

The River

Day One

Overview

This is the first day of a two-part lesson that demonstrates natural and human impact on an environment by examining changes in a hypothetical river system over time.

On the first day, students will work in groups to solve a problem during one of four different eras. Each group will first read a short story, then role play a meeting where options for addressing their river problem will be explored. Next, the group must decide what it would do to solve the problem.

On the second day (Lesson 1.4), students will present their problems and solutions in chronological order, thus revealing a story of one river over time. Finally, students will discuss water pollution issues in their own community and consider possible ways of addressing pollution problems. Suggestions for service projects are also included.

An outline of the river hypothetical is included in this lesson to give you a quick overview of the four scenarios the students will be working with.

Team Tips

In the previous lesson (1.2 Social Studies), students created stories about a day in the life of a young person from the past. The stories included elements such as clothing, food, and inventions common to that era.

The hypothetical river problems roughly follow the same eras introduced in the previous lesson. It is important to assign each group a hypothetical river problem, but do **not** tell the groups that they are all working on problems about the same river. When the groups share their problems and solutions, the river's "story" will be revealed.

Be sure to collect the **Planning Our Presentation** part of the handouts, because students will need them for the second part of this lesson (1.4 Science).

Following this two-part lesson, students will look at demographic statistics about a city's past and present in the next lesson (1.5 Math).

Objectives

Students will be able to:

- ▶ Describe an environmental problem associated with a specific time period and a river system.
- ▶ Evaluate options that address the problem.
- ▶ Describe human impact on a river system over time.

Standards Addressed

Grades Six Through Eight Historical and Social Science Analysis Skills: Chronological and Spatial Thinking: (1) Students explain how major events are related to one another in time.

Historical Interpretation: (1) Students explain the central issues and problems from the past, placing people and events in a matrix of time and place. (2) Students understand and distinguish cause, effect, sequence, and correlation in historical events, including the long- and short-term causal relations. (3) Students explain the sources of historical continuity and how the combination of ideas and events explains the emergence of new patterns. (4) Students recognize the role of chance, oversight, and error in history.

Materials & Preparation

- ▶ Handouts for each era: **Yagna** (Handout 1.3A), **Farming Town** (Handout 1.3B), **New City** (Handout 1.3C), and **Metropolis** (Handout 1.3D). Make sure you have one handout (A, B, C, or D) per group of four or five students. Each handout contains: A short story with questions and an **Instruction Sheet**.
- ▶ **Planning Our Presentation** (Handout 1.3E)—1 per group.

Procedure

I. Focus Activity—Environmental Problems

- A. Lead a brief discussion by asking: What are some of the most serious environmental problems facing our community today? (Responses might include: smog, lack of natural resources, ozone depletion, water pollution, endangered species.)
- B. List student responses on the board and, for each response, ask:
 - ▶ Have we always had this problem?
 - ▶ How did this problem begin?
 - ▶ What impact have humans had on the problem?

Summarize the discussion by pointing out that environmental problems can have both natural and human causes.

- C. Explain that throughout the year the class will be looking at ways to address some of these problems through CityYouth activities. Tell students they will start by looking at some environmental problems man has had in the past and thinking about ways of solving these problems.

II. Small-Group Work—The River

- A. Divide the class into groups of 4–5 students. Distribute one of the handouts (A, B, C, or D) to each group so that all four eras are represented. Depending on the size of your class, some groups may have the same era. (Note: If possible, groups should have four students. Where groups of five are necessary, assign the additional student the role of “answerer.”)

Each handout contains:

- ▶ A hypothetical story that describes a river problem.
 - ▶ An **Instruction Sheet** that provides choices for discussion and group assignments.
 - ▶ A **Planning Our Presentation** worksheet that models a cooperative group decision-making process.
- B. Explain that each group will read a story about an environmental problem. They will need to read the story carefully and think about how the people in the story might solve the problem.
 - C. After reading the story, students should work as a group to discuss the Story Questions, which follow the story. The teacher should monitor this process to make sure students are on task and have comprehended the material.

III. Set-Up—Preparing For Day Two

- A. Tell students they are going to present their solutions to the river problem in the next CityYouth lesson. They should use the **Planning Our Presentation** worksheet to help

them prepare their presentations. Students will need to have this worksheet completed before the end of the period.

