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How to Use This Addenda

Make sure you're ready to teach by noting the **Necessary Materials and Pre-Lesson Prep** you will need to gather or complete prior to the lesson

Find high-leverage instructional moves in the **Lesson Look Fors**. This is what leaders should see when observing your instruction

Note how your lesson objective ties to your state **Standards**

Note exemplar pacing in the **Lesson Agenda**

Use the **Mathematical Goal of the Lesson** to keep you focused on the appropriate student outcome

Plan purposeful questioning and responses using **Opportunities to CFU**

Plan instruction around what students need to Know & Do to be successful on the Exit Ticket using the identified **Student Criteria for Success**

Plan to stress **Important Vocabulary** in the lesson. New vocab for the unit is indicated in bold

Find recommended lesson modifications, content knowledge boosters, and/or high-leverage instructional moves that may not be in your Teacher Edition located in **Other Notes to Inform Your Planning**

UNIT SYNOPSIS

By the end of this unit, students should be able to fluently convert between fractions, decimals, and percents.

The unit begins by introducing students to the idea of "percent" as "out of 100" and building conceptual understanding through 100s grids, where they shade specific numbers of boxes to match a percent, percent bars divided into equal segments, and number lines partitioned to show fractional and percent values. Students use these models to show how percents have equivalent fractions and decimals before developing fluency in converting between the three forms.

Once students have built fluency in converting between fractions, decimals, and percents, they use these same models to explore equivalents for percents greater than 100% and less than 1%. They also learn to simplify fractions from a percent (e.g., 75% ➜ 75/100 ➜ 3/4) and to use benchmark fractions and percents (1%, 10%, 25%, 33⅓%, 50%, etc.) as mental reference points.

Students practice estimation strategies such as rounding benchmark fractions and using proportional reasoning to quickly estimate the percent of a number. These strategies support checking answers for reasonableness and eliminating unreasonable answer choices on multiple-choice questions.

Application problems are introduced in which students are given any two of the three values—percent, part, or whole—and asked to find the missing value. They use strategies like:

- Percent bars to visualize part-to-whole relationships.
- Tape diagrams to compare proportional sections.
- Part-whole diagrams to organize multiple categories and find missing amounts.
- Simplified fraction models when a 100s grid is unnecessary (e.g., 2/5 instead of 40/100).

Throughout the unit, students connect representations:

- 100s grid ↔ fraction ↔ decimal ↔ percent
- Percent bar ↔ number line ↔ simplified fraction model

By the end of Unit 5, students will be able to:

1. Convert fluently between fractions, decimals, and percents using models, place value reasoning, and equivalent fractions.
2. Use estimation to check for reasonableness.
3. Solve real-world percent application problems involving part, whole, and percent.
4. Justify equivalence and solutions using precise mathematical language and visual models.

Lesson 1 reviews what students learned in Unit 2 about how fractions have equivalent decimals and vice versa. They connect modeling decimals on a 10x10 grid to modeling percents on a percent bar. Lesson 2 reviews what students learned about ratios in Unit 1 so that they can think of percents as ratios out of 100. Lesson 3 stamps that percents are out of 100 by having students find a certain percent and its complement (ex: "If 25% of people paid with cash, what percent of people did NOT pay with cash?") Lessons 4 and 5 solidify the concepts from Lessons 1-3 and give students everything they need to be successful at 6.4(G) STAAR-style questions.

Lesson 1

Lesson 2

❶ Eloise has turned 100 square feet of her backyard into a garden. She has planted lettuce on 30% of the farm, bell peppers on 25% of the farm, and tomatoes on the rest of it. Shade in the grid below to represent the portion of the garden each type of plant occupies. Use a different color for each one.
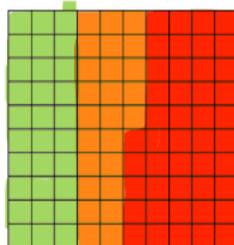
Plant	Color Key	Part to Whole Ratio
Lettuce	green	30:100
Bell peppers	orange	25:100
Tomatoes	red	45:100

Lesson 3

❺ Charlie has completed $\frac{7}{8}$ of his run.

ⓐ Create a model to show what percent of the run Charlie has completed.

ⓑ What percent of the run does he still have left? __12.5%.__

ⓒ How does your model prove that you are correct?
The part he has completed and what he has left add up to 100%.

Lesson 4

⓫ Julian is addressing invitations to a party. Out of the 50 invitations he wants to send, he's already addressed 14 of them. What decimal and percent represent the part of the invitations he's already addressed?

$$\frac{14}{50} \times \frac{2}{2} = \frac{28}{100} = 28\%$$

$$\frac{28}{100} = 0.28$$

Lesson 5

⓰ Sarah is saving up money so she can take improv classes during summer break. The class she wants to sign up for costs $500. So far, she's saved up $125. Her grandmother gave her $50. What decimal and percent represent the fraction of money Sarah still needs to save?

$$\frac{325}{500} \div \frac{5}{5} = \frac{65}{100} = 0.65$$
$$65\%$$

Topic B Overview – Percent, Parts, and Wholes

In Lesson 6, students discover that it is possible to have percents greater than 100% or less than 1%; they do so by recalling what they learned in Unit 2 about mixed numbers and about numbers that have a 1-9 digit in the thousandths place value. In Lesson 7, students connect what they learned in Topic A about modeling to making sensible estimates for percent problems. Lessons 8 and 9 give students the opportunity to build fluency at finding percents, parts, and wholes, solidifying Lessons 1-7 and giving students what they need to successfully answer 6.5(B) STAAR-style questions.

