

# SOLUTION PRESENTATION

## Description

The Environmental Solutions (ES) Teams present their findings and remediation and monitoring plans to parents and school and community members who act as the Hydroville City Council.

**Note:** See the end of the lesson plan for alternatives to this final presentation.

## Student Outcomes

Students will:

- Develop a team presentation supported with data and visuals.
- Practice and revise the final presentation.
- Present team findings and remediation and monitoring plan to a community panel and audience.

## Student Products

- *Presentation Planning*
- *Designing the Team Presentation Outline*
- *Presentation Practice Evaluation*
- *Reflection on a Water Quality Problem*
- *Hydroville Final Exam*

## Prerequisite

- Background Activities 1-11
- Environmental Solutions Team Meetings #1 - #5



## National Standards

Subject Area Standards Covered: *Geography, Health, Language Arts, Math, Science, Social Studies, and Technology.*

See Appendix D for the complete list of national education standards.



## Teamwork Skills

- Give and receive feedback in a positive manner.
- Work with others to develop shared decisions and goals.



## Activity Timing

Time Estimate	Five 50-minute Class Periods
30 min	Prep Time: photocopying; organizing materials
Days 1-3	ES Team Presentation Preparation
Day 4	Presentation Practice
Day 5	ES Team Presentations
Day 6	Assessment



## Materials

- Hydroville Journal
- Team binder
- Note cards (or expert group PowerPoint slides)
- Transparencies and overhead pens
- Computers with PowerPoint
- Poster board
- Colored markers and pencils
- Video camera (if available)



## Suggested Lesson Plan

### *Getting Started*

1. Reserve a space for the presentations. Teachers have used the school auditorium, school board room, or city council chambers.
2. Select a scoring guide to assess student's final presentation (see Appendix C). The Solution Presentation consists of two parts:
  - a. An *oral presentation* by the team to a community panel representing the Hydroville City Council. The presentations will be evaluated on clarity, use of visual aids, supporting data, professionalism, and inclusion of all the team members. Members of the audience can use the *Team Presentation Scoring Guide* to evaluate the presentation.
  - b. A *visual presentation*, which can take one of several forms depending on the instructor's discretion and the time available. Encourage students to consider:
    - An informational poster
    - A PowerPoint presentation
    - An informational video

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## Days 1 - 3. Team Presentation Preparation

### *Doing the Activity*

1. Review instructions on *Presentation Planning* (WS-1). Remind the teams that every member must have a part in the presentation.
2. Teams outline their presentations following instructions on *Designing Your Team Presentation* (WS-2) and then work on their individual presentation materials, note cards, and visuals. Students may have to complete their presentation pieces as homework.

#### Day 4. Presentation Practice

##### *Doing the Activity*

1. Teams practice their presentations. They can videotape their presentations and evaluate their video as a team or present to the entire class or one other ES Team.
  2. Students fill out *Presentation Practice Evaluation* (WS-3) and share their feedback.
  3. Teams revise their presentations based on responses.
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#### Day 5. ES Team Presentations

1. Students are responsible for welcoming guests, distributing name tags, and providing refreshments.
  2. Each group presents its findings and remediation and monitoring plan to the audience who represent the Hydroville City Council and concerned citizens. The audience consists of other class members, parents, and invited guests.
  3. Each team presents for 10-15 minutes with additional time for answering questions from the audience.
  4. Selected guests or other students fill out *Team Presentation Scoring Guide* (see Appendix C) for each team.
  5. Videotape student presentations and have students watch the video to assess their individual and team performances.
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#### Day 6. Assessment

1. Assign **Journal Prompt-14 (TM-1)**:
  - a. What does the study of environmental health science cover?  
*Environmental health science studies the effect of the environment on human health, and how our water and food can affect our health.*
  - b. What topics in environmental health science do you think politicians should understand?  
*Answers will vary, but may include chemicals, toxicology, water quality, air quality and food safety.*
2. Have students complete *Writing Prompts for Reflection* (WS-4) as a homework assignment or an in-class writing exercise.
3. If After all the teams have presented, schedule time for them to debrief. Have teams create a flip chart listing what went well, poorly, and ideas for improvement.
4. Meet with each team to share a summary of the audience evaluation of their presentation and discuss how it agrees or disagrees with their own assessment.
5. Assign *Hydroville Water Quality Final Exam* (WS-5) in class or as homework. Students may use their Hydroville Journals for this exam.

## Assessment

The following student products can be used for assessment:

### Individual

- *Designing Your Team Presentation* (WS-2)
- *Hydroville Water Quality Final Exam* (WS-5)
- *Writing Prompts for Reflection on a Water Quality Problem* (WS-4)
- Write an article for the Hydroville Times based on his or her team presentation.

### Group

- *Presentation Practice Evaluation* (WS-3)
- *Team Presentation Scoring Guide*
- Evaluate teams on self-directed skills and both the oral presentations and visual.