- B. Allow time for each group to complete the assigned tasks as described on the **Instruction Sheet**. Tell students that each group must keep its stories and answers to the Story Questions a secret until the next City Youth class.

Overview of “The River” Hypothetical

There are four handouts (A, B, C, and D), each representing an era. Each handout contains:

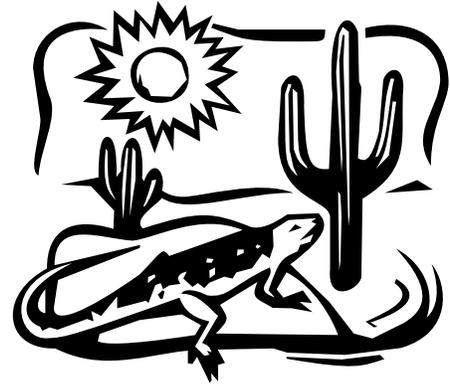
1. A short story including group discussion questions. Each story describes the river problem during a specific era.
2. An **Instruction Sheet** including options for solutions to each river problem.
 - ▶ Another handout (E), **Planning Our Presentation**, provides a cooperative group decision-making process for addressing the river problem.

Story	Problem	Choices
1. Land of the Yagna 300 years ago Native American Village Council	The tribe has been cutting reeds from the river for many years. Now, not enough reeds remain to provide the river perch with a breeding ground. These fish are an essential part of the tribe's winter diet. In addition, there are not enough reeds left in the area to make baskets and other supplies essential to survival.	A. Stop using reeds, no more baskets, etc. B. Move to a new location on the river to gather reeds. C. Find new food besides fish.
2. The Farming Town 100 years ago Agrarian Town Meeting	The ranchers and farmers are experiencing a severe drought. The crops are dying and there is not enough food and water for the animals.	A. Change to a different crop. B. Abandon farms and move. C. Build a dam and aqueducts.
3. The New City 70 years ago Industrial/ Residential City Council	The communities building along the river are experiencing flash flooding. The dam built by the ranchers and farmers of earlier times has broken.	A. Move everyone back from river banks. B. Build a levee. C. Build concrete channels to control the water.
4. Metropolis 20 years ago Modern, Post-War County Planning Department Hearing	The river has been channeled into concrete waterways. Industrial dumping and urban run-off has caused toxic pollution of the river, which carries chemicals and waste to the ocean.	A. Make laws against dumping waste in rivers and storm drains. B. Learn to live with some chemicals and dirty water. C. Figure out a way to clean the dirty water.

Name _____

Date _____

The Land of the Yagna



Three hundred years ago, the village of the Yagna sat on the bank of the river. The river was very important to the Yagna people.

In the fall and winter, when the rains came to the mountains, the river ran swiftly. Sometimes it would overflow its banks. Then the Yagna would have to move the village. In the summer, the water level in the river would get very low. Summer was a good time to fish. It was also a good time to gather reeds from the banks of the river.

The Yagna used the fish for food. They built their houses and wove sleeping mats and baskets from the reeds. Yagna baskets were very beautiful. The Yagna could trade their baskets with other native people who lived nearby. The ocean people, who lived downriver on the coast, would trade shells for the baskets. The mountain people, who lived upriver, would trade acorns and minerals for the baskets.

Medoc, a 12-year-old boy, lived in the village with his parents, aunts and uncles, and cousins. One day at the end of summer, the village elders decided that the river was low enough to start gathering the reeds. For the first time, Medoc and two of his cousins were going to work in the boats with the men to cut the reeds. Before, he had always stayed on the bank gathering and tying the reeds that the men brought to shore. Medoc knew that it would be hard work, but he felt proud. Being asked to help cut the reeds meant that he was almost a man.

By sunrise, everyone was ready. The tribe would camp overnight downstream, and when the reed gathering was finished, they would feast on the fish they caught in the river. The old people led the way. They followed the river downstream to the place where the reeds grew thick and lush. This was the place where they always

camped in the first days of autumn. In other years, there had always been plenty of reeds and fish. But this year it was different.

The riverbank was nearly bare. Medoc and his cousins were sent far down the riverbank looking for more reeds. But no matter where they looked, they could find only a few reeds. When they returned to the people, there was more bad news. Many of the people

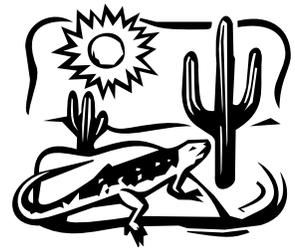
had been trying to catch fish in the river. Usually it was easy. Today there were no fish to be caught.