Lesson 6

Percent	Decimal	Fraction	Simplified Fraction
ⓐ 150%	$\frac{150}{100} \div \frac{100}{100} = \frac{1.5}{1}$ \quad $\boxed{1.5}$	$\frac{150}{100}$	$\frac{150}{100} \div \frac{50}{50} = \frac{3}{2}$ \quad $\boxed{\frac{3}{2}}$
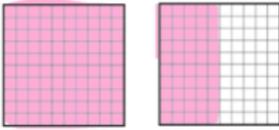
Lesson 7

ⓞ Mia attempted 97 serves at volleyball practice. 74 made it over the net.

ⓐ What percent of her serves made it over the net?

75%

$97 \approx 100$ Total

$74 \approx 75$ made it over

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

$\frac{15}{100}$ is 75%, so about 75% made it over the net. ☺

Lesson 8

PART
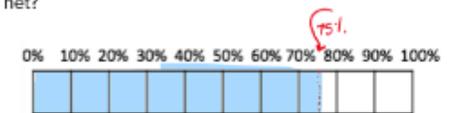
ⓞ Jesse spent 20% of his allowance on a gift for his friend. He spent $40 on the gift. How much money did Jesse originally have?

PART

TOTAL???

$\frac{20}{40} = \frac{100}{x}$ \quad $\boxed{x = 200}$

	0%	20%	40%	60%	80%	100%
		40	40	40	40	40	TOTAL
	0	40	80	120	160	$\frac{x}{200}$
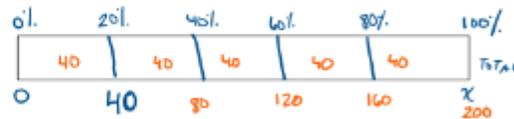
$\boxed{\text{Jesse originally had \$200.}}$

Lesson 9

ⓞ What percent of ALL 6th grade students have finished fundraising for their field lesson?

$\frac{15+20+18+21 \text{ finished}}{20+25+24+30 \text{ Total}} = \frac{74}{99} \approx \boxed{75\%}$

CONTENT STANDARDS

Below are the standards addressed in this unit.

Readiness Standards	Supporting Standards
6.5(B) solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models **6.4(G)** generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money	**6.4(E)** represent ratios and percents with concrete models, fractions, and decimals **6.4(F)** represent benchmark fractions and percents such as 1%, 10%, 25%, 33 1/3%, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers

Focus on Disciplinary Literacy	
	Mathematical Process Standard (F) – analyze mathematical relationships to connect and communicate mathematical ideas
	Mathematical Process Standard (G) – display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

ROADMAP

AT A GLANCE: Unit 5 Percents				
Topic	Day	Date	Lesson	Lesson Title
Topic A Fractions, Decimals, and Percents	1		1	Percent Models
	2		2	Fractions, Decimals, and Percents as Ratios
	3		3	Fractions as Percents
	4		4	Convert Between Fractions, Decimals, and Percents Part I
	5		5	Convert Between Fractions, Decimals, and Percents Part II
Topic B Percents, Parts, and Wholes	6		6	Percents Less than 1 and Greater than 100
	7		7	Using Estimation to Find the Percent of a Number
	8		8	Use Models to Solve Percent Applications Day 1
	9		9	Using Models to Solve Percent Application Problems Day 2
	10			No Unit Exam (Too close to STAAR Interim Assessment window)—Could be used as a Success Day.
	11			No Unit Exam (Too close to STAAR Interim Assessment window) - Could be used as a Success Day.

Lesson 1: Percent Models		Date: _____
Standard(s)	**Notes for Intellectual Preparation & Lesson Planning**	**Lesson Look Fors**

Standard(s)

- ◆ **6.4E** Represent ratios and percent with concrete models, fractions, and decimals
- ◆ **6.4F** Represent benchmark fractions and percents such as 1%, 10%, 25% 33 1/3% and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers
- ◆ **6.4G** Generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money

Important Vocabulary

- ▪ Percent

Notes for Intellectual Preparation & Lesson Planning

<u>Necessary Materials and Pre-Lesson Prep</u>
- ▪ Document Camera
- ▪ Unit 5 Workbook
- ▪ Projector
- ▪ Debrief Slide

Lesson Agenda		Time
I.	Do Now	5 min
II.	INM/Concept Development	15 min
III.	Student Practice	25 min
IV.	Student Debrief	5 min
V.	Exit Ticket	10 min

<u>Mathematical Goal of this Lesson</u>
The primary goal of this lesson is for students to model on a 100s grid, a percent bar, and a number line, and find percents from models. Students will start by building a tape diagram and sharing what they already know about percents. They will then get multiple at bats to model a given percent on a 100s grid, percent bat and number line.

