

Encourage student explanations and visual representation of fraction subtraction in this interactive lesson. Use this lesson on its own or as support to the lesson Modeling Mixed Number Subtraction.

## Objectives

Objectives

## Academic

Students will be able to model subtraction with like denominators.

## Language

Students will be able to describe and ask questions about a visual model for subtraction fractions using color-coding and peer supports.

## Materials and preparation

- Teacher copy and class set of [Visually Subtracting Fractions](#)
  - Draw only the example visual from the worksheet on the board and exclude all labels
- Class set of two different colored dry erase markers for color-coding
- Class set of whiteboards
- Chart paper
- Class set of [Vocabulary Cards](#)
- Class set of [Glossary](#)
- Teacher copy of [Teach Background Knowledge Template](#)
- Teacher copy of [Write Student-Facing Language Objectives Reference](#)

## Vocabulary

TIER 2

**difference:** the answer to a subtraction expression

TIER 3

**minuend:** the amount being subtracted from

**subtrahend:** the amount being subtracted

**denominator:** the bottom number of a fraction that represents the total number of pieces of the whole

**numerator:** the top number that shows some of the parts of the whole

## Attachments

- Visually Subtracting Fractions (PDF)
- Vocabulary Cards: Modeling Fraction Subtraction (PDF)
- Glossary: Modeling Fraction Subtraction (PDF)
- Teach Background Knowledge Template (PDF)
- Write Student-Facing Language Objectives Reference (PDF)

## Math language routine

Co-craft Situations

## Introduction (5 minutes)

- Tell students to look at the visual you drew on the board from the example from the Visually Subtracting Fractions worksheet. Ask students to write on their whiteboards what they think about the visual. Encourage them to draw the visual on their whiteboards and label it if they can (e.g., "numerator," "denominator," "subtraction symbol," etc.).
- Ask students to share their boards with their partners and have them talk about what the visual may represent. ("I have \_\_\_ because \_\_\_. I think \_\_\_. The visual shows \_\_\_.")
- Conduct a class discussion about the visual and lead them to label the numerator and denominator on the board. Explain the blue coloring is the number they subtract from a fraction problem and the red coloring represents the group of numbers from which it is subtracted.
- Share the meanings of the terms **minuend**, **subtrahend**, and **difference** as you label them with arrows pointed to their represented number in the number sentence  $\frac{9}{11} - \frac{5}{11}$ .
- Write the student-friendly language objective on the board and have students choral read it with you.

## Explicit Instruction/Teacher modeling (7 minutes)

- Show students how to represent the subtraction problem with the visual from the top example from the Visually Subtracting Fractions worksheet using one color to represent the minuend and the other color to represent the subtrahend. Ask them to copy your teacher markings on their whiteboards as you explain each step using sequencing words and proper vocabulary terms.
- Model checking your answer to the number sentence by recreating the visual without the worksheet Visually Subtracting Fractions displayed. Then, display the worksheet to show you had the correct answer.
- Ask an advanced EL who is confident in the mathematical process to draw a visual model for a new expression, such as  $\frac{10}{13} - \frac{5}{13}$ . Encourage them to share why they are completing certain steps and what their final answer is. Listen for the transition phrases and vocabulary words they use in their explanations and write them on the side of the board for students to reference in their future conversations.
- Have the other students copy the presenter's markings on their own whiteboards.
- Model asking the presenter probing questions to help them arrive at the correct answer, or to encourage them to explain their ideas further (e.g., "Why did you add \_\_\_ over here? What do you think is missing from the visuals?"). Write some of the questions you use on chart paper labeled "Question Frames" for students to reference in their own peer conversations.

## Guided Practice (10 minutes)

- Assign students problem #1 from the Visually Subtracting Fractions worksheet. Allow them to use counters to represent the colors or their colored markers as they complete the first problem.
- Have students turn and talk to their partner to explain their answer for problem #1. If partners do not agree with the answer, have them ask probing questions, such as: "Why did you add \_\_\_ over here? What do you think is missing from the visuals?" Continue to add questions you overhear to the Question Frames chart paper.
- Tell students they can use the following sentence frames as support for their conversations:
  - "I have \_\_\_ dots outside/inside the circle because \_\_\_."
  - "My answer is \_\_\_ because \_\_\_."
- Have a pair come up and share their answer using the correct vocabulary and sentence stems from the board.

## Group work time (10 minutes)

- Instruct students to work in partners to solve the rest of the problems from the Visually Subtracting Fractions worksheet.
- Encourage partners to try the problem on their own and then come together to share their answers and check their answers by trying to recreate the fraction. Ask them to explain their answers to their partner using some of the sentence frames already explored during the lesson.