Many of the people were very worried. Only a few river reeds had been found. No one had caught any fish. This had never happened before.

The next day, the people returned to the village. The elders called a village council to decide what to do.

The Problem

The tribe has been cutting reeds from the same area each year. This year the spring floods wiped out the few reeds that were left. There were not enough reeds left to grow back. The fish live in the reeds. Without the reeds, the fish die off. The problem is that now there are not enough reeds and fish to meet the people's needs.

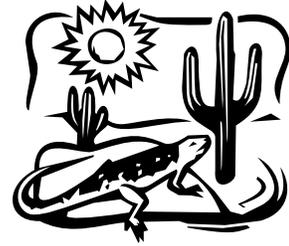


Story Questions

1. How long ago did Medoc live by the river?
2. What problem about the river is your group worried about?
3. What caused the problem?
4. How did the problem affect your lives?

The Land of the Yagna

The Village Council

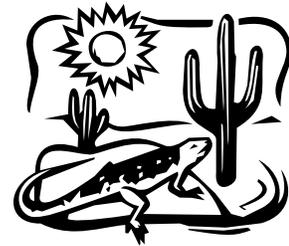


Instruction Sheet

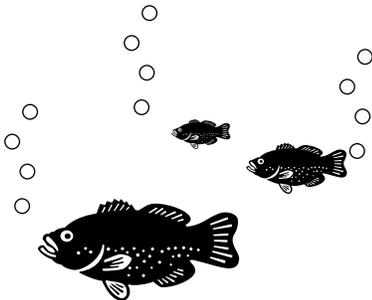
Read your story. As a group, answer the Story Questions. When you have finished, imagine you and your group are the Yagna Village Council. You have been called together to decide what to do about the problem with the river. To do this, follow these steps:

Step 1

Read and think about the following choices proposed by people in the village. It is your job to choose the best one by discussing the questions in Planning Our Presentation. Be sure to write down your answers for each question.



CHOICES



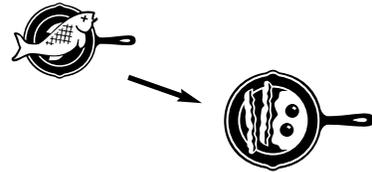
A

The people that fish in the village are worried the most about the lack of fish. They realize that the fish feed and live in the reeds. Without fish to eat, the people will die. They want the village to stop gathering reeds until they grow back. Then the fish will return.



B

The weavers in the village make baskets and sleeping mats. Without baskets there will be no way to store food. Without baskets there will be nothing to trade to the ocean and mountain people and the villagers will suffer. They want to move the village far downstream and find more reeds.



C

The builders do not want to move the village. They want to cut reeds, but only for shelter. They believe that by cutting just a few reeds, the rest will finally return. So will the fish. In the meantime, the village must find something else to eat.

Name _____

Date _____

The Farming Town



One hundred years ago, a small farming community had grown up on the banks of the river. There was a general store, a feed store, a livery stable, a drugstore, a post office, and a farmers' cooperative. There was also one church and a school. Farmers and ranchers from miles around would come to town for supplies. They would also bring their produce—fruit, wheat, beans, and livestock—to the farmers' cooperative for shipment to market.

Maria and her family lived on a small ranch two miles downstream from the town. Maria loved to help her father round up the cattle once the heat from the afternoon sun began to cool off. But today was different. Today, she and her father were going into town. The ranchers and farmers had called a special meeting. As they rode along the riverbed toward town, her father began speaking. There was sadness in his voice.

"Long ago," he said, "when my grandfather was a boy, this river ran all year. It fed a wide, wet marsh full of reeds and fish. But now, too many farmers upstream are taking the water for their fields. The river is almost dry. After three years with no rain and with so many farmers taking water for their fields, the whole marsh has nearly dried up as well."

Maria knew all about the drought. It had hardly rained all winter and spring. Now it was nearly fall and there was still no rain. Last year and the year before had been dry as well. No one even tried to plant vegetables this year, because there was not enough water to grow them. Maria thought about her friend, Samuel.

Samuel lived with his family two miles farther downstream. Because of the drought, their crops had failed for two years in a row. Now they were getting ready to give up their farm and move away. This made Maria sad. She

would miss Samuel. "Don't worry about Samuel," her mother had said, "If this drought lasts very much longer, it may get us too."

