand Banks, bought much of the Griffin Heights area for the primary purpose of future expansion of its chemical business. However, due to the depressed economic conditions of the 1930s, Oxidus was not able to expand and ended up using this area for storing and dumping most of its chemical wastes. By 1945, Oxidus had decided to fill in the area with dirt and other landscaping materials in order to make the land attractive enough for possible sale.

During and immediately following World War II, a post-war expansion took place throughout the region which resulted in a demand on local governments to provide real estate opportunities for residential and commercial development. Unaware of what the Griffin Heights area had been used for during the previous decades, the city government of Grand Banks arranged for the purchase of the land from Oxidus in 1950. The land was then sold to real estate developers. It did not take long for this area to grow and develop into a thriving, middle-class section of Grand Banks. For the next few decades, economic prosperity engulfed the city of Grand Banks, including Griffin Heights.

It was in the late 1970s that a disturbing trend began to develop in Griffin Heights. Local citizens and health officials began to notice health problems were occurring at a much higher rate than in other parts of the city and region. Among the problems that were being noticed were higher rates of miscarriages, nervous conditions, blood disorders and cancer. As a result of this, the city government, in conjunction with state health and environmental officials, launched a study of the area to see if Griffin Heights was actually experiencing abnormal health problems, and if so, to determine the causes.

While the investigation was occurring, rumors and fear began to circulate throughout the city, especially in Griffin Heights. Residents, fearing the worst,
began to flood the local health facilities. Neighborhood associations and support
groups were formed to put pressure on the local, state and federal government.
The local media became involved and one local reporter even moved into the
home of a Griffin Heights resident to file periodic reports on conditions. Bad
water, smelly basements and dying vegetation were being reported constantly by
the alarmed citizens.

Finally, in 1987, the study was completed and made ready for the public. The
investigators concluded the following:

1. The Griffin Heights area of Grand Banks is an environmentally
   contaminated area, especially in the soil, ground water and public water
   system. (con't)
2. The health conditions of Griffin Heights is several times worse than the
   rest of the city, state and nation.
3. The area became contaminated with toxic wastes deposited by the Oxidus
   Corporation, between the years 1933 and 1945.
4. Because of the less-than-stringent environmental regulations of that time
   period, this area was allowed to become a toxic waste dump with only a
   minimal amount of health and environmental concern.
5. Griffin Heights is an environmental and health disaster "at its worst".

As a result, the governor of the state has appointed a task force to further
investigate the situation. The goal of this group is to hold a series of public
hearing in Grand Banks and based on these hearings, make recommendations
to the governor as to how this problem can be solved and at what cost.

QUESTIONS:

1. Explain how and why the section of Grand Banks called Griffin Heights
   was developed in the late 1800s and early 1900s.
2. Describe the role that the Oxidus Corporation played in Griffin Heights,
   from 1928 through 1950.
3. How and why was Griffin Heights developed from a waste site to a
   thriving, middle-class residential area. Be specific.
4. Explain in detail the "disturbing trend" that developed in the late 1970s in
   Griffin Heights.
5. As the situation got worse, many groups became directly involved in the
   issue. Write a brief explanation as to how and why the following became
   involved in the situation:
   o  a. the residents of Griffin Heights
   o  b. the local media
6. Write, in your own words, a summary of the conclusions that the
   investigators made in their 1987 report.
7. Why, then, do you think the governor appointed a task force to investigate
   the issue even further?
R-2

TIMELINE

|------|------|------|------|------|------|------|------|------|
NAME OF GROUP ____________________________

Your group is responsible to develop a five-to-ten minute presentation to the Governor's Task Force. The goal of the group is to make this presentation as convincing as possible; you want the Task Force to recommend your suggestions for solving the problem in Griffin Heights to the governor. When preparing your presentations, be sure to read the resource sheet thoroughly. From this, develop a logical and supportive argument in favor of your proposal. Graphs, charts, maps, drawings, transparencies and other visual aids are encouraged. Once this is completed, choose a spokesperson from your group to speak to the Task Force during the hearing.

NOTE: It is very important that your group pays close attention to the arguments of the other groups. Following all of the presentations, each group will be allowed to criticize other proposals in a responsible manner. Therefore, group members should take notes while other groups present their arguments. The Task Force will allow some time following the final presentation for groups to develop their critical remarks.
GOVERNOR'S TASK FORCE

Your group has been appointed by the governor of the state to investigate the toxic waste situation in the Griffin Heights section of Grand Banks. The following is a list of your responsibilities:

1. Investigate the causes and effects of the Griffin Heights toxic waste dump, including the health, social, political, economic and environmental impact.
2. Organize and conduct a public hearing for concerned citizens, groups and businesses in Grand Banks. The purpose of this hearing is to analyze the causes and effects of the toxic waste dump found in Griffin Heights and to analyze public suggestions as to how to best solve the situation.
3. Following the public hearing, the Task Force is to meet and select one alternative that was presented which would best suit the citizens of Grand Banks, particularly those in Griffin Heights. Your group will then publicly announce its decision and the reason for it. This recommendation will then be forwarded to the governor.