## Additional EL adaptations

### Beginning

- Allow students to use their home language (L1) or their new language (L2) in all discussions. Provide bilingual reference materials to assist in their vocabulary acquisition.
- Encourage students to use the vocabulary cards and terms in their conversations. Allow them to draw pictures to support their understanding of the terms, especially on the vocabulary cards without images.
- Have students use their counters and do the problem as they explain it to their partner (to act as a visual aid).

### Advanced

- Pair students with mixed ability groups so they can offer explanations and provide feedback to beginning ELs when appropriate.
- Ask them for sentence frames and questions that they think will help partnerships share more details about visuals and answers.

### Assessment (5 minutes)

- Display the visual representation of  $\frac{16}{21} - \frac{10}{21}$  without the number sentence on the board using proper color-coding. Ask students to pay attention while you are drawing the visual as it will help them determine the number sentence.
- Tell students to examine the visual and write the number sentence that is shown in the visual on their large index card. Have students check their answer by using their number sentence to recreate the visual without looking at the example on the board.
- Have partners turn and talk to each other, sharing their answer or asking questions about the visual. Encourage them to use the sentence stems listed on Question Frames chart paper.

### Review and closing (3 minutes)

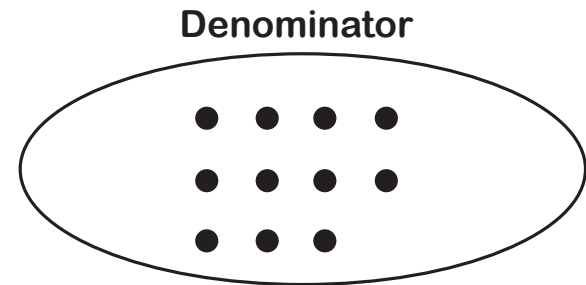
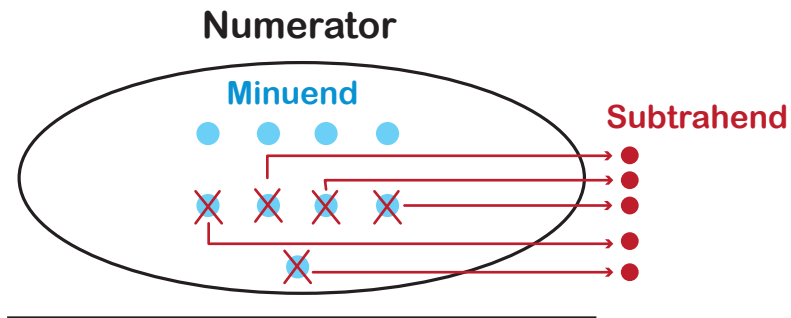
- Ask the following question: How has using color-coding and the visual subtraction helped you subtract fractions? ("It helps me because \_\_\_\_\_. I like the strategy because \_\_\_\_\_.")
- Allow students to turn and talk to each other about their thoughts and write some of the student answers you overhear on the board.
- Share some student answers aloud and tell them they can use this strategy to subtract mixed numbers too.

# Visually Subtracting Fractions

Model and solve the following expressions using the following steps:

1. Draw the minuend (the amount being subtracted from).
2. Subtract the subtrahend from the minuend (the amount being subtracted).
3. Complete the difference sentence stem.

$$\frac{9}{11} - \frac{5}{11}$$

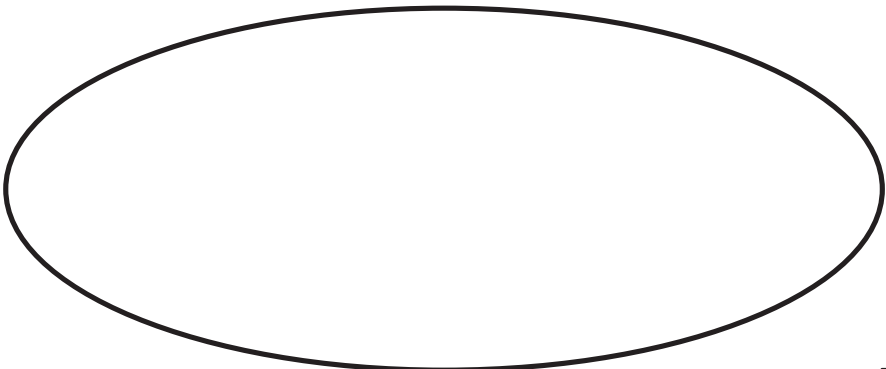
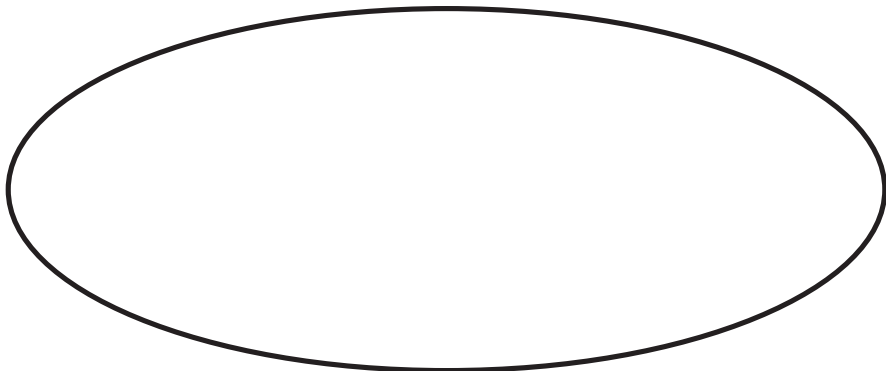


