

Name(s): [REDACTED]		
Grade Level: 3rd grade	Subject: Math	Lesson Length: 45 minutes

I. Standards (IC1, IC2, IC4)	
Utah State Core Curriculum Strand(s) and Standard(s):	<p>Standard 3.OA.8 Solve two-step word problems.</p> <ul style="list-style-type: none"> a. Solve two-step word problems using the four operations. Know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations). (Limit to problems posed with whole numbers and having whole number answers.) b. Represent two-step problems using equations with a letter standing for the unknown quantity. Create accurate equations to match word problems.
Summative Assessment:	Lesson 17 Quiz
Goal Statement/Rationale:	Students will be able to solve two-step word problems and represent the missing quantity with letters. It is important for students to understand this because it connects to real world problems that will take more than one step. Students will build on their existing knowledge of one and two step problems with addition and subtraction. This lesson will help further understanding to complete multi step word problems in later grades.

II. Intended Learning Outcomes (IC1, IC2)	
Learning Objective/Goal:	<p>Know: Students will understand how to complete two step word problems using arrays</p> <p>Do: Students will use arrays to help them solve word problems involving multiplication</p>

III. Assessment of Student Progress	
Pre-assessment:	As students participate in the number talk, take note of what is said and how students understand the problem

Informal assessment(s):	As students participate in partner talks/whole class discussions. Listen for answers and check for understanding. <ul style="list-style-type: none"> - During the explore part walk around and note what strategies students use to solve the word problem.
Formal assessment:	Exit Ticket

IV. Preparation (LL2, IC4, IP8)

Students' prior knowledge, skills and assets:	<p>Prior Knowledge: Students have begun two step equations with multiplication and division earlier this week</p> <p>Prior Skills: Students have built arrays to solve problems before</p> <p>Personal Assets: All students have used operations needed to solve the word problems</p> <p>Cultural Assets: All students come from cultures that emphasize learning</p> <p>Community Assets: Students have access to iReady at home</p>
Student preparation:	Chromebooks
Teacher preparation:	Set up nearpod to show on screen
Technology integration:	Projector, Ipad

V. Instructional Procedures (LL6, IC3, IC7, IP2, IP7*)

**We recommend you label the appropriate competency, using the codes, within your instructional procedure to make that visible to your university supervisor.*

Lesson will be done through a Nearpod

Start with objectives

Warm up: Same and different number talk

- Give students 1min to think about the problem without talking
- Have students share with a partner
- Class discussion (connect letters to how we use blanks)

Mini Launch Explore Summarize:

Launch:

Problem: 42 students come to visit Miss Jamison's classroom. The students form equal rows and columns. There are 6 people in each row. How many rows are there?

Read together as a class, then have students read on their own.

- Whisper to a neighbor, what information is important

- Call on students to share
- Connect to arrays (If the students are making equal rows and columns, what are they making?)

Questions to support making sense of the problem:

- What do you notice about the problem?
- What kind of problem is this?
- What part of the problem tells you that?

Explore:

Give students 5+ minutes to work on the problem individually.

Monitoring Chart:

Strategy	Questions to ask
Array	<ul style="list-style-type: none"> • Where does your array show the total people? The number of people in each row? • How did you find out how many rows you needed?
Multiplication	<ul style="list-style-type: none"> • What do the numbers stand for? • What does the missing number represent? • How can you check your answer to make sure it is true? • What division equation could you write with this?
Division	<ul style="list-style-type: none"> • What do the numbers stand for? • What does the missing number represent? • How can you check your answer to make sure it is true? • What multiplication equation could you write with this?
Cannot get started	<ul style="list-style-type: none"> • What strategy could you use to solve this problem? • Let's start with one row. What would happen if I add another row? • Is this multiplication or division?

If students finish early, ask them to prove their answer is correct.

Summarize:

Go over student strategies (Share them on the screen) Have students explain their thinking.

Questions to ask:

- What do you notice about _____'s strategy?
- How was your strategy different? How was it the same?

- Where does each model show the total number of people? The number of people in each row? The number of rows?

Picture it:

Explain that we can use arrays to solve word problems. (If no students used an array use the picture it to explain)

- Connect rows and columns to the numbers from the problem.
- What are the numbers on the right?
- **Why does it make sense to use an array as a strategy to solve this problem?**

Model it

Explain that we can also use words to show and solve problems about arrays.

42 people in all

6 people in each row

? rows

$$? \times 6 = 42 \quad 42 \div 6 = ?$$

- How does the equation show the given information? The unknown information?
- (Connect to how we use blanks when we don't know the missing numbers)

Connect it:

Questions 1-4. Connect the numbers from the word problem to the numbers in the array/equations.

1. What do the numbers 42 and 6 stand for in the problem?
2. What information is unknown?
3. Use the letter r to stand for the unknown number. Write a division equation that can be used to solve the problem. Then write a related multiplication equation.
4. Solve the problem. Show your work. (share student work, have them explain it)

Apply it:

1. Logan hangs 20 soccer jerseys on his clothesline. He hangs the jerseys in 4 equal rows. How many shirts does Logan hang in each row?

Do this one as a class. Ask students for strategies to solve. Guide them through it.

2. Daniella has a garden in her backyard. There are 4 rows of fruit plants with 8 plants in each row. How many fruit plants are in Daniella's backyard? Show your work.

Have students discuss with a partner how they could solve the problem. Give students a few minutes to solve on their own. Go over as a class.

Exit ticket:

There are 54 flowers in the garden. There are 9 flowers in each row. How many flowers are there? Show your work.

Students will do the exit ticket on their own. Remind them they can choose whatever strategy they want but they have to show how they solved it. I will not accept an answer by itself. Don't forget the label!

If time allows...

When students finish the exit ticket, have them go on iReady until lunch.

VI. Academic Language		
Language Function:		Solve
Language Supports		
	Vocabulary:	Multiplication, Division, Array, Equation, Strategy
	Syntax:	Mathematical Word Problems
	Discourse:	Oral and Written (Discussing word problems)

VII. Addressing Learners' Needs (LL4, IP1)	
Differentiation/ Individualization:	Students who are not showing mastery of today's objectives will receive a supplemental lesson on iReady. Students with mastery will continue working on my path.
Support for ELLs: Fluency Stage Specific Support: <ol style="list-style-type: none"> 1. Entering 2. Emerging 3. Developing 4. Expanding 5. Bridging 6. Reaching 	Breaking down word problems <ul style="list-style-type: none"> - Reading multiple times - Reiterate the important information - Ask questions about the word problem
Accommodations/ Modifications for IEPs/504s:	Allow for longer time to interact with the math. O- Preferential seating, scheduled breaks R- Oral responses