<u>Opportunities to CFU</u>
- ✓ INM: b-e
- ✓ Student Practice: a, b, and k

<u>Other Notes to Inform Your Planning</u>
For **Do Now**: The Do Now is a MUST Do to prepare students for the day's lesson.
For **INM**: It will be important to deliver a clear Think-Aloud for INM Part A-B and address misconceptions before students begin working with partners. Doing a Show Call for Part C would be a great strategy to use so that students can learn from their peers and make connections to their work
Ensure that students are labeling the number line and percent bar accurately. It may be necessary to model Parts C-E to support their understanding.
For **Student Practice**: It will be important to circulate, give feedback during the student practice, and to note common misconceptions to address whole group. Some common misconceptions may include labeling the percent bar or number line inaccurately, simplifying inaccurately, or misplacing the decimal. To aid in simplifying, consider supporting struggling students with calculators, place value chart or 12 X 12s.

> **Focus on Disciplinary Literacy**
>
> Problems:
> **INM:** A-E
> **Student Practice**: A-L

Lesson Look Fors

<u>Look for teachers to…</u>
- ❑ Provide a clear Think-Aloud for INM Part A
- ❑ PUNCH that when simplifying fractions, you are actually dividing by a form of 1 whole, NOT by 10 or any other number.
- ❑ Emphasize percent as "out of 100" and connect it to Spanish ("cien"=100)

<u>Look for students to…</u>
- ❑ Model percents and justify how the model is accurate.
- ❑ Use models to help with making sense of why a certain percent is equivalent to a certain decimal

Student Know/Do Chart

Know	Percent means "per hundred" or "out of 100"
Know	To turn a percent into a fraction, write the percent as a fraction out of 100 and simplify the fraction
Know	Percents can be represented as fractions and decimals
Do	Use models to justify why a percent is equivalent to its fraction and decimal
Do	Model percents on a 100s grid and a percent bar.
Do	Determine whether a model accurately represents a given percent and why

Lesson 2: Fractions, Decimals, and Percents as Ratios		Date: _____
Standard(s)	**Notes for Intellectual Preparation & Lesson Planning**	**Lesson Look Fors**

Standard(s)	Notes for Intellectual Preparation & Lesson Planning	Lesson Look Fors
◆ **6.4E** Represent ratios and percent with concrete models, fractions, and decimals ◆ **6.4F** Represent benchmark fractions and percents such as 1%, 10%, 25% 33 1/3% and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers ◆ **6.4G** Generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money	**Necessary Materials and Pre-Lesson Prep** ▪ Document Camera ▪ Unit 5 Workbook ▪ Projector ▪ Debrief Slide Lesson Agenda	Time I. Do Now	5 min II. INM/Concept Development	20 min III. Student Practice	20 min IV. Student Debrief	10 min V. Exit Ticket	5 min **Mathematical Goal of this Lesson** The primary goal of this lesson is for students to model percents and find fractions and decimals equivalent to those percents. Students will come to the understanding that percents are part to total ratios whose total is always 10. This lesson continues to lay the groundwork for solving more complicated percent, part, and whole problems that will come up toward the end of the unit. **Opportunities to CFU** ✓ **INM**: #1, 2, 3, 5, 6 ✓ **Student Practice**: -#1, 2 **Other Notes to Inform Your Planning** For **Do Now**: Complete the Do Now from Lesson 2. Prioritize #1a-c For **INM**: In the INM students may be a bit confused on parts #3 parts d, e and may even come up with other correct ratios such as 30:70 for Figure A. This is fine, but it will be important to steer them to a part to total ratio of 30:100 so that the focus on percents. On #4 plan to allow students a chance to check their work against a correct exemplar, but plan to choose 1-2 questions that students struggled with during active monitoring to discuss whole whole group. Provide students who struggle with multiplication with a 12x12 multiplication chart.	**Look for teachers to…** ❑ Stamp that a percent is a part to total ratio whose total is always 100. ❑ Stamp that if you can find the percent of something, you can also find the percent of its complement. (Ex: If you can find the percent of pizza eaten, then you can know the percent of pizza NOT eaten because both percents add up to 100%) ❑ Facilitate several rounds of student practice rather than have students copy teacher work **Look for students to…** ❑ Correctly model each problem(Ask: How do you know your model is correct?) ❑ Be able to explain how to find missing percents of a whole when given the other percents (Ask, for ex. on INM2c: How did you know that 28% of the cake is gone?)
Important Vocabulary ▪ Percent		**Student Know/Do Chart** **Know** explain how to find missing percents of a whole when given the other percents **Do** find missing percents of a whole when given the other percents **Do** model equivalent fractions, decimals, and percents