## Resources

See the Hydroville Water Quality Curriculum Web Resources webpage for current links:

[http://www.hydroville.org/links/wq\\_resources.aspx](http://www.hydroville.org/links/wq_resources.aspx)

## Alternatives to Team Presentations

Group presentations can be very time-consuming, and perhaps you have done a similar activity already with your class. Consider giving the students a list of choices or have them generate the ideas. Here are a few alternatives:

### Hold a Poster Roundtable

Teams create posters explaining findings and remediation options for an audience of scientists or Hydroville citizens. These posters can be assessed in the following categories:

- Science (Inquiry)
- Writing Skills (Persuasive/Informative)
- Art Skills (Diagrams or Illustrations)
- Technology (Print Layout)

### Write a Children's Book or Song

Teams write a book for an audience of elementary school students. These books can be assessed in the following categories:

- Writing Skills (Persuasive/Informative)
- Art Skills (Photos or Illustrations)
- Technology (Print Layout and Publication)
- Audience: Elementary Students

### Create a Video, Play, or Public Service Announcement

Students create a video for a variety of audiences. These videos can be assessed in the following categories:

- Writing a Script (Persuasive/Informative)
- Art Skills (Photographic/Videographic Composition Skills)
- Technical Skills (Audio, Video, etc.)
- Audience: Several Possibilities



## PAGES TO PHOTOCOPY

**Note:** For ease of photocopying, Transparency Masters appear first in the student pages.

### Handouts and Transparency Masters

Day	What is Needed	Type*
1-3	<i>Presentation Planning</i>	WS-1
	<i>Designing Your Team Presentation</i> (one copy per student)	WS-2
4	<i>Presentation Practice Evaluation</i> (one copy per student)	WS-3
5	<i>Scoring Guides</i>	See <i>Appendix C</i>
6	<i>Journal Prompt-14</i>	TM-1
	<i>Writing Prompts for Reflection on a Water Quality Problem</i>	WS-4
	<i>Hydroville Water Quality Final Exam</i>	WS-5

\* Type = Transparency Master (TM), Background Reading (BR), Worksheet (WS), Map (M)

## **JOURNAL PROMPT-14**

- 1. What does the study of environmental health science cover?**
- 2. What topics in environmental health science do you think politicians should understand?**





## WORKSHEET 1: PRESENTATION PLANNING

### Introduction

Your Environmental Solutions team now has its most important job: Explaining your results and remediation and monitoring plans to the Hydroville City Council and the citizens of Hydroville. You must do this in a clear, concise, and convincing manner so that the council enacts your recommendations. You must work very effectively as a team, sharing and listening, and dividing up the work so that you are ready for your team's final presentation.

### Materials

- Hydroville Journal
- Team binder
- Note cards (or expert group PowerPoint slides)
- Transparencies and overhead pens
- Computers with PowerPoint
- Poster board
- Colored markers and pencils
- Worksheet 2: *Designing Your Team Presentation* (one per student)
- Worksheet 3: *Presentation Practice Evaluation* (one per student)

### Days 1 - 3. ES Team Presentation Preparation

1. Work as a team to complete Worksheet 2. Each team member completes a copy of Worksheet 2 to use as they prepare their part of the presentation.
2. Each member develops note cards or PowerPoint slides and one visual for his/her expert group. Use the Worksheets 2 to guide your planning and preparation of your part of the presentation.

### Day 4. Presentation Practice

1. Run through your presentation once with the team spokesperson introducing each section.
2. Now do your presentation again without stopping. Have someone be the timer. Remember, your presentation can be no longer than 12-15 minutes. If possible, videotape your presentation. Teams can then watch the videotape together.
3. On Worksheet 4, identify what you could do to make your presentation better and what the team could do to make the entire presentation better.
4. As a team, share your ideas and make suggestions for improvement. **Note:** Be sure to practice the teamwork skills of "praising good actions or ideas" and "criticizing actions, not individuals".
5. Take five minutes to revise your part of the presentation based on the feedback you received. Practice your presentation again if time allows. Make minor changes if needed.
6. You are now ready for your presentation. Remember to come dressed as a professional and ready to convince the Hydroville City Council to adopt your recommendations.



## Day 5. ES Team Presentations

1. You are responsible for welcoming guests, distributing name tags, and providing refreshments.
2. Each team presents its findings and remediation and monitoring plans to the audience who represent the Hydroville City Council and concerned citizens. The audience consists of other class members, parents, and invited guests.
3. Each team presents for 10-15 minutes with additional time for answering questions from the audience.
4. Selected guests or other students will evaluate your team's presentation using the *Team Presentation Scoring Guide* for each team.
5. Your teacher may also videotape the presentations and have your team watch the video to assess your individual and team performances.



