

# Real-World Problem & Solution

## Student Presentation Assignment

**Directions:** Use the sample lesson plan below to engage students in real-world problem-solving.

### Sample Assignment: Solving a Real-World Plumbing Problem Lesson Plan

**Objective:** Plumbing apprentices will identify a common real-world plumbing problem, develop a comprehensive solution, and present their findings and methodology to the class. This assignment aims to enhance problem-solving skills, technical knowledge, and presentation abilities.

### Assignment Instructions

- 1. Identify a Problem:**
  - Choose a common plumbing issue that has global significance (e.g., water scarcity, sanitation in developing countries, flood management, sustainable plumbing solutions).
  - Research the problem thoroughly, understanding its causes, impacts, and the cultural and environmental context.
- 2. Develop a Solution:**
  - Propose a detailed solution to the problem.
  - Include step-by-step procedures, necessary tools, and materials.
  - Consider safety precautions, cultural sensitivities, and best practices.
- 3. Create a Presentation:**
  - Prepare a 10-15 minute presentation to explain the problem and your solution.
  - Use visual aids such as diagrams, photos, videos, or slides to enhance your presentation.
  - Ensure your presentation is clear, concise, and well-organized.
- 4. Deliver the Presentation:**
  - Present your solution to the class on the assigned date.
  - Be prepared to answer questions and engage in discussions.

### Presentation Components

- 1. Introduction:**
  - Introduce the problem.
  - Explain why it is important to solve it, with a focus on global implications.
- 2. Problem Analysis:**
  - Describe the problem in detail.
  - Discuss the causes, potential impacts, and cultural/environmental context if relevant.
- 3. Proposed Solution:**
  - Present your solution step-by-step.
  - Explain the rationale behind your approach.
  - List the tools and materials needed.
  - Address any cultural or environmental considerations.
- 4. Implementation:**
  - Describe the implementation process.

- Discuss any challenges and how to overcome them.
- Highlight safety and cultural considerations.

#### 5. **Conclusion:**

- Summarize the key points.
- Emphasize the benefits of your solution.
- Invite questions and feedback.

## **Examples of Global Plumbing Problems and Solutions**

### **1. Water Scarcity in Rural Areas:**

- **Problem:** Limited access to clean water in rural communities.
- **Solution:** Implement rainwater harvesting systems, educate the community on water conservation, and install efficient plumbing fixtures.

### **2. Sanitation in Developing Countries:**

- **Problem:** Poor sanitation infrastructure leading to health issues.
- **Solution:** Design and install affordable, low-maintenance sanitation systems, such as composting toilets, and conduct hygiene education programs.

### **3. Flood Management in Urban Areas:**

- **Problem:** Frequent flooding due to inadequate drainage systems.
- **Solution:** Develop sustainable urban drainage systems (SUDS), such as permeable pavements and green roofs, to manage stormwater effectively.

### **4. Sustainable Plumbing Solutions:**

- **Problem:** High water and energy consumption in plumbing systems.
- **Solution:** Promote the use of water-efficient fixtures, solar water heaters, and greywater recycling systems to reduce environmental impact.

### **Tips for Success:**

- **Practice:** Rehearse your presentation multiple times to build confidence.
- **Clarity:** Ensure your slides are clear and not overloaded with text.
- **Engage:** Interact with your audience and encourage questions.
- **Visuals:** Use visuals to make your points clearer and more impactful.

This assignment encourages plumbing apprentices to apply their knowledge to real-world problems, enhancing their technical skills and ability to communicate solutions effectively while considering global contexts and impacts.