Focus on Disciplinary Literacy

Problems:
INM: #1, 2d, 3e, 5a
Student Practice: #2a-d

Lesson 3: Fractions as Percents		Date: _____
Standard(s)	**Notes for Intellectual Preparation & Lesson Planning**	**Lesson Look Fors**

Standard(s)	**Notes for Intellectual Preparation & Lesson Planning**	**Lesson Look Fors**
◆ **6.4E** Represent ratios and percent with concrete models, fractions, and decimals ◆ **6.4F** Represent benchmark fractions and percents such as 1%, 10%, 25% 33 1/3% and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers ◆ **6.4G** Generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money	**Necessary Materials and Pre-Lesson Prep** ▪ Document Camera ▪ Unit 5 Workbook ▪ Projector ▪ Debrief Slide **Lesson Agenda** Time <table><tr><td>I.</td><td>Do Now</td><td>5 min</td></tr><tr><td>II.</td><td>INM/Concept Development</td><td>25 min</td></tr><tr><td>III.</td><td>Student Practice</td><td>15 min</td></tr><tr><td>IV.</td><td>Student Debrief</td><td>5 min</td></tr><tr><td>V.</td><td>Exit Ticket</td><td>10 min</td></tr></table> **Mathematical Goal of this Lesson** The primary goal of this lesson is for students to convert between fractions, decimals, and percents. Students will understand that percents are fractions whose denominator is always 100 and because of this, the sum of all parts in the situations given in this lesson should add up to 100%. This lesson gives students multiple at-bats with converting between percents, fractions, and decimals. **Opportunities to CFU** ✓ **INM**: #3, 4, 5, 6, 8 ✓ **Student Practice**: #1, 2, 5, 6	**Look for teachers to...** ❑ Stamp that a percent is a fraction whose denominator is always 100, so the sum of all parts in a percent problem should add up to 100% or 1 whole. ❑ Continue to model setting up a percent bar accurately(where necessary) ❑ Facilitate several rounds of student practice rather than have students copy teacher work **Look for students to...** ❑ Correctly model each problem (Ask: How do you know your model is correct?) ❑ Be able to use a tape diagram or hundreds grid to model and explain the relationship between equivalent fraction, decimal and percent

Important Vocabulary	**Other Notes to Inform Your Planning**	**Student Know/Do Chart**
▪ Percent	For **INM/Student Practice**: Provide students who struggle with multiplication with a 12x12 multiplication chart. There will be multiple opportunities in the INM to stamp that percent means out of 100 using models. Support this understanding with the use of an anchor chart for students to reference throughout the lesson. ┌──────────────────────┐ │ **Focus on Disciplinary Literacy** │ │ Problems: │ │ **INM**: #1-8 │ │ **Student Practice**: #1-5 │ └──────────────────────┘	*Know* A percent can always be written as a fraction by placing the number as a numerator over a denominator of 100. *Know* A percent represents a fraction whose denominator is always 100. *Know* To turn a fraction into a percent, find an equivalent fraction with a denominator of 100 *Do* Convert between fractions, decimals and percents.

Lesson 4: Convert Between Fractions, Decimals, and Percents Part I		Date: _____
Standard(s)	Notes for Intellectual Preparation & Lesson Planning	Lesson Look Fors

Standard(s)	Notes for Intellectual Preparation & Lesson Planning	Lesson Look Fors
◆ **6.4G** Generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money	**Necessary Materials and Pre-Lesson Prep** ▪ Document Camera ▪ Projector ▪ Unit 5 Student Workbook ▪ Debrief Slide **Lesson Agenda** **Time** <table><tr><td>I.</td><td>Do Now</td><td>5 min</td></tr><tr><td>II.</td><td>INM/Concept Development</td><td>25 min</td></tr><tr><td>III.</td><td>Student Practice</td><td>15 min</td></tr><tr><td>IV.</td><td>Student Debrief</td><td>5 min</td></tr><tr><td>V.</td><td>Exit Ticket</td><td>10 min</td></tr></table> **Mathematical Goal of this Lesson** The primary goal of this lesson is for students to convert between fractions, decimals, and percents. The lesson begins by recalling the models' students used at the very beginning of the unit. Students use these models to help them visualize how percents have equivalent fractions and decimals. ✓ **INM:** #1,3 ✓ **Student Practice:** #1, 7, 8 **Other Notes to Inform Your Planning** For **INM/Student Practice**: As usual, provide 12x12s and/or calculators to students who need it. Struggling students will get frustrated if they keep getting stuck with multiplication/division, and this will get in their way of actually learning today's lesson.	**Look for teachers to…** ❑ Provide a strong think-aloud for Basic Word Problem #1, and then allow students to work on #s 2-3 with a partner. ❑ Strongly encourage students to model each problem rather than just solve it and move on. ❑ Aggressively monitor Student Practice to address misconceptions quickly **Look for students to…** ❑ Correctly model each problem(Ask: How do you know your model is correct?) ❑ Justify how they know their final answer is correct (Ask, for ex on INM3: "How do you know the answer is 75% and 0.75?")
Important Vocabulary ▪ Percent	**Focus on Disciplinary Literacy** Problems: **INM:** #1-3 **SP:** #1-3	**Student Know/Do Chart** Convert between fractions, decimals, and percents.

