

Disaster Strikes!

Chemistry is all around us! This term project will demonstrate understanding of SCH3U content by deconstructing a “disaster” at the molecular level. This term project will involve 4 parts.

Part 1: Disaster/Environmental Impact

Part 2: Chemical Reactions and Properties

Part 3: Quantities/Prevention

Part 4: Public Service Announcement

Part 1: Disaster/Environmental Impacts

Find a “disaster” that involves chemistry. The disaster can be natural or manmade and it can be historical or present day BUT make sure it involves some level of chemistry. Avoid biological outbreaks/virus/bacteria as they involve biology instead of chemistry. Investigate the environmental impacts of the disaster on the environment

Describe:

- What effects does it have on the environment (air/water quality)?
- Is there a protocol for waste disposal/cleanup?
- Were any specialized equipment used?

Consider the following:

- What is being done to lessen the harmful impacts on human health and the environment?
- Could we reduce the amount used?
- Could we modify the chemical components?
- Are there safer and greener alternatives?

Part 2: Chemical Reactions and Properties

Identify a chemical reaction that is applicable to your disaster from part 1.

Chemical Reactions:

Describe:

- How this reaction plays a role in your disaster?
- Why did this reaction happen at this point in time? What conditions contributed to the reaction occurring?

Represent the reaction in the following ways:

- Word equation
- Balanced chemical equation
- Lewis structures and/or structural diagrams

Properties:

- Examine the structural diagrams of the reactants and products. Make connections between the structure and the properties of the substances, and link back to the environmental impact.

Part 3: Quantities/Prevention

Research the importance of quantities in the disaster.

Describe:

- Units/measurements relevant to the disaster
- Specify measurements crucial in the cause and effect of the disaster

Consider the following:

- What are the implications of inaccurate measurements?
- What could be learned from a scenario in which inaccurate measurements were made?
- What safety measures should be implemented in order to reduce the possibility of error?

Part 4: Public Service Announcement

Create a public service announcement using the medium of your choice.