Lesson Plan – ABN & Heat Transfer Lab

Opening

Introduce Standards

Use mathematics and computational thinking to balance chemical reactions (i.e., synthesis, decomposition, single replacement, double replacement, and combustion).

Learning Targets

Plan and carry out an investigation to calculate the amount of heat absorbed or released by chemical or physical processes.

Success Criteria

1. I can explain how endothermic processes absorb heat and exothermic processes release heat.
2. I can discuss how endothermic and exothermic processes contribute to heat transfer.
3. I can calculate heat transfer by observing the change in temperature, mass of the material, and researching the specific heat capacity of the material.

Teacher Task

1. Introduce the Acid Base Neutralization and Heat Transfer Lab.
2. Provide instructions and tutorial of the materials and methodology within the lab.
3. Monitor students' progress and provide clarifications within lab procedures, if needed.

Work Period

Driving Questions

1. What is the balanced equation for the chemical reaction within this lab?
2. What is the change in heat transfer, based on this chemical reaction?
3. Which portions of this lab were considered exothermic?
4. Which portions of this lab were considered endothermic?

Activity & Assessment

1. Students will listen to instructions for the Acid Base Neutralization and Heat Transfer Lab and ask questions for clarification.
2. Students will group together to carry out an investigation of endothermic and exothermic processes when mixing vinegar and baking soda (i.e., Acid Base Neutralization and Heat Transfer Lab).

Extension activities

1. Students will complete a lab report detailing their hypothesis, methodology, results via data table and graph, as well as answer conclusion questions.
2. Students will take a post lab quiz based on the introduction, methodology, and results of the lab.

Closing

Review Learning Targets & Assessment of level of mastery: “Check-in moments” will be provided throughout the lab to ensure comprehension and lab competency. Teacher will repeatedly ask driving questions to probe and guide students throughout the lab.