Maria looked up at the broiling sun. She was hot and thirsty. She didn't want Samuel to move and she did not want her family to have to move. "What is causing this drought?" she asked her father.

Her father looked down at her and smiled. "There is no telling what makes the weather. We can't control it," he said. "Worse still, this old river is our only source of water when the

rains don't come. We don't have any way to store water for the dry times. Maybe we can do something about that. Anyway, that's what the town meeting is about. We've got to do something about the water supply around here or the whole town is going to dry up and blow away."

When Maria and her father reached the town, its main street was filled with people. Everyone was gathered around the porch of the general store. Maria and her father dismounted and joined the crowd. The meeting was about to start.

The Problem

The ranchers and farmers are experiencing a severe drought. The crops are dying and people are being forced to leave the area. If the drought continues the entire town might be threatened. The problem is how to supply the farming community with enough water to meet its needs.



Story Questions

1. How long ago did Maria live by the river?
2. What problem about the river is your group worried about?
3. What caused the problem?
4. How did the problem affect your lives?

Name _____

Date _____

The Farming Town

The Farming Town Meeting



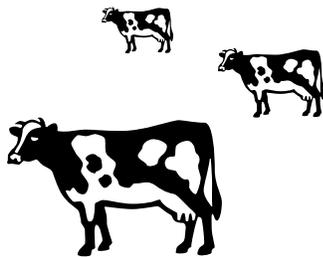
Instruction Sheet

Read your story. As a group, answer the Story Questions. When you have finished, imagine you and your group are attending the Farming Town Meeting. You have been called together to decide what to do about the problem with the river. To do this, follow these steps:

Step 1

Read and think about the following choices proposed by people in the town. It is your job to pick the best one by discussing the questions that follow. Be sure to discuss and write down your answers for each question.

CHOICES



A

The ranchers are most concerned about having enough water for their livestock. They want farmers to grow crops that don't use much water. They believe that the natural environment of the area was never meant for farming and that, if the farmers changed their ways, there would be enough water even in a drought.



B

Some of the townspeople believe that the drought has proven that the area cannot support farmers and ranchers and a town. Even when this drought ends they know another one might occur. They think the best solution is to abandon the townsite and move to a place where water is more plentiful.



C

The farmers do not want to move. They believe that the climate is perfect for farming. They want to build a dam high up in the mountains to form a reservoir. The water they store behind the dam can be piped down to the town and the farms if there is another drought. Instead of moving the town to water, they want to bring the water to the town.

Step 2

Work with your group to answer the Planning Our Presentation questions below. Then choose one or two people to share this information and your decision with the rest of the class.

Planning Our Presentation



1. Background
 - A. How long ago did your group live by the river?
 - B. Briefly describe the problem:

 - C. Type of meeting:

2. What choices do you have to solve the problem of the river? (Summarize each choice.)
 - A.

 - B.

 - C.

3. What is the best choice? What are the good things about it? What are the bad things about it?

4. How did you make your decision? List your reasons.

Name _____

Date _____

The New City



Seventy years ago, a small city called New City had grown up on the banks of the river. It had stores, houses, factories, schools, and government buildings.

One late November day, a young carpenter named Clarence sat in his mother's kitchen and watched it rain. It had rained for almost 10 days straight and showed no signs of letting up. Everybody was worried.

Clarence's house sat on a bluff overlooking the river. From the window, he could see the gray water rushing downstream toward the ocean. Bits of wood and tree branches floated by. The river was rising. Already, water flooded some of the city streets. Worse yet, there was no work because of the rain. Clarence was bored. He hadn't done anything for days but sleep and sit at the kitchen table eating his mother's pies.

Finally, Clarence couldn't stand it anymore. He had to get out of the house.

He put on his hat and boots and headed down toward the river. Clarence walked by the new buildings rising up along the riverbank: houses, churches, stores, and banks. Through sheets of rain, he could barely see the factories with their tall brick chimneys and the new warehouses full of goods. In spite of the bad weather, Clarence felt proud. After all, when it wasn't raining, he helped build some of those houses and factories.

Clarence joined a crowd of people who stood hunched against the rain, watching the river. "Never seen it rain so much," said one man. "This rain will fill up the lake behind the dam."

