Name: _____ Date: _____

Course: _____ Due Date: _____

Onion Chemistry: Elaborate Phase Activities

Directions: Choose from one of the following activities. Check with your teacher prior to beginning any of the activities. Be sure to reference the rubric provided for your chosen project.

Activity 1: Chemical Change Real-Life Mini-Poster

Objective: Apply your knowledge of chemical changes to real-world or food-related examples beyond onions.

Instructions:

1. Choose a real-life example of a chemical change (e.g., browning apples, toasting bread, fireworks, rusting metal, grilling meat).
2. Get approval for your choice from your teacher.
3. Research or recall:
    - What is changing chemically?
    - What causes the change? (heat, enzymes, light, etc.)
    - What evidence shows it is a chemical change?
4. Create a 1-page mini-poster that includes:
    - A title
    - Description of the change
    - Scientific explanation using correct vocabulary
    - At least one diagram or visual
    - Key vocabulary words labeled or defined

Turn in your mini-poster or submit a digital version via Google Slides or Canva.

[Recommendation: Insert link for students to turn in their mini-poster]

Activity 2: Comparison Lab Proposal – Onion vs. Garlic

Objective: Design a comparative investigation to explore chemical changes in onions and garlic.

Instructions: Work with a partner or small group to design an experiment proposal. Answer the following:

1. Background Research
    - What causes the chemical change in chopped onions? (Include vocabulary)
    - What compounds or enzymes might play a role in garlic? (Include vocabulary)
2. Hypothesis
    - Predict how the chemical changes in garlic might compare to those in onions.
3. Procedure Outline
    - Materials you would use

- Safety precautions
- Step-by-step procedure
- How data would be collected (e.g., odor, color change, pH)

4. Expected Results
    - What evidence would support a chemical change in each case?
    - What differences do you expect between the two?

Submit a written proposal. Be prepared to present or peer-review another group's plan.

[Recommendation: Insert link for students to turn in their paper]

Activity 3: "Think Like a Chemist" Reflection Interview

Objective:

Reflect on your learning and communicate your understanding of onion chemistry like a scientist.

Instructions:

Imagine you're being interviewed for a science documentary or podcast. Choose two of the following questions to answer in a podcast or short video (1–2 minutes).

Reflection Questions (Pick 2):

- What surprised you most about the chemistry of onions and why?
- How do enzymes play a key role in everyday chemical reactions?
- What's the difference between a physical change and a chemical change, and how do onions help illustrate it?
- How can understanding chemical reactions help us outside the classroom?

Submit your podcast recording and upload a short video.

[Recommendation: Insert link for students to turn in their podcast or video]

Vocabulary (for reference):

Activation Energy	Enzyme	Intermolecular Forces	syn-Propanethial-S-oxide	Chemical Change
Chemical Change	Exothermic	Reactivity	Thermal Decomposition	Carmelization
Chemical Reaction	Endothermic	Sulfur Compounds	Physical Change	Bonding