The difference is

$$\frac{4}{11}$$

\_\_\_\_\_.

1)  $\frac{8}{12} - \frac{4}{12}$



The difference is

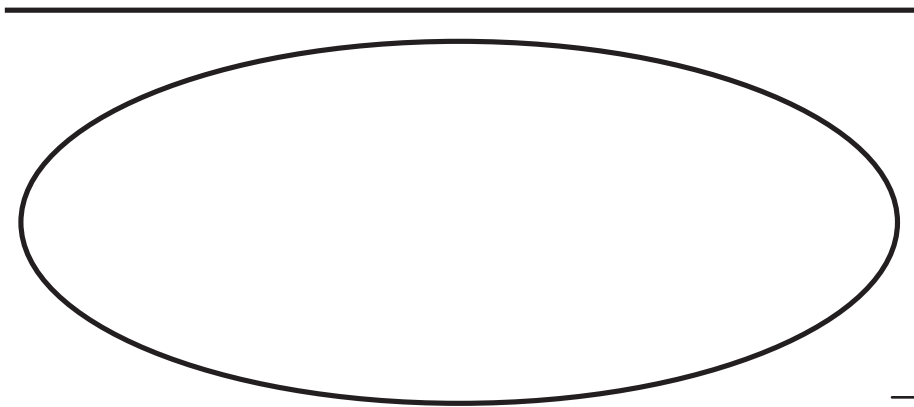
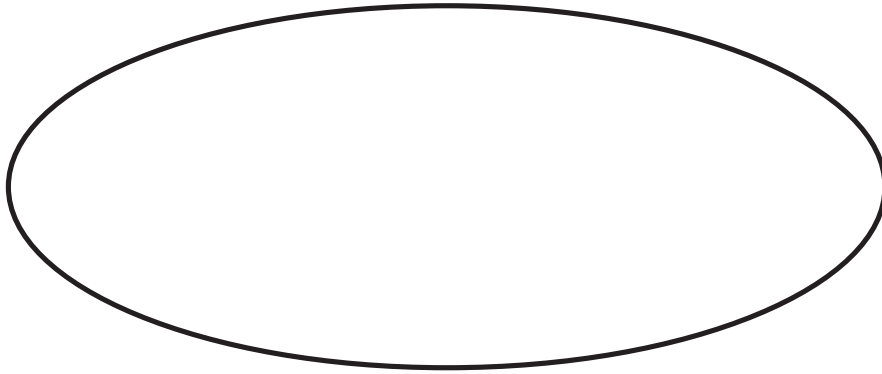
\_\_\_\_\_.