"That old dam was built back when I was a child," said an older woman. "The farmers built it out of dirt. I sure hope it can hold all this rain."

Another old-timer laughed. "Back in those days, there was never enough water," he recalled. "Now we could all drown."

That night the old dam broke. The next morning, the railroad tracks were under water. Over a hundred buildings were destroyed. Several people had drowned. Everyone was scared and angry.

Clarence heard that members of the city council were going to meet. Even though he was young, Clarence decided to go to the meeting. He wanted to find out what they were going to do about the river.

The Problem

Because of heavy rains, New City has been hit by flash flooding. The old earth dam that had been built by the farmers years ago finally broke. There was a great deal of damage to the city and several people had been killed. The problem for the city council is to decide how to prevent flooding when the heavy rains come again in the future.



Story Questions

1. How long ago did Clarence live by the river?
2. What problem about the river is your group worried about?
3. What caused the problem?
4. How did the problem affect your lives?

The New City

The New City Council

Instruction Sheet

Read your story. As a group, answer the Story Questions. When you have finished, imagine you and your group are attending New City's city council. You have been called together to decide what to do about the problem with the river. To do this, follow these steps:

Step 1

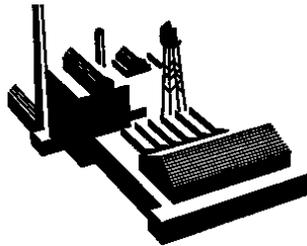
Read and think about the following choices proposed by people in the city. It is your job to choose the best one by discussing the questions in Planning Our Presentation. Be sure to discuss and write down your answers for each question.

CHOICES



A

Members of the New City Planning Commission want to protect lives and property. They also want New City to be a beautiful place. They want to pass laws restricting construction. They do not want factories, homes, or businesses built in low areas near the banks of the river. That way, if the floods come again, no one will be hurt. And no buildings will be destroyed.



B

The factory owners need to be near the river. They use the river to bring raw materials to the factory. They use the water to cool machinery. They dispose of waste in the river. They favor building a levee. (A wall of dirt piled up to hold back the river at flood times.) The levee would allow the factory owners to keep building and working near the river.



C

The New City Homeowner's Group does not want to build a levee. They are afraid that it will bury housing sites under mounds of dirt and block their view of the river. They favor digging the riverbank deeper and building concrete walls to hold the flood waters inside the river banks. Then the river will run in a deep channel. It will never again flood the town.

Step 2

Work with your group to answer the Planning Our Presentation questions below. Then choose one or two people to share this information and your decision with the rest of the class.

Planning Our Presentation

1. Background

A. How long ago did your group live by the river?

B. Briefly describe the problem:

C. Type of meeting:



2. What choices do you have to solve the problem of the river? (Summarize each choice.)

A.

B.

C.

3. What is the best choice? What are the good things about it? What are the bad things about it?

4. How did you make your decision? List your reasons.

Name _____

Date _____

Metropolis



Twenty years ago, a huge city called Metropolis had grown up around the river. Its banks were covered in concrete. Huge dams upstream held the river's water in reservoirs. Pipelines carried this water from hundreds of miles away to meet the city's needs.

One day Tracy and her family went to the beach for a picnic. The beach was near where the river emptied out to the ocean. Tracy was very excited, because her cousin had promised that he would teach her how to surf.

Just as they entered the water, one of Tracy's other cousins shouted out, "Hey! Girls don't surf!" Those words made Tracy mad. She swam over to her cousin and flipped him off of his board. All the boys laughed. Tracy paddled away on her cousin's surfboard. Soon she left the boys far behind. Because of the rains, this was the first sunny day in almost two weeks. It was nice to lie on the surfboard and bob around on the ocean

swells. Later, Tracy would try her luck catching a wave.

Then she noticed—what was that smell? Yecch! It was the water. The ocean was supposed to be salty and clean. And what were these dead fish doing here?

Tracy paddled to shore to get away from the awful smell and the floating garbage. She landed on a deserted part of the beach. A stream ran down to the ocean from a big rusty pipe. Tracy wrinkled her nose. The water was striped with colors like the rainbow.

"Hmmm..." thought Tracy. "Looks pretty, smells horrible. What's going on here?" The pipe came out of a concrete wall. Tracy climbed the wall.