## WORKSHEET 2: DESIGNING YOUR TEAM PRESENTATION

- Maintain “team” approach through clear communication and consensus during the design of your presentation.
- Listen carefully to one another as you work.
- Use the answers on Worksheet 2 to guide your planning and preparation of your part of the presentation.

**The Speakers:** *List your team member names next to each part of the presentation. Each team member must have a part of the presentation.*

### Introduction:

Team Leader 1: Site Investigator (history of Hydroville, topography, changes over time)

1. Introduce the members of your Environmental Solutions Team with their titles.
2. Give a brief history of the Hydroville water quality problem.
3. State your team’s hypothesis(es) to explain the sources of contaminants.
4. Give a brief outline of your team’s presentation (overview of main points) to prepare your listeners for the list of key points. Use key words or phrases in your outline and refer to these during the presentation. (Example: introduction, hypothesis, etc.).

### Key Points: Expert Presentations

Go over the data collected to support your hypotheses. Use the maps, posters, data tables, and graphics prepared by your team. In the designated area below, list key points and charts, graphs, and visuals to be used. Be certain to show how the data supports your hypothesis(es).

Team Leader 2: Drinking Water Specialist (water contaminants and health effects)



Team Leader 3: Environmental Chemist (source(s) of contaminants in drinking water, contaminant plumes)

Team Leader 4: Hydrogeologist (groundwater flow, contaminant plumes)



Team Leader 5: Environmental Engineer (recommended remediation technologies including advantages and disadvantages)

### **Actions/Solutions Recommended:**

Team Leader 6 (Note: If you only have five members on your team, then Team Leader #1 should present this section)

1. What is your team's action plan? Your solution and recommendations? Be certain to emphasize how water contaminants will be reduced or eliminated.



2. What continued monitoring, if any, is your team recommending?

3. What will be the approximate cost to the city and citizens of Hydroville for carrying out your proposed solution? Show detailed accounting of costs.

## **Conclusion**

1. Summarize the information your team presented.

2. As a team, how will you know if you have accomplished your goals for your presentation?  
List three things that would demonstrate that you have accomplished your goals.

a.

b.

c.





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## WORKSHEET 4: WRITING PROMPTS FOR REFLECTION

### What Do I Think?

1. How would you explain what you have been doing in this project to someone who is unaware of the project?
  
  
  
  
  
  
  
  
  
  
2. How did you keep yourself involved?
  
  
  
  
  
  
  
  
  
  
3. What did you learn from this project that you didn't already know? Give several examples.

### Team Building

1. How did you contribute to your team's effectiveness?
  
  
  
  
  
  
  
  
  
  
2. Describe situations when the team worked well together. Explain why.
  
  
  
  
  
  
  
  
  
  
3. Describe situations when the team did not work well together. Explain why. What did you do to help improve the teamwork? What could you or others have done?



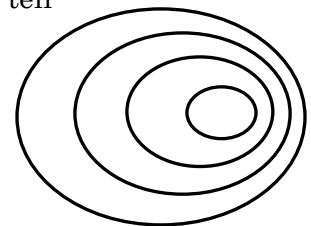
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## WORKSHEET 5: HYDROVILLE WATER QUALITY FINAL EXAM

**Instructions:** You may use your Hydroville Journal to complete the questions.

1. Define watershed.
2. Why is protecting a watershed important to human health?
3. Define groundwater.
4. Why is groundwater protection critical to future water supplies?
5. What treatment processes are required to make surface water safe to drink?
6. Does groundwater need these same water treatments? Why or why not?
7. If you saw these contour lines on a topographic map, what would it tell you about the topography of the area?





8. What is the Safe Drinking Water Act?

9. What are the differences between primary and secondary drinking water standards?

10. What is an MCL? What happens if a contaminant exceeds the MCL in a public drinking water supply?

11. Name three ways that contaminants can get into drinking water and give examples of contaminants that can enter at that point.

a.

b.

c.

12. How do you know that the drinking water that comes out of your home faucet is safe to drink?



13. Complete the following conversion:

$$0.35 \text{ mg/L} = \text{_____ ppm} = \text{_____ ppb}$$

14. What is a representative sample?

15. Why is it critical to take representative samples to monitor water quality?

16. Your aunt and uncle and their two young children live on a farm that produces fruits and vegetables for a local market. They also have a few cows and goats. They did their drinking water from a groundwater well that is located near the orchard and one of the pastures. You offer to get their water tested.

a. Describe how you would take samples of the water. How many samples would you take? What would be your control?

b. The water is analyzed and coliform bacteria and nitrates are found in the water. What would you recommend that your aunt and uncle do immediately?

c. What would you recommend to them for a long-term solution?

17. An underground storage gasoline storage tank at an abandoned gas station has been leaking into the soil for a number of years. What remediation technologies would you recommend to clean up the site and the groundwater supply? Give reasons to support your answer.