

Lesson Subject	Lesson Title	Grade Level
Mathematics- Fractions	MALLI: Fractions Review Visual Literacy	5th Grade - STEAM Group (heterogenous)
Student Academic Learning Objectives		
<ul style="list-style-type: none"> ● Students will be able to model the word problem through the use of a tape diagram or similar visual. ● Students will be able to determine the reasonableness of their answer based on the context of the word problem. 		
Student Language Development Objectives		
<ul style="list-style-type: none"> ● Students will be able to verbally explain the procedure of setting up a tape diagram model. 		
CCSS/State Content Standards		Noticings and Wonderings
<p>Apply and extend previous understandings of multiplication and division. CCSS.MATH.CONTENT.5.NF.B.3</p> <p>CCSS.MATH.CONTENT.5.NF.B.4</p> <p>Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.</p>		<p>I noticed that many of my students struggled to express their work (visual literacy) on paper. They used mostly mental math, and this surprised me. We use Eureka, which is rich in the use of number bonds, tape diagrams, and visuals. I wanted to model how to design a tape diagram for my students, as to review this type of visual model and to encourage them to use strategies to show their work.</p>
Materials and Preparation		
<ol style="list-style-type: none"> 1. Google Slides 2. Chromebooks (1-1) for Students 3. Headphones 4. Internet Connection 5. Paper, Pencil, Eraser 6. Whiteboard, Whiteboard Marker, Eraser 		
Anticipatory Set/Introduction		
<ol style="list-style-type: none"> 1. Students will be instructed to make a personal copy of the slide deck, so that they may take notes along with the teacher as she models how to solve the lesson. 2. Students, along with the teacher, will read the word problem aloud. 3. Students will identify the key information presented in the word problem, and define the problem. 		
Procedures (How will you conduct the lesson? What will you do? What will the students do?)		
<ol style="list-style-type: none"> 1. Discussion- Students will start by considering three questions: <ol style="list-style-type: none"> a. How many total species are there? b. What fraction will survive without help? c. How many fractional parts are used? 		

2. Based on the information found from this discussion, the teacher will model how to set up a tape diagram based on the fractional units.
3. Students will then discuss how many pieces of the tape diagram should be filled in, and how much each piece represents.
4. Students will then be supported in making calculations of how many species will survive (division, addition, multiplication).
5. Students can then explain and explore other ways to solve the problem.

Specific Strategies and Adaptations for English Learners

1. Graphic visuals (google slides)
2. Discussion questions written on slide
3. Modeling from the teacher
4. Personal support on the private chat
5. Bold yellow lines to indicate where number values need to be placed.
6. Reading aloud the word problem as a group
7. Using a sentence frame for the written challenge answer slide.



MALLI LESSON

FRACTION WORD PROBLEMS

CHALLENGE QUESTION

You are observing a pond ecosystem and its various species.

Currently, there are 20 species living at the pond.

Without intervention, it is predicted that only $\frac{3}{5}$ of the species will survive, throwing off the ecosystem's balance.

How many species would survive without your help?



Show your math work below.



SHOW YOUR WORK

TAPE
DIAGRAM

___ species

CONSIDER

How many total species are there?

What **fraction** will survive without help?How many **fractional parts** are used?

WRITTEN CHALLENGE ANSWER

There will be _____ species left if there is no intervention in the pond ecosystem.