A wide concrete ditch ran back toward the city. Houses and factories were built right alongside the ditch. A trickle of water ran at the bottom of the ditch. It was the same water—

looked like a rainbow, smelled horrible. Tracy followed the water. Other ditches poured thin streams of water into the main channel. They made dark stains on the white concrete. It grew hotter. Tracy kept walking.

Suddenly, Tracy stopped in her tracks. A number of sea gulls and dead fish lay rotting in the hot sun.

Back home, Tracy told her father about the rainbow water and the dead animals. Her father told her that big factories used chemicals to make their products. Sometimes the chemicals got into the sewers, which emptied into

the ocean. Then, when it rained in the city, motor oil from the streets got washed into the river and down to the ocean.

"But, Dad," Tracy asked, "why do people have to be so careless when they dump their smelly chemicals? It might end up in the ocean." Tracy's mother pointed to the newspaper. The county planning department was going to hold a public hearing about water drainage.

Tracy's mother said, "It's a public meeting. That means we can go, too."

The Problem

The river has been channeled into concrete waterways. Industrial dumping and run-off from the streets has caused pollution of the river. The problem is how to clean up the river and the ocean.



Story Questions

1. How long ago did Tracy live by the river?
2. What problem about the river is your group worried about?
3. What caused the problem?
4. How did the problem affect your lives?

County Planning Department Hearing



Instructions

Read your story. As a group, answer the Story Questions. When you have finished, imagine you and your group are attending the county planning department hearing. You have been called together to decide what to do about the problem with the river. To do this, follow these steps:

Step 1

Read and think about the following choices which have been proposed by people in the city. It is your job to choose the best one by discussing the questions in Planning Our Presentation. Be sure to discuss and write down your answers for each question.

CHOICES



A

A group called Environment Now wants to pass tougher laws to stop factories from using the sewers or river to dispose of chemicals. Companies that break the laws would be fined. They also would be charged the cost of cleaning up the pollution in the ocean.



B

Some business owners oppose new laws. They fear that the laws will force factories to spend too much money finding ways to get rid of the chemicals. Prices for goods the factories produce will rise. Some companies may leave the city. It will be harder to attract new companies. People will lose their jobs. They argue that it is better to live with some pollution.



C

A group of engineers wants the city to pay for a new plant. It will collect all the dirty water going down the river and clean it. This will be very expensive. The engineers argue that it is the best way to get clean water and help the economy at the same time.

The River

Day Two

Overview

This is the second day of a two-part lesson. The lesson demonstrates natural and human impact on the environment by examining changes in a hypothetical river system over time. In the last lesson (1.3 Science), students worked in groups to solve a hypothetical problem about a river during one of these eras.

In this lesson, students will present their problems and solutions in chronological order, thus revealing a story of one river over time. Finally, students will discuss issues around water pollution in their own community and consider possible ways of addressing pollution problems. Ideas for service projects are also included.

Objectives

Students will be able to:

- ▶ Describe an environmental problem for a river system.
- ▶ Evaluate options that address the problem.
- ▶ Describe people's impact on a river system over time.
- ▶ Identify local water pollution problems and ways to address them.

Team Tips

In the next CityYouth lesson (1.5 Math), students will look at demographic statistics about a city's past and present.

Materials & Preparation

- ▶ Students should bring **Planning Our Presentation** from Lesson 1.3
- ▶ Optional—**Project Ideas** (Handout 1.4A)—1 per student

Procedure

I. Group Reports—A Chronology of Problems

- A. Explain to the class that today each group will have a chance to describe the river problem they worked on and the solution they chose.

All of the groups with Problem #1 should present first, then those with Problem #2, etc.

Each group should have chosen one or two students to report back to the class.

- B. Ask each reporter to use the **Planning Our Presentation** worksheet to answer the following questions:
- ▶ How long ago did your group live by the river?
 - ▶ What problem was your group worried about?
 - ▶ How did the problem affect your lives?
 - ▶ What kind of meeting was taking place in the story?

- ▶ What did you decide to do?

C. As the groups report, record their answers in chronological order on the board, thus creating a timeline of the river.

Sample river timeline:

Time Period	300 years ago	100 years ago	70 years ago	20 years ago
River's Problem				
Type of Meeting				
Solution to Problem				

D. When each presentation is complete, ask why the group made its choice. Encourage members of the class to ask other questions of the answerer, then ask: Do you agree with the group's choice? Why or why not?