Assume that number one above has been completed and that the public hearing is ready to commence. Use the following as a guide to the hearing:

1. Choose a chairperson to speak and act on behalf of the group.
2. Allow each group up to ten minutes for their presentation.
3. Task Force members should have questions of concern for each speaker, once a particular presentation has been completed.
4. After all five groups have given their presentations, the Task Force will allow each group more time for developing critical remarks. Each group will then be allowed to offer such remarks.
5. While each of the groups is preparing their presentations, the Task Force will be allowed to read the written statements of each group. This will allow members of the Task Force to become more familiar with each of the group's background and proposal, and begin to make a list of questions.

The Task Force is also responsible for making a large wall map of Grand Banks with the appropriate places highlighted.

Finally, the Task Force is responsible for a written statement explaining the rationale for choosing the particular alternative that will be sent to the governor.

NOTE TO TASK FORCE:

The hearing room should be organized as follows:

Task Force Seating
Podium Wall Map

Public Seating
R-5b

THE CHAIRMAN OF THE TASK FORCE SHALL READ THE FOLLOWING AT THE BEGINNING OF THE HEARING:

"Good day ladies and gentlemen and welcome to this public hearing. My name is __________________ and I am the chairman of the governor's task force. The other members of the task force are __________________. __________________.

_________________ and ________________.

The purpose of this hearing is to allow the interested citizens of Grand Banks, especially those in Griffin Heights, to express their feelings about the toxic waste situation in their city. Once the citizens have had their opportunity to express themselves, the members of the task force will meet and make a recommendation to the governor as to how best to solve the situation in the best interests of everyone.

We have five groups who have asked to speak in this hearing. Each group will be allowed five minutes for their remarks. Once each group has spoken, members of the task force will be able to ask a question. We would expect everyone in the meeting room to act in a responsible manner and allow each group to express their opinion in a free manner.

And now, our first speaker will be a representative from the Coalition of Owners United For Griffin Heights."

Note:(once the speaker is finished , thank them and say "you may go back to your seat").

Then say, "Our next speaker is from _____________________."

The City government of Grand Banks
The Environmental Protection Agency
The Association of Fiscal Responsibility and Intelligent Decisions
The Oxidus Corporation

Once all the groups have finished, say:
"The task force will now meet in private to discuss and decide what will be recommended to the governor. We would like to thank everyone for their participation in this and hopefully this will help all of us find a way to solve the toxic waste problem in Griffin Heights once and for all."

When you announce your recommendation, say:

"Once again, the task force would like to thank everyone for their involvement. Without citizen participation, our democracy and market economic system would never work properly.

The task force recommends the following:

- This public hearing is formally concluded."
Your group represents many of the 1500 homeowners and businesses in the Griffin Heights section of Grand Banks. Your section of the city is the area most affected by the contamination from the toxic waste dump. The people of Griffin Heights have suffered medical, emotional and financial hardships and are demanding immediate action.

Specifically, COUGH feels that the city, state and federal governments are just as responsible for the disaster as the Oxidus Corporation is. The group insists that better environmental controls should have been in place and that, in the least, prospective buyers of land in Griffin Heights should have been informed as to what the land had been used for prior to the residential and commercial development. COUGH proposes that the city, state and federal governments jointly develop a program in which all homes and businesses in this area be bought from the owners at a fair market price, so that these residents can relocate without suffering any further financial, emotional and health hardships. Following this, COUGH feels that the governments should then clear the area, clean it completely and allow the area to be developed into an industrial complex.

COUGH hired a consulting firm to determine the approximate cost to buy the property and clean up the area. The firm concluded that the cost would be in the range of $125-$150 million. The firm also believes that, by allowing development of the area for industrial purposes, that the government would receive approximately half of its costs back.

COUGH would also like to file a lawsuit against OXIDUS, but because of the uncertain future of Griffin Heights' residents, there is a limited supply of funds available for legal costs of a lengthy trial.
THE CITY GOVERNMENT OF GRAND BANKS

Your group represents the city government of Grand Banks, specifically the City Attorney's Office. Your office has completed its own investigation of the Griffin Heights situation and has concluded that the Oxidus Corporation should be held totally responsible for what has taken place. Specifically, the City Attorney contends that Oxidus knew what it was doing the whole time; in fact it tried to cover up the vast site and obstruct government investigations. Finally, the City Attorney contends that Oxidus endangered the health of the whole Grand Banks community and did little if anything to help solve this disaster.

If Oxidus agrees to pay the $200 million, the City Attorney recommends that the money be spent in the following manner:

- $120 million for property purchases and clean-up.
- $50 million for future development costs.
- $30 million for unforeseen emergency costs.

Finally, the City Attorney recommends that if Oxidus agree to pay the $200 million, it will be immune from any further legal proceedings regarding Griffin Heights. If it won't pay the amount, the City Attorney recommends filing a lawsuit against Oxidus.

