

SITING A RESOURCE RECOVERY FACILITY

Grades:

5 – 6

Time Allotments:

Teacher Preparation: 30 minutes

Lesson and Activity: Introduction: 45 minutes

Research: as needed

Conclusion: 45 – 60 minutes

Vocabulary:

Resource Recovery Facility

Integrated Curricular Areas and Corresponding Core Curriculum Content Standards:

Science: **5.1:** (G4) A4

5.10: (G6) B1-2

Social Studies: **6.6:** (G8) A2-4, E1-2

Technology: **8.1:** (G8) C6&8

Content Objectives: Students will be able to –

1. Describe what a resource recovery facility does and how it operates; and
2. Identify various considerations regarding whether a resource recovery facility should be built in Hometown City, New Jersey.

Process Objectives: Students will –

1. Conduct research using such tools as the Internet, library, interviews, site visits, etc.;
2. Determine validity of research sources and the information being obtained;
3. Work in teams to conduct research and develop presentations based on personal opinion about the situation;
4. Write, develop and design an oral presentation to be presented by group; and
5. Compare and contrast information.

Materials:**For teacher's presentation:**

- Background information sheet – one copy for each student
- Flipchart paper and markers

For each student:

- Access to research tools and resource materials such as a school and/or public library, Internet access, a phone, phone books, etc.
- One copy of the background information sheet

For each group of students:

- Materials needed for group presentation – index cards, transparencies or electronic equipment for a powerpoint presentation, easel, flipchart paper and markers and any other visuals

Preparation:

- Review background information about resource recovery facilities

Anticipatory Set:

- Ask students to share their ideas about incinerators – what do they know about what they do, what they look like, public perception of them, why they are used, where they are typically located, etc. Write down their ideas and descriptions on a piece of flipchart paper and save the list for later use
- Explain to students that they will be participating in a mock public meeting about whether or not the community should allow a resource recovery facility to be built in town. Ask them if they know what the term “resource recovery facility” means and explain the definition to them

Teacher’s Presentation or Modeling:

- The teacher should deliver basic facts and information about resource recovery facilities – what they look like, how they operate, what materials feed into the process and what is produced by the process. Point out any differences between these facilities and the earlier incinerators
- Distribute copies of the background information sheet to the students and give them time to read this information
- The following scenario should be introduced: a resource recovery facility is being considered for Hometown City, New Jersey. The mayor and town council have asked experts to investigate the situation from various perspectives. No decisions will be made until the facility and all related issues have been researched and discussed
- Students should be divided into four research teams (each student should be part of one of these groups):
 - A) A group that is in favor of the facility;
 - B) A group that opposes the facility;
 - C) Company representatives who will build and manage the facility; and
 - D) Local and state government representatives.
- Encourage student ideas and discussion regarding the facts to be gathered and considerations to be researched, such as:
 - Where will the trash come from and how much can be processed in a day?
 - How does the process work? What are the benefits? What are the concerns?
 - How would the facility benefit residents of Hometown City?
 - What are the characteristics of, or needs for, a site best suited for this type of facility?
 - Are there any potential risks to human health? If so, what are they, what are the causes and what are the safeguards?
 - Are there any potential risks to environmental quality (air, water or land)? If so, what are they, what are the causes and what are the safeguards?
 - How will the facility impact the community in terms of economics and jobs?

- How will the facility be regulated, monitored and inspected?
- How can the facility's day-to-day activities effect local communities and traffic in terms of transportation needs?
- Are there any concerns regarding odor, noise or visual disturbances?
- Work with the students to create sound guidelines for how the students should work together in their small groups as research teams; discuss options for information sources and research methods; confirm deadlines and summarize how the rest of the lesson will unfold in terms of the public meeting

Guided and Independent Practice:

- The teams should make plans to conduct research individually as well as together with other team members
- Teams should be given time during class to review their work, prepare for their presentations and rehearse. The teacher should be available during these times to check on the status of each group's work and be available for questions
- The teacher should call together the town meeting, identify the purpose of the meeting and any procedures that will be used, and make introductions. Presentations can be given in any order
- Any students not in the group that is presenting is a member of the community audience. Encourage students to ask questions (such as for clarification or for additional details), following each group presentation

Closure:

- **Option #1:** Teacher and class review the major points that were made during the presentations about the facility. Once finished, students vote in class (ballot or show of hands) about whether the resource recovery facility should be considered for development in Hometown City, New Jersey; or
- **Option #2:** Teacher and class review the major points that were made during the presentations about the facility. Once finished, students are asked to do the following homework assignment:
 - Write an essay about their own perspective regarding the resource recovery facility;
 - Identify any outstanding questions they still have about the facility; and
 - Describe how they would vote regarding the facility if they were a member of the town council for Hometown City, New Jersey
 - **Note:** If option #2 is used the teacher would calculate votes and the class decision would be announced at the next class, along with sharing comments and questions

Assessment:

- Responses to questions from teacher and students;
- Participation on the research and writing team;
- Participation on, as well as contributions to, the team's oral presentation; and
- Written essay to include a perspective, outstanding questions and final vote (optional).

Extensions:

- Students attend a local town meeting

Siting A Resource Recovery Facility In Hometown City, New Jersey

Background Information

Hometown City is a small but growing community of 9,000 people in a rural setting. The people have a sense of pride about their community. It is near Metropolis, a very large city that has developed quickly during the past 25 years.

Residents of Hometown City enjoy their open spaces and their diverse wildlife and many of them are sportsmen and outdoor enthusiasts. In addition, some of the open space areas are protected habitat due to the listing of one of the species on the state's endangered species list.

The people enjoy living in Hometown City year-round because of its pleasant climate all year round and the remarkable fresh air. Soils range from a sandy mixture near Big Fish Lake to a more substantial soil in the dense woodland areas. Small areas of clay are located in the northern extremes of the town. Rainfall is slightly above average, which tends to keep the lake and the town's other bodies of water filled to appropriate levels year-round.

The majority of the working people in Hometown drive into Metropolis (22 miles) each day on a major roadway which also connects Metropolis with Big City, another 50 miles to the north. The popular use of this one major highway usually presents daily traffic jams in the morning and early evenings. Otherwise, this highway is not heavily traveled.

The Mayor of Hometown City and the town council have noticed the growth of Metropolis and have been studying the effects it will have on their own town. In particular, they are concerned about the amounts of garbage generated by not only the increasing population, but also by the increase in "convenience consumerism." In addition, they are troubled by the lack of disposal room in the only existing landfill. They have discussed joint plans with Metropolis leadership whereby a resource recovery facility would be developed in Hometown City, which would benefit the needs of both Hometown City and Metropolis. However, a decision to pursue this facility will not be made until the residents of Hometown City have a chance to discuss it with the Mayor.

The Mayor has organized a town meeting. Within this forum, the Mayor and a selected panel of experts and local citizens will present their different viewpoints, perspectives, facts and figures, to the rest of the residents. They will then decide as a group whether or not to proceed with the project. The Mayor has requested that each of the groups to present their perspectives address, at minimum, the following points in their presentation:

- The possible impacts on water quality, air quality and noise in the area;
- The facility's potential economic impact on Hometown City; and
- The costs to the environment and the benefits as they relate to Hometown City on a short-term basis (five years after facility has been built) and long-term basis (fifteen years plus after facility has been built)