Name \_\_\_\_\_

Date \_\_\_\_\_

## Visually Subtracting Fractions

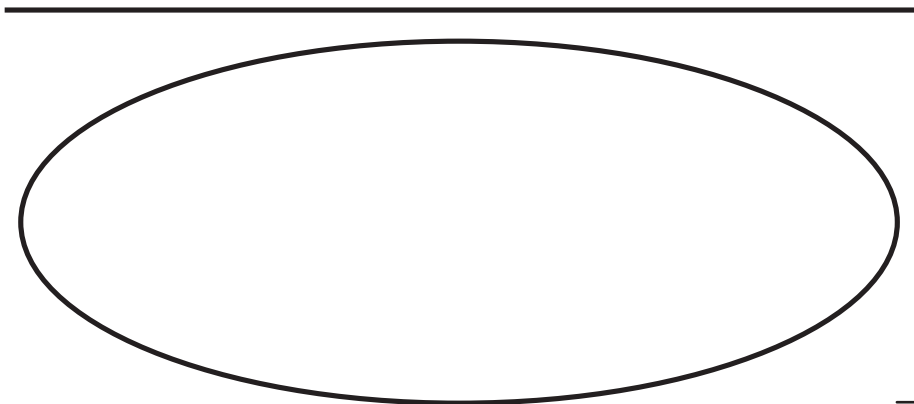
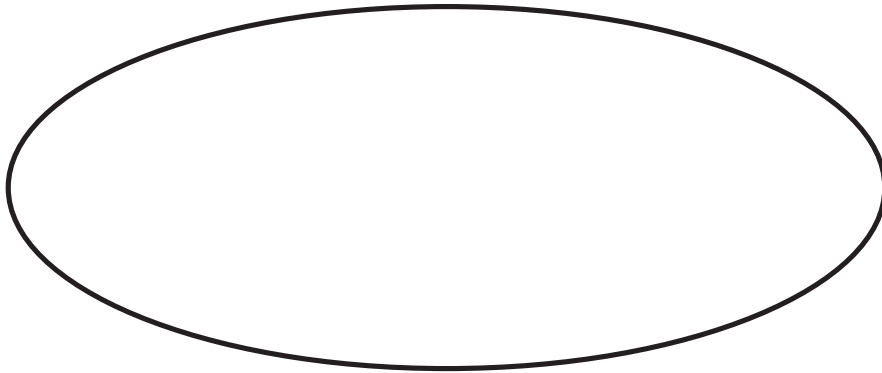
2)  $\frac{11}{15} - \frac{9}{15}$



The difference is

\_\_\_\_\_.

3)  $\frac{6}{6} - \frac{3}{6}$



The difference is

\_\_\_\_\_.

# VOCABULARY CARDS

## EL SUPPORT LESSON PLAN: MODELING FRACTION SUBTRACTION

**difference**

$$\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$$



the answer to a subtraction expression

**minuend**

$$\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$$



the amount being subtracted from

**subtrahend**

$$\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$$



the amount being subtracted

**denominator**

the bottom number of a fraction that represents the total number of pieces of the whole



# VOCABULARY CARDS

## EL SUPPORT LESSON PLAN: MODELING FRACTION SUBTRACTION

numerator

the top number that  
shows some of  
the parts of the whole

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_




\_\_\_\_\_

\_\_\_\_\_



# GLOSSARY FOR EL SUPPORT LESSON PLAN:

## MODELING FRACTION SUBTRACTION

Word	Definition	Visual	
difference	the answer to a subtraction expression	$\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$ 	
minuend	the amount being subtracted from	$\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$ 	
subtrahend	the amount being subtracted	$\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$ 	
denominator	the bottom number of a fraction that represents the total number of pieces of the whole		
numerator	the top number that shows some of the parts of the whole		

Get more lesson plans at <https://www.education.com/lesson-plans/>

Find worksheets, games, lessons & more at [education.com/resources](https://www.education.com/resources)



# Teach Background Knowledge

<p><b>Lesson Topic:</b> Choose a topic from the main content lesson that will help ELs understand the main content lesson. Your non-ELs will already have knowledge about this topic.</p>	
<p><b>Total Lesson Time:</b> (20 - 30 minutes)</p>	
<p><b>Student-Facing Language Objective:</b> Example: I can learn new vocabulary using pictures and sentence frames.</p>	
<p><b>Student ELP Level(s):</b> Consider each student's ELP level and their academic strengths when choosing scaffolds for the lesson.</p>	
<p><b>Potential Scaffolds:</b> Choose some of these material supports and instructional scaffolds based on each EL's individual strengths and needs.</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Groupings (pairs, small-groups, a teacher-led group)</li> <li><input type="checkbox"/> Word banks, word wall, and bilingual glossaries</li> <li><input type="checkbox"/> Sentence frames, sentence stems, and paragraph frames</li> <li><input type="checkbox"/> Home language materials</li> <li><input type="checkbox"/> Reduced linguistic load, repetition, rephrasing and modeling</li> <li><input type="checkbox"/> Practice new academic skills with familiar topics</li> </ul>
<p><b>Materials &amp; Resources List</b> List the materials you'll use in the lesson.</p>	
<p><b>Key Vocabulary Words (5-8 words)</b> List the words with student-friendly definitions in English. Provide definitions in student's home language when appropriate.</p>	

Get more lesson plans at <https://www.education.com/lesson-plans/>

Find worksheets, games, lessons & more at [education.com/resources](https://www.education.com/resources)

