Critical Components of Lesson Design

*Elementary Example

Planning

Name:	**Subject Area:** Math	**Lesson Date:**
Unit Title (if applicable): Systematic listing and Counting	**Lesson Plan Title:** Multiple Combinations (lesson 3 of 3)	**Grade Level:** 4th grade
Time Required: 40 minutes	**Materials and Media:** The Night Before Thanksgiving, Large picture cards of various Thanksgiving day foods (for modeling), 8 sets of manipulatives with 18 plates, 9 ham, 9 turkey, 6 corn, 6 cranberry, 6 mashed potato, 6 pumpkin pie, 6 apple pie, and 6 pecan pie each, paper, pencil.	

Aligned State Standards:
AZ- Common Core State Standards (2012)
Subject: Mathematics Grade: Grade 4
Domain: Operations and Algebraic Thinking (OA)
Use the four operations with whole numbers to solve problems.
Area: Use the four operations with whole numbers to solve problems.
Standard: AZ.4.OA.A.3.1 Solve a variety of problems based on the multiplication principle of counting.
a. Represent a variety of counting problems using arrays, charts, and systematic lists, e.g., tree diagram.

Analyze relationships among representations and make connections to the multiplication principle of counting.

Measurable Goals and Criteria for Mastery (quantitative and references the assessment):
Using the manipulatives provided, students will work in groups of three or four to create 15 of the possible 18 (80%) combinations of a meat (turkey or ham), a fruit or vegetable (corn, cranberries, or mashed potatoes), and a dessert (pumpkin pie, apple pie or pecan).

Differentiation: Remediation:
Teacher will work with struggling students at back table offering multiple examples (modeling) and manipulatives.

Differentiation: Extensions:
Create a combinations problem for others to solve involving more than 3 food items and create a detailed answer key with narrative explanation.

Assessment

Pre-Assessment Data (Optional):
Beginning of the year STAR assessment (includes skills-based test items and in-depth reports for screening, instructional planning, progress monitoring, and standards benchmarking) indicated all

students need additional instruction and practice with combinations and fractions.

Post Assessment:

Teacher checklist will indicate student mastery (15 out of 18 correct combinations)

Independent Activity: Reinforce skills and synthesize their new knowledge by completing a task on their own and away from the teacher's guidance.

(Similar as Thanksgiving Dinner) Students will create a minimum of 5 different school outfit combinations and share their findings with a parent.

Instructional Sequence

Anticipatory Set with Purpose:
"When I asked you to tell me about Thanksgiving last week, many of you wanted to tell me about the feast that you would be sharing with your friends and family. Today, I'll read you a realistic fiction story about a family on Thanksgiving Day. Then, we will do a combination activity with the foods that we will read about in the story. Learning about combinations will help you when organizing information like deciding on a week's worth of outfits without wearing the same thing twice."

Instructional Sequence:

1. Facilitate a picture walk prior to reading The Night Before Thanksgiving. (M and DI)
2. Using the large pictures of food, explain and demonstrate for students that they will be finding all of the combinations on the plates by choosing 1 meat, 1 fruit/vegetable, and 1 dessfert. Show one example of a completed plate. (M and DI)
3. Put students in heterogeneous groups of 3 or 4 and each group will receive 18 plates, 9 ham, 9 turkey, 6 corn, 6 cranberry, 6 mashed potato, 6 pumpkin pie, 6 apple pie, and 6 pecan pie.
4. "Before each group begins look at the plate we just created as a class (step 2) now create this plate and set it to the side. So one of the plates has already been done for you. Your next step will be to complete a different combination plate, continue to do this until you have used all of the different combinations. Remember that each plate has to include 1 meat, 1 fruit/vegetable, and 1 dessert." (AE, M, GP)
5. Students begin to explore different combinations/arrangements within their groups. (AE)
6. Teacher monitors and conferences with students as they explore. (CU, GP)
7. Teacher guides students to share their strategy and thinking. Student do a "gallery walk" of other groups' work as needed (GP and CU)
8. When at least 6 or more of the 8 groups are done, convene a "congress" to discuss what student learned. (CU and AE)
9. Discuss and demonstrate ways to record the combinations. "We have learned many ways to record our data and you can choose to use one of the following methods; an array chart (lesson 1 in unit), a systematic list (lesson 2 in unit) or your own method that you will share with the

class." (M)

10. Provide blank paper for students to work on their recording (IA)
11. Select groups to share their strategy for recording. (CU and AE)

Closure:

"We are so lucky that we usually have choices and therefore can make combination of our choices. The next time you order ice cream or make a sandwich, think about all of the choices that you have and all of the combinations you could make. Let's have each group share out how they recorded their combinations."