Your office recommends that Oxidus pay $200 million to the city government for the complete and total clean-up and restoration of Griffin Heights.
ENVIRONMENTAL PROTECTION AGENCY (EPA)

Your group represents the Environmental Protection Agency (EPA) of the federal government. Among the responsibilities of the EPA has is to help federal, state and local government identify toxic waste dumps and in a cooperative manner, monitor and assist the clean-up of such areas. The EPA has been involved with Griffin Heights for several years and admits that, had the agency existed during the time of the dumping and subsequent sale of the land, it would not have allowed any of this to occur. However, the EPA did not come into existence until 1970 and because there was not the legislative and community concern for the environment then as there is now, the EPA cannot accept full responsibility for what has happened in Griffin Heights.

The EPA, however, does have the responsibility to help the clean-up of such areas as Griffin Heights, and as a result of its investigations, has come to the following conclusions:

1. Griffin Heights is an environmental disaster at its worst. Residents must leave, all dwellings destroyed and the whole area sealed off from the public. After this is accomplished, a total clean-up of the area must occur. This should take approximately five years to complete at an approximate cost of $120 million.

2. The EPA has a limited budget and cannot afford to do this on its own. So, it is recommending that the clean-up costs be allocated in the following manner:
   - EPA and other federal agencies: $36 million (30%).
   - Oxidus Corporation: $36 million (30%).
   - City of Grand Banks: $24 million (20%).
   - State government: $24 million (20%).

3. Finally, the EPA recommends that once the clean-up is completed, the land should be sold to industrial developers, with the proceeds from such sales going to the above groups in the same proportion.
THE ASSOCIATION FOR FISCAL RESTRAINT AND INTELLIGENT DECISIONS (AFRAID)

Your group, commonly known as "AFRAID", represent many of the residents and businesses in Grand Banks who have not been directly affected by the situation in Griffin Heights. Although your group has sympathy for those residents in Griffin Heights, AFRAID feels very strongly that only the federal and state government should pay for the clean-up. AFRAID also feels that the clean-up project should only include moving the residents out and then permanently sealing the whole area off to the public.

AFRAID hired an environmental consulting firm to investigate the situation. This firm concluded the following:

1. It would cost approximately $75 million to move the residents out of the area and seal it off. This would save taxpayers millions of dollars in comparison to other alternatives.
2. If the city of Grand Banks becomes directly involved with the clean-up effort, it is estimated that for every $10 million that the city spent:
   - Property taxes would increase by $75-$100 per household per year for up to ten years or
   - Basic city services such as police, fire and garbage collection would have to be dramatically curtailed, or
   - One elementary school would be closed for five years, or
   - Most recreation, day-care and "non-essential" services provided by the city for five years would have to be eliminated or
   - A combination of the above.

According to AFRAID, if the above were to happen, many residents and businesses would leave the city of Grand Banks, thus crippling the local economy even more.

Finally, AFRAID feels that if Oxidus is made to pay an enormous sum toward the clean-up, the company may simply close down its Grand Banks operations. This would be catastrophic to the city because it would have a ripple effect on the local economy, causing much unemployment as well as severe economic pressure on local residents, businesses and the government.
THE OXIDUS CORPORATION

Your group represents the Oxidus Corporation, which at one time owned the land now known as Griffin Heights and mainly responsible for the environmental condition of this area. Oxidus has been the target of many protest, investigations and even vandalism during the past several years.

In defense of the allegations against the company, your group will argue that since the dumping took place more than forty years ago, those that were responsible for that decision are no longer involved with the company. These people have either retired or passed away, and those who have retired, have absolutely nothing to do with Oxidus, except to collect retirement pensions. Furthermore, only five percent of the present two million shareholders of the company were connected to Oxidus when the dumping took place. Thus, your group feels that the present Oxidus Corporation should not be held solely responsible for a series of events that took place such a long time ago.

However, Oxidus is willing to make a "good-faith" gesture by committing $10 million toward the clean-up of Griffin Heights. However, Oxidus wants to warn ALL parties involved that if the company is forced to pay more than the $10 million offered, the following will take place:

1. If the costs to Oxidus are $15 million, it will permanently lay off 1,000 local workers.
2. If the costs rise to $20 million, 1,500 jobs at the Grand Banks factory will be lost.
3. Should the costs increase to $25 million, the company simply cannot afford to stay in business in Grand Banks and thus the factory will be closed down PERMANENTLY!
4. If the City of Grand Banks decides to file a lawsuit against Oxidus concerning this situation, it will be quite obvious that Oxidus is not wanted in Grand Banks and the company will immediately and permanently close the factory.

Finally, your group would like to note that Oxidus presently pays approximately $5 million per year in local taxes and that it employs over 2,500 workers. These workers have an average yearly income of approximately $25,000, and from this, spend a good percentage of their pay in the local community as well as provide the local government with a substantial amount of revenues through the payment of sales and property taxes. Should Oxidus be forced to cut-back or close down its Grand Banks facility, the local economy would be devastated.
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