<p><b>Introduction</b>  <i>Access EL's prior knowledge about the lesson topic with a brief comprehension check.</i></p> <p>Potential activities:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Creating captions for images</li> <li><input type="checkbox"/> Opinionnaires</li> <li><input type="checkbox"/> Carousel brainstorming</li> <li><input type="checkbox"/> Conversations with sentence starters</li> </ul>	
<p><b>Time estimate for Introduction</b>  (3 - 5 minutes)</p>	
<p><b>Explicit Instruction of Background Knowledge</b>  <i>Model a learning activity that embeds the teaching of academic language and background knowledge.</i></p> <p>Potential activities:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Lunch brunch discussion</li> <li><input type="checkbox"/> Teacher-created, adjusted text and questions</li> <li><input type="checkbox"/> Brief videos or visuals</li> <li><input type="checkbox"/> Text-based instruction</li> <li><input type="checkbox"/> Home-language connections</li> <li><input type="checkbox"/> Pre-teach a small number of vocabulary words</li> <li><input type="checkbox"/> Show real-world objects</li> <li><input type="checkbox"/> Complete word family or bilingual glossaries</li> <li><input type="checkbox"/> Word walls or word bank creation</li> </ul>	
<p><b>Time Estimate for Explicit Instruction</b>  (4 - 6 minutes)</p>	
<p><b>Guided Practice</b>  <i>Provide an opportunity for students (in pairs or small groups) to practice the skill or information taught during Explicit Instruction, offering appropriate scaffolds as needed.</i></p>	
<p><b>Time Estimate for Guided Practice</b>  (5 - 7 minutes)</p>	

Get more lesson plans at <https://www.education.com/lesson-plans/>

Find worksheets, games, lessons & more at [education.com/resources](https://www.education.com/resources)

<p><b>Formative Assessment</b>  <i>Ask students to show comprehension of new background knowledge and associated skills through an oral or written task. Provide appropriate scaffolds dependent on their ELP level.</i></p> <p>Potential assessments:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Act out concepts</li> <li><input type="checkbox"/> Hands on tasks</li> <li><input type="checkbox"/> Drawings, models, or graphs</li> <li><input type="checkbox"/> Graphic organizer completion</li> <li><input type="checkbox"/> Captions of images</li> <li><input type="checkbox"/> Reading response or content area logs</li> <li><input type="checkbox"/> Retellings</li> <li><input type="checkbox"/> Role plays</li> <li><input type="checkbox"/> Audio or video recordings</li> <li><input type="checkbox"/> Oral interviews</li> </ul>	
<p><b>Time estimate for Assessment</b>  (5 - 7 minutes)</p>	
<p><b>Review and Closing</b>  <i>Refer to the student objective and relate information to future lessons. Allow students to share thoughts about whether they reached their objective and/or mention lingering questions. Provide sentence stems or frames for their discussion.</i></p>	
<p><b>Time estimate for Review and Closing</b>  (3 - 5 minutes)</p>	

# Write Student-Facing Language Objectives

## A student-facing language objective:

- begins with “I can...”
- is designed to raise students' self-awareness of and promote their language development.
- incorporates a language function, grammar structure, and supports or scaffolds.
- is easy to understand for students at all levels of English proficiency.

## A teacher-facing language objective:

- begins with “Students will be able to...”
- is designed to raise students' self-awareness of and promote their language development.
- incorporates a language function, grammar structure, and supports or scaffolds.
- is intended to guide the teacher’s lesson planning and instruction.

## Steps to convert a teacher-facing objective to a student-facing objective:

1. Replace “Students will be able to” with “I can.”
2. Simplify challenging words but maintain key vocabulary words you’ll address in the lesson.

Students will be able to describe a character with adjectives using graphic organizers.

*Language  
Function*

*Grammar  
Structure*

*Support/  
Scaffold*

I can talk about a character with adjectives using graphic organizers.

*Language  
Function*

*Grammar  
Structure*

*Support/  
Scaffold*

## Language Functions

locate	create	identify
show	describe	infer
sort	ask questions	interpret
tell	brainstorm	collect
contrast	classify	compare

## Grammar Structures

nouns	adverbs
modals	academic vocabulary
verb forms	adjectives
conjunctions	phrases
sentence structure	prepositions
pronouns	complex sentences
comparatives	

## Supports/Scaffolds

graphic organizers	sentence starters
teacher modeling	strategic grouping
word banks/walls	home language supports

Get more lesson plans at <https://www.education.com/lesson-plans/>

Find worksheets, games, lessons & more at [education.com/resources](https://www.education.com/resources)