Lesson 5: Convert Between Fractions, Decimals, and Percents Part II	Date: _____

Standard(s)	Notes for Intellectual Preparation & Lesson Planning	Lesson Look Fors
◆ **6.4G** Generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money	<u>Necessary Materials and Pre-Lesson Prep</u> ▪ Document Camera ▪ Projector ▪ Unit 5 Student Workbook ▪ Debrief Slide	<u>Look for teachers to…</u> ❑ Provide a clear Think-Aloud for INM and then strong guidance for #'s 2 and 3. ❑ Aggressively monitor Student Practice to address misconceptions around #'s 3 and 4

<u>Lesson Agenda</u>   Time

		Time
I.	Do Now	5 min
II.	INM/Concept Development	22 min
III.	Student Practice	18 min
IV.	Student Debrief	5 min
V.	Exit Ticket	10 min

<u>Mathematical Goal of this Lesson</u>

The primary goal of this lesson is for students to convert between fractions, decimals, and percents. This lesson is a continuation of the previous lesson. Students continue to build fluency in converting between fractions, decimals, and percents through word problems that demand more than the ones from the previous lesson.

<u>Opportunities to CFU</u>
✓ **INM:** #1-3
✓ **Student Practice:** #1, 3, 4, 7, 8

<u>Other Notes to Inform Your Planning</u>

For **INM/Student Practice**: Prepare for misconceptions around problems that are asking for the complement of the fraction, decimal, or percent; have students. Model a problem-solving strategy such as Read Draw Write to support students in making sense of word problems such as these.

Provide a 12x12 for students who will need it.

Look for students to…
❑ Correctly model each problem(Ask: How do you know your model is correct?)
❑ Justify how they know their final answer is correct

Student Know/Do Chart

Do 🎯 Convert between fractions, decimals, and percents.

Do 🎯 Determine whether to find a part or it's complement

Important Vocabulary
▪ Percent

Focus on Disciplinary Literacy
Problems: **INM:** #1 **Student** **Practice**: #4, 11

Lesson 6: Percents Less than 1 and Greater than 100	Date: _____

Standard(s)	Notes for Intellectual Preparation & Lesson Planning	Lesson Look Fors
◆ **6.4G** Generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money	**Necessary Materials and Pre-Lesson Prep** • Document Camera • Projector • Unit 5 Student Workbook • Debrief Slide	Look for teachers to… ❑ Use INM to help students see the need for percents less than 1% or greater than 100%, and that they naturally occur and that students have already seen them as decimals and mixed numbers. ❑ Use INM to clearly model what percents greater than 100% look like. ❑ Use INM to clearly model what percents less than 1% and emphasize that the square provided for the model represents 1%.

Lesson Agenda

		Time
I.	Do Now	5 min
II.	INM/Concept Development	25 min
III.	Student Practice	15 min
IV.	Student Debrief	5 min
V.	Exit Ticket	10 min

Mathematical Goal of this Lesson
The primary goal of this lesson is to convert between fractions, decimals, and percents even when these numbers are less than 1% or greater than 100% . In this lesson students model using more than one hundreds grid to visualize what it means to be "greater than 1 whole." They then "zoom in" to model less than 1%. They then apply their knowledge and skills from this lesson to word problems involving percents.

Opportunities to CFU
✓ INM: #4c-d, #5h-j
✓ Student Practice: #2-5. 8

Look for students to…
❑ Model percents greater than 100% or less than 1%(Look: Are their models correct?)
❑ Convert between fractions, decimals, and percents that involve percents greater than 100% or less than 1%

Important Vocabulary
• Percent

Other Notes to Inform Your Planning
For **INM**: #2 and 3 students may struggle to
list fractions greater than 1 whole or less than one-hundredth, if so, provide them with the first one and a model to start them off. For percents less than one percent **STAMP** that percents sometimes have decimals.
For **Student Practice**: Actively monitor during this time to provide feedback and mark student work. Students may have misconceptions with #4, 5, 7, and 8. Although students may struggle with percents greater than 100. A huge misconception is students think that there cannot be decimals within a percent. Also, students may become confused with percents less than one (placing them in fraction form then simplifying). Consider incorporating a place value chart to support student understanding.

Focus on Disciplinary Literacy
Problems:
INM: #3
Student Practice: #1-3

Student Know/Do Chart
Convert between fractions, decimals, and percents that are greater than 100% and less than 1%.

Model percents less than 1% and greater than 100%

Lesson 7: Using Estimation to Find the Percent of a Number		Date: _____
Standard(s)	**Notes for Intellectual Preparation & Lesson Planning**	**Lesson Look Fors**

Standard(s)

◆ **6.5B** solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models

Important Vocabulary
- Percent
- Estimate
- Compatible numbers

Notes for Intellectual Preparation & Lesson Planning

Necessary Materials and Pre-Lesson Prep
- Document Camera
- Unit 5 Student Workbook
- Projector
- Debrief Slide

Lesson Agenda		Time
I.	Do Now	5 min
II.	INM/Concept Development	20 min
III.	Student Practice	20 min
IV.	Student Debrief	5 min
V.	Exit Ticket	10 min

Mathematical Goal of this Lesson
The primary goal of this lesson is for students to use estimation to find the percent of a number. Students begin by discussing the difference between 1, 1%, and 0.1% and defining estimation. They will then be coached to round numbers in the problem to compatible ones to help make an informed prediction.

