

UVU Math Lesson Plan

Name: [REDACTED]		Lesson length: 40-45 minutes
Grade Level: 3rd	Subject: Mathematics	Topic: Fractions

I. Standards	
Utah State Core Curriculum Strand(s) and Standard(s):	Strand: Numbers and Operations - Fractions Develop understanding of fractions as numbers. Denominators are limited to 2, 3, 4, 6, and 8 in third grade. Standard 3.NF.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.
Standards for Mathematical Practice Developed in this Lesson	Reason abstractly and quantitatively. Make sense of quantities and their relationships in problem situations. Contextualize quantities and operations by using a number line. Know and flexibly use different properties of operations and numbers.
Goal Statement/Rationale:	Students are learning how to represent a fraction on a number line diagram that is partitioned into equal parts. The purpose of this lesson is for students to be able to solidify that the whole doesn't change when using a number line diagram that is partitioned into equal pieces, as well as develop number sense on a line (fractional numbers.) This lesson builds on students' previous experience with unit fractions and understanding the value they hold, and will allow them to apply their understanding of fractions and their quantities in future grades as they learn how to perform operations with fractions such as adding, subtracting, multiplying, and dividing.

II. Intended Learning Outcomes	
Learning Objective/Goal/Target/Indicator: (Know and Do)	<p>Know: Students will know how to use a number line diagram to solve a problem regarding fractions.</p> <p>Do: Students will create a number line diagram, partition it into equal parts, and label it correctly in order to solve the given problem.</p>

III. Assessment of Student Progress	
Pre-assessment:	Number Talk – count by thirds up until $9/3$. (4-5 minutes) Look for understanding of listing fractions in sequential order. Optional: Understand that $3/3 = 1$ whole; $6/3 = 2$ wholes, $9/3=3$ wholes.
Formative assessments:	Fist of five, walking around during work time and looking at/discussing student work, analyzing answers and participation during discussion.
Final formative assessment:	<ul style="list-style-type: none"> - Observation Checklist in Planner on Day 1 - Develop. <p>***Checkmark if completely correct, (+) if on their way, (-) if not understanding/misconception.</p> <ul style="list-style-type: none"> - Quiz after Solidify and Apply, planning to give on 1/31 : iReady Quiz

IV. Preparation	
Students' prior knowledge, skills and assets:	<p>Prior Knowledge: What a fraction is – specifically a unit fraction, what numerators/denominators are and what they represent, what a number line diagram is, what equal parts means.</p> <p>Prior Skills: Partitioning a figure into equal parts (as close as they can), looking at a shaded model and writing the correlating fraction.</p> <p>Personal Assets: Curiosity, creative thinking, social skills.</p> <p>Cultural Assets: Religious values, outdoor activities.</p> <p>Community Assets: Local parks, libraries, and schools, youth sport programs, safe neighborhoods.</p>
Student preparation (if applicable):	Black math marker.
Teacher preparation:	Slides from third grade team, blank white paper, charged iPad and Apple Pencil.
Technology integration (as applicable):	Slideshow, iPad.

V. Instructional Procedures (including models of instruction, strategies, assessments, differentiation, transitions, etc.)

Launch:

Approx. Time: 5 mins

Problem/Task:

The teachers on the third grade team are running a Valentine's Day Relay Race. As a team, they have to complete 8 laps. Each teammate has to run the same amount of the race. How much does each person have to run?

Questions to Support Making Sense of the Problem/Task:

- What are you wondering about?
- What is important in the problem?
- How many teachers are on the third grade team? (6)
- What is considered a lap? (Across the field and back)

Explore:

Approx. Time: 10 mins

Monitoring Chart:

<i>Strategy/Level</i>	<i>Questions to Ask</i>	<i>Students</i>
Racetrack (circle) divided	<p>Assessing: How did you split your circle? How did that show the laps and how many each teacher was running?</p> <p>Extending: What number could you write to describe your picture? How would you write that as a fraction?</p>	
Fraction Bars	<p>Assessing: Where do you see what one teacher runs in your model?</p>	

	<p>Extending:</p> <p>What number could you write to describe your picture? Can you represent this another way?</p>	
Mixed Number	<p>Assessing:</p> <p>What does the 1 (or other whole number) represent in the context of this problem? What does the fraction represent?</p> <p>Extending:</p> <p>Is there a picture to add on to your numbers? Can you show that fraction without a whole number (a fraction greater than one)?</p>	
Number Line	<p>Assessing:</p> <p>How did you break up your number line? How did you know to break it up like that?</p> <p>Extending:</p> <p>How would you represent it as a fraction?</p>	
Other	<p>Assessing:</p> <p>Can you show it in a picture? Where are your laps and teachers?</p> <p>Extending:</p> <p>What about the other two laps they need to be run?</p>	
Misconceptions		

Cannot get started		

Summarize: Whole Class Discussion

Approx. Time: 15-20

Facilitating Whole Class Discussion:

Strategies to Share in Order (Pictures on iPad):

Race Track (circle)

Fraction bars/area model

1 plus some (2)

Mixed number

Splitting the remainder into sixths

Splitting the remainder into thirds

Split each lap, count by $\frac{8}{6}$ (measurement division)

Number line

Questions to Pose (at least 5):

- What do you notice is the same between the strategies? (Comparing strategies)
- What was the whole in this strategy?
- How did we know to break it up like that?
- Where were the teachers in the representation? Where were the laps?
- Does this representation match the context?

Summarize: Mini Lesson

Script for Mini-Lesson:

- "If I draw a number line and partition it into 8 equal parts to show the 8 laps, how can I use this to solve the problem? Try it on your paper. (During this time, walk

around and fill out the observational checklist in planner to mark off who is getting it (checkmark), who is on their way (+), and who is struggling (-). This is the final formative assessment for the lesson because it's day 1.)

- How can I represent how many laps each teacher is going to do? If I put one teacher's name for each lap, I still have these two left. How can I use the strategies we just talked about to show how we partition those last 2 laps between the 6 teachers? I saw some of you draw a bar to represent the two laps and then split each bar into equal pieces. How many pieces did you split each lap into and why? What would each of these pieces be if written as a fraction?
- If each teacher has a full lap and then one of those pieces, how can we write that for our final answer?

Practice/Application

Approx. Time:

The next day, students will be partitioning and labeling a number line into equal parts to solve the following problems on the lesson plan:

My mom took my sister and I to the gas station and bought us one nerd rope. She said we had to share. How much of a nerd rope do we get?

My mom bought one nerd rope. She said I had to share it with my sister and two of our friends. How much of a nerd rope do we get?

Constraint: Use a number line

My mom took my sister, my brother, and I to the gas station and bought us one nerd rope. She said we had to share. How much of a nerd rope do we get?

Constraint: Use a number line and label partitions

My mom bought one nerd rope. She said I had to share it with my two siblings and three of our friends. How much of a nerd rope do we get?

VI. Addressing Learners' Needs

Differentiation/ Individualization:	Some students may need extra scaffolding during “explore.” Walk around and ask questions to help get them started. Help them understand what the problem is asking. Ask how they’re representing the laps and how they’re representing the teachers.
Support for MLLs:	There are none in the class. (Could include a printed number line as a manipulative)
Accommodations/ Modifications for IEPs/504s:	Allow extra time to work through problems. Help them get started by having them make a drawing to show the problem. Have them work with a partner/table group if still struggling to grasp the problem. If scaffolding is still needed, guide them through it step by step.