Project Guide: Scaling Recipes Using Multiplication

Common Core Standard: 3.OA.A.3 – Multiply multi-digit whole numbers.

Lesson: Scaling Recipes with Multiplication

Objective:

1. Multiply multi-digit whole numbers.
2. Apply multiplication to real-world scenarios, such as scaling a recipe for different numbers of servings.

Materials:

- Recipe cards with ingredient quantities for a basic recipe (e.g., cookies, lemonade, etc.).
- Paper and pencils.
- Whiteboard and markers.
- Calculators (optional).
- Measuring cups/spoons (optional).

Safety Precautions:

- When using ingredients, ensure that students avoid food allergies by selecting allergen-free recipes.
- If students handle food items, maintain a clean environment and wash hands before and after handling ingredients.
- Supervise students to prevent accidents when measuring or working with food materials.

Procedures:

1. **Introduction to Multiplication in Recipes:**
    - Explain how multiplication is useful in scaling recipes. For example, if a recipe serves 4 people and you need to serve 8, you can multiply the ingredients by 2.
    - Discuss the role of multiplication in adjusting the quantities of ingredients based on the number of servings required.
2. **Multiplying Multi-Digit Numbers:**
    - Write a few multi-digit multiplication problems on the board (e.g., 45 × 6, 32 × 4).
    - Solve these problems as a class, using long multiplication or partial products.
3. **Scaling the Recipe:**
    - Provide students with a recipe card. Each card should list basic ingredients and their quantities.
    - Explain how to adjust the recipe. For example, if a recipe for cookies requires 2 cups of flour for 12 servings and they need to make enough for 24 servings, students will multiply 2 × 2 = 4 cups of flour.
    - Students will multiply the quantities of each ingredient based on the number of servings they want to make.

    - Allow students to work in pairs or small groups to scale their recipes.
4. **Reflection:**
    - After completing the scaling activity, ask students to discuss how multiplication helped them change the quantities.
    - Encourage them to think of other situations where they could use multiplication, such as planning a party or buying supplies in bulk.

Note: Clean-up

- If using actual ingredients, ensure that students clean up their work areas after completing their projects.
- Wash any materials used for measuring or mixing, and return the recipe cards to their proper storage.