Opportunities to CFU
✓ **INM:** #1, 2b, #3a-b,#5
✓ **Student Practice:** Set B-#4, 6, 7, Set C-1st Portion of the Table C, D

Other Notes to Inform Your Planning
For **INM:** It will be important to include percent bars so that students are able to visualize the estimation. An anchor chart with fourths, fifths, and tenths modeling estimation would help support student understanding. Provide a 12x12 for students who need it; it will support them in being able to round and find compatible numbers more easily.

Focus on Disciplinary Literacy
Problems: **INM:** #1, 2b, 3, 6 **Student Practice:** Set C

Lesson Look Fors

Look for teachers to...
- ❑ Invest students in finding estimates and explain that estimates help us know if our answer makes sense. On multiple choice tests, it also helps us to quickly eliminate unreasonable answers.
- ❑ Take advantage of INM#2 to model how they'd round and how they could use a percent bar to get an estimate of the answer.
- ❑ Coach students to ask themselves if their answer should be close to zero, close to one-half, or close to one whole.

Look for students to...
- ❑ Round given numbers to compatible numbers (numbers that are easier to work with)(Ask: What number is really close to 21 that is easier to work with?)
- ❑ Simplify or use a model to get an estimate. Ask: I see you simplified to get 16 and 20. How could you turn that into a percent?)

Student Know/Do Chart
- 🎯 Explain why their final answer should be close to zero, close to one-half, or close to one whole.
- 🎯 Round and estimate a reasonable solution when given a problem
- 🎯 Assess answer choices for reasonableness

Lesson 8: Use Models to Solve Percent Application Problems Day 1		Date: _____
Standard(s)	**Notes for Intellectual Preparation & Lesson Planning**	**Lesson Look Fors**

Standard(s)	**Notes for Intellectual Preparation & Lesson Planning**	**Lesson Look Fors**
◆ **6.5B** solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models	**Necessary Materials and Pre-Lesson Prep** ▪ Document Camera ▪ Projector ▪ Unit 5 Student Workbook ▪ Debrief Slide **Lesson Agenda** — **Time** I. Do Now — 5 min II. INM/Concept Development — 20 min III. Student Practice — 20 min IV. Student Debrief — 5 min V. Exit Ticket — 10 min **Mathematical Goal of this Lesson** The primary goal of this lesson is for students to find the percent, part, or whole given the percent, part, or whole in a real-world situation. Students will use the percent bar to help them organize their thoughts and computations when using information to find the percent, part, or whole. **Opportunities to CFU** ✓ **INM**: #2, #3, #4, #5, #6 ✓ **Student Practice**: , #3, #4, #6, #7, #8 **Other Notes to Inform Your Planning** For **INM**: It will be important with each example to emphasize annotating the percent bar so that students can use this skill when they work on questions independently. The percent bar helps students organize information, so they set up proportions accurately. For **Student Practice**: The percent bar can be set up with the information given, and a proportion can be formed from that information alone if the information given **does not** lend itself well to benchmark percents such as 10%, 20%, 25%, etc.	**Look for teachers to…** ❑ Use the percent bar to model how to set up and solve problems. ❑ Stamp that there are multiple ways to get the right answer (modeling, setting up a proportion, setting up a fraction if you're trying to find a percent). ❑ Model annotating the word problems to label what is given and what is missing (percent, part, total). **Look for students to…** ❑ Annotate word problems to determine what is given (Percent? Part? Total?) and what needs to be found (Percent? Part? Total?) (Ask: What do you know? What do you need to find?) ❑ Set up and solve correctly(Ask: How do you know you are doing this correctly? How can you justify your response?) ❑ Explain whether their answer makes sense(Ask: Does this answer make sense? How do you know?)

Important Vocabulary		**Student Know/Do Chart**
▪ Percent	**Focus on Disciplinary Literacy** Problems: **INM**: #5, 6 **Student Practice**: #1-3	🎯 Find a missing percent, part or whole and justify the response with a model or accurate work shown

Lesson 9: Use Models to Solve Percent Application Problems Day 2		Date: _____
Standard(s)	Notes for Intellectual Preparation & Lesson Planning	Lesson Look Fors