II. Debriefing—Impact on the Future

Lead a discussion using the following questions:

- ▶ How did each group (Yagna, Farming Town, New City, and Metropolis) solve its problem with the river?
- ▶ Did each group's solution change the river? How?
- ▶ How did their solutions affect people who lived by the river in the future?
- ▶ If you lived along the river today, what would you want to do to change it?
- ▶ How would your changes affect future generations who come to live by the river?

III. Small-Group Work—What Can We Do Today?

A. Explain to students that the story of the river applies to rivers in many communities. Explain that many cities have been working on the problem of industrial dumping. Laws have been passed and factories can be fined for carelessly dumping toxic waste.

But not all the problems of pollution have been solved. For example, if a city's storm drains feed into a river, the water from the rain and snow can wash motor oil, chemicals, and other pollutants off the streets and into the river and ocean. Among the biggest pollutants are:

- ▶ used motor oil and transmission fluid
- ▶ plastic six-pack holders
- ▶ polystyrene and plastic cups and boxes from fast food restaurants
- ▶ detergents and industrial-strength cleaners
- ▶ cigarette butts

B. Explain that students will work in the same groups that solved problems about the river. Tell students they will use the same methods that they used to solve problems about the river. This time, however, they will look at a the problem of water pollution as it takes place in their community. They are going to think up ways to solve that problem.

C. Each group should make a list of three possible ways seventh graders could address the problem of water pollution. Every person in the group must come up with two ideas, and then the group can choose the three they want to report. Remind groups they will again need a recorder and a presenter.

IV. Taking Action—The Challenge

- A. Call on each group to describe the ways they have chosen to address the problem. Students might want to start a list of project ideas in their portfolios.
- B. If possible, plan a simple action project based on students' ideas. For example, the class could do a “gutter sweep” around the school one day or make posters urging classmates to destroy six-pack wrappers. More project ideas are listed in **Project Ideas** (Handout 1.4A). If appropriate, distribute this handout to each student and discuss the ideas.
- C. If it is not possible to do a class project, challenge students to complete a project on their own or in groups. Specify a time when their projects should be completed. You could set aside time for a project presentation, or ask students to write a description of the project or action they took for their portfolios.

Portfolio Enrichment

- √ **Checkpoint—Cooperative Learning Self-Assessment.** Use **Checkpoint #2: Cooperative Learning** (Handout 1.4B) to allow students to reflect on their own cooperative learning attitudes, skills, and behaviors. There will be other checkpoints in Units 3 and 4 for students to re-evaluate themselves.

New Methodology

Instead of just asking the groups to orally report their solutions, have each group create a drawing to show their problem and solution. Before class, create templates using chart or butcher paper for students to complete their drawings on. You will need one chart for each group. When displayed together, there should be a continuous river beginning with the Yagna, then the Farming Town, the New City, and ending with the river flowing into the ocean on the Metropolis chart.

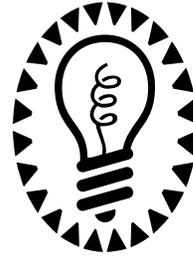
When the groups are ready to present, have them hang their charts next to each other in chronological order to create a mural showing the changes over time. Each group can then describe its problem and solution.

<p>When: Problem: Solution:</p>  <p>YAGNA</p>	<p>When: Problem: Solution:</p>  <p>FARMING</p>	<p>When: Problem: Solution:</p>  <p>NEW CITY</p>	<p>When: Problem: Solution:</p>  <p>METROPOLIS</p>
---	---	--	--

Name _____

Date _____

Project Ideas



- Write letters to restaurant chains and others who are still using polystyrene products.
- Write letters to beverage companies about recycling cans and bottles.
- Organize a clean-up day when students clean litter from campus or in a surrounding neighborhood.
- Make posters showing the kinds of litter that adds to water-pollution problems and display the posters at school or in the neighborhood.
- Locate a river in your community and survey it for pollution.
- Declare a "Clean Water Watchdog Week" at school and record violations in class.
- Investigate the quality of school drinking water to check for lead, bacteria, or other contaminants and toxins.
- Visit local service stations to learn how they dispose of used motor oil, transmission fluid, etc.
- Hold a school-wide six-pack holder drive. Award a prize for the person or class that collects the most six-pack holders. Cut up the holders so that sea birds won't be injured by them and dispose of them properly (recycle).