Standard(s)	Notes for Intellectual Preparation & Lesson Planning	Lesson Look Fors
◆ **6.5B** solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models	**Necessary Materials and Pre-Lesson Prep** ▪ Document Camera ▪ Projector ▪ Unit 5 Student Workbook ▪ Debrief Slide **Lesson Agenda** / **Time** <table><tr><td>I.</td><td>Do Now</td><td>5 min</td></tr><tr><td>II.</td><td>INM/Concept Development</td><td>15 min</td></tr><tr><td>III.</td><td>Student Practice</td><td>25 min</td></tr><tr><td>IV.</td><td>Student Debrief</td><td>5 min</td></tr><tr><td>V.</td><td>Exit Ticket</td><td>10 min</td></tr></table> **Mathematical Goal of this Lesson** The primary of this lesson is to find the percent, part, or whole given the percent, part, or whole in a real-world situation. This lesson is a continuation of the previous lesson. Problems in this lesson are more challenging. **Opportunities to CFU** ✓ INM: The table , #1-3 ✓ Student Practice: #2, 3, 5, 8 **Other Notes to Inform Your Planning** For **INM**: To support students who may struggle, consider providing 12x12 charts and sample percent bars that are already broken into 10%, 20%, 25%, etc. for students who may struggle. For **Student Practice**: Prioritize #2, 3, 5. If students get stuck you can ask questions like, "What do we know? What do we need to find? How can you set up your percent bar to find this?" Stamp/mark student papers as you circulate, they know if they're correct. Give batch feedback after each lap based on the misconceptions/errors you notice.	**Look for teachers to…** ❑ Guide students through the INM by using multiple Turn-and-Talks to allow them to do the heavy lifting. ❑ Facilitate partner work for Student Practice and monitor to address misconceptions. **Look for students to…** ❑ Annotate word problems to determine what is given (Percent? Part? Total?) and what needs to be found (Percent? Part? Total?)(Ask: What do you know? What do you need to find?) ❑ Annotate word problems to determine what is given (Percent? Part? Total?) and what needs to be found (Percent? Part? Total?)(Ask: What do you know? What do you need to find?) ❑ Use estimation to determine reasonableness of an answer and explain why it makes sense.
Important Vocabulary ▪ Percent		**Student Know/Do Chart** 🎯 Find a missing percent, part or whole and justify the response with a model or accurate work shown

Focus on Disciplinary Literacy

Problems:
INM: #1, 3
Student Practice: #1-2, challenge question

Recommended Success Day Materials and Resources

6.5B, 6.4E, 6.4F, 6.4G
Percents

-
6.4E and 6.4F Practice
6.5B Practice
6.4G Practice
Extra Practice SE
Extra Practice TE

<u>Notes to Inform Your Planning</u>
These resources can be used for either small-group or whole-group reteach.

If student data indicates a pause point is not necessary, you can opt to move forward and reserve a Success Day to use at a later date.

Using exit ticket data can help you prioritize what to review. For example, if you remember that students did poorly on Lesson 9, pull problems from lesson 6, especially if they are problems students did not do before (for example, SP or INM problems you skipped during class). You can also take questions from the resources linked above.

All unit exams should be given online to prepare students for STAAR online.

UNPACKED STANDARDS

Focus standards for this unit.

Standards Breakdown		
Standards	**Specificity**	**Notes/Explanations/Examples**
6.4(G) generate equivalent forms of fractions, decimals, and percents using real-world problems	**Concepts:** • Equivalency • Percent as "out of 100" • Decimals • Place value • Fractions as division **Skill:** • Generate equivalent forms of fractions, decimals, and percents **Including but not limited to:** • Reading a word problem to set up a fraction and turning that fraction into a decimal or a percent. • Dividing a numerator by a denominator to get a decimal. • Converting a percent into a decimal or fraction. • Converting a decimal into a percent or a fraction. • Identifying which fraction is equivalent to a given percent or decimal. **Limitations:** • Students are rarely, if ever, asked to work with negative numbers in this unit. **Vertical Alignment:** In previous grades, students learned about fractions and decimals, but they did not have to find fraction and decimal equivalents. In 6th grade, students are expected to be fluent in converting between fractions, decimals, and percents. Students will use this skill in 7th to solve multi-step problems, including problems about percent increase, percent decrease, and financial literacy.	2025 – Q35 An organization held an event to raise money to build new playgrounds. At the event, the organization raised $\frac{5}{4}$ of its goal. Which value is equivalent to $\frac{5}{4}$? Ⓐ 1.25 Ⓑ 101% Ⓒ 0.8 Ⓓ 120% *Correct Answer (A) 2024 – Q34 In Jada's class, $\frac{3}{8}$ of the students have blue eyes. Which values are equivalent to $\frac{3}{8}$? Move the correct answer to each box. Not all answers will be used. 0.375 0.38 37.5% 3.8% 38% The values ☐ and ☐ are equivalent to $\frac{3}{8}$. *Correct Answer (0.375; 37.5%)

6.5(B) solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models	**Concepts:** • "Percent" as out of a 100 • Fractions as division • Percent bar model • 100s grid model **Skill:** • Solve **Including but not limited to:** • Finding the percent when given the part and the whole • Finding the part when given the percent and the whole. • Finding the whole when given the percent and the part • Finding the percent when given parts that make up a whole • Working with percents greater than 100% or less than 1% **Limitations:** • Students are never asked about negative percents. **Vertical Alignment:** Students did not encounter percents in elementary. In 7th, students build on what they learned about percents in 6th grade to be able to solve multi-step problems, particularly problems involving percent increase, percent decrease, and financial literacy.	2025 – Q14 An employee's starting salary is $36,000. The employee will receive a 3% increase in salary after completing several months of training. What is the amount of the employee's salary increase after the training? Ⓐ $10,800 Ⓑ $12,000 Ⓒ $1,080 Ⓓ $1,200 *Correct Answer (C) --- 2024 – Q11 Kara owns 35 books. Of these books, 20% have fewer than 100 pages and 80% have 100 pages or more. Complete the statement about the books Kara owns. Move the correct answer to each box. Not all answers will be used. 7 8 20 27 28 80 Kara owns ⬚ books with fewer than 100 pages and ⬚ books with 100 pages or more.

6.4(H) convert units within a measurement system, including the use of proportions and unit rates	**Concepts:** • Customary and metric units • Volume • Length • Mass • Multiplication • Division • Unit Rates • Dimensional analysis **Skill:** • Convert **Including but not limited to:** • Converting within the metric system • Converting within the customary system • Using the unit rates given on the STAAR reference chart to set up proportions and perform dimensional analysis • Use more than one unit rate to "jump" from one unit to another (ex. quarts to cups or meters to millimeters) **Limitations:** • Students are not asked to convert between metric and customary units (for example, students are never asked to turn inches into cm). **Vertical Alignment:** In 5th grade, students learned how to convert within metric systems. 6th grade is a continuation of what students started learning in 5th grade. In 7th grade, students will be expected to be able to convert units across systems. For example, students will have to be able to jump from feet to meters.	**2025 – Q23** The length of a wall is 6 yards. Which measurements are equivalent to 6 yards? Select **TWO** correct answers. ☐ 2 feet ☐ 18 feet ☐ 9 feet ☐ 108 inches ☐ 216 inches ☐ 72 inches *Correct Answer (2nd option; 5th option) **2024 – Q12** How many cups are in 1.5 gallons? Ⓐ 12 cups Ⓑ 24 cups Ⓒ 8 cups Ⓓ 16 cups *Correct Answer (B)

6.4(E) (represent) ratios and percents with concrete models, fractions, and decimals	**Concepts:** • Ratios • Percents as ratios out of 100 • Modeling on the 100s grid • Modeling on grids that are NOT out of 100 **Skills:** • Represent **Including but not limited to:** • Interpreting grids that are out of 100 • Interpreting grids that are NOT out of 100 • Representing ratios and percents on 100s grids, tape diagrams, or number lines	2025 – Q1 In Mr. Jefferson's class, 35% of the students play a sport after school. Which decimal represents 35%? Ⓐ 3.5 Ⓑ 0.035 Ⓒ 0.35 Ⓓ 35 *Correct Answer (C)
	Vertical Alignment: In previous grades, students modeled fractions and decimals, and in 6th grade, students continue this work and also model percents. Students use the conceptual understanding they build in modeling to support multi-step problem solving in 7th grade and beyond.	

6.4(F) represent benchmark fractions and percents such as 1%, 10%, 25%, 33 1/3%, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers	**Concepts:** • Benchmark fractions and percents • Percents as ratios out of 100 • Modeling on the 100s grid • Modeling on grids that are NOT out of 100 **Skills:** • Represent **Including but not limited to:** • Identifying which point on a number line shows a point that represents a given fraction, decimal, or percent • Identifying which model represents a given fraction, decimal, or percent. **Vertical Alignment:** In previous grades, students modeled benchmark fractions, but not percents. In 6th grade, students also model percents. Students use the conceptual understanding they build in modeling benchmark fractions and percents to support multi-step problem solving in 7th grade and beyond.	2023 – Q10 Two points are plotted on the number line shown. Which values are represented by the points on the number line? Select **TWO** correct answers. ☐ $\frac{3}{5}$ ☐ 0.3 ☐ $\frac{2}{5}$ ☐ 70% ☐ 0.2 *Correct Answer (A, E) ***This standard has not been assessed since 2023.**

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VERTICAL STANDARDS

This section details the **progression** of key student expectations/standards** in the courses **before** and **after** this course. This will help you understand what **prior knowledge skills to build upon** and guide you in knowing what **skills you are preparing your students** for in the subsequent course.

5th grade	6th grade Mathematics	7th grade Pre-Algebra / 8th grade Algebra I
	6.4(G) generate equivalent forms of fractions, decimals, and percents using real-world problems	7.4(D) solve problems that involve ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems
	6.5(B) solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models	
	6.4(E) represent ratios and percents with concrete models, fractions, and decimals	
	6.4(F) represent benchmark fractions and percents such as 1%, 10%, 25%, 33 1/3%, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers	
5.7(A) solve problems by calculating conversions within a measurement system, customary or metric	6.4(H) convert units within a measurement system, including the use of proportions and unit rates	7.4(E) convert between measurement systems, including the use of proportions and the use of unit rates