

Heart Virtual Tutoring Lesson Guide

Thank you for volunteering with Heart Tutoring this year! This packet includes the lesson guides you will need to prepare for your virtual tutoring sessions with your student(s). These guides are designed to be used in conjunction with their corresponding Google Jams. Together, the lesson guides and Jams are the virtual adaptation of our traditional curriculum.

Please note: Important instructions and reminders are found in the lesson guides that you will not find on the Jams. It is necessary to have a copy of this Lesson Guide open for all of your tutoring sessions so you can best support your students.

Students have their own math kit, which includes Connecting Cubes, as well as Number and Dot Dice. Students also have access to additional support materials and math manipulatives that can be found on the Heart cart at the school. If you feel your student may benefit from these items or the Jam instructs your student to use them, notify your Coordinator.

Included in this packet you will find lesson guides for:

- Counting
- More or Less
- Combinations to 10
- Strategies to 20
- Place Value
- Understanding Multiplication and Division

As you prepare for your lessons, please note the following:

- **QR Code Link to Instructional Videos:** We have created brief instructional videos to assist with certain lessons. You can access these videos in the HMT tutor portal or by scanning this QR code. This code is also located at the top left corner of your student's progress log.
- *Italicized notes/text* provide helpful hints on how to support student thinking and understanding. **Bolded text** provides suggested language and verbal prompts.
- "Tutor Tips" are helpful hints throughout the Jams on green sticky notes/in green font.
- Whenever possible, physical manipulatives are the best learning support for students to master math concepts. When you see the following symbol on a Jam, remind students to take out their math kit to use with the activity.



Please reach out to your Program Coordinator with any questions and have fun tutoring!

A Guide to Solving Word Problems

Throughout the Jams, you will see the following Word Problem Guide chart on the “Apply Your Learning” slides, as well as any activities that focus on story problems.

Please take your time on each of the steps, as each is a valuable part of the process:

- **Retelling** helps you, as a tutor, know if your student understands what information the story is giving us and what it’s asking us to figure out. You may spend a good bit of time “retelling”, and that’s okay!
- **Representing** provides students the opportunity to show you how they are thinking about the problem. In our earlier notebooks, we encourage math manipulatives whenever possible. As students move along their own continuum of understanding, they will begin representing with drawings and equations. Sometimes students will have to represent with an equation or number sentence in addition to their cubes.
- **Reasoning** is a great opportunity to reflect on an answer- whether correct or incorrect- about why it makes sense or does not. Do not skip this step- it will help students become stronger critical thinkers and build their confidence!

Use this chart as a guide to help your student understand, think about, and solve word problems.

Retell	<p>Let’s read the problem together. Then, I want you to picture it in your mind and retell the problem in your own words (without numbers).</p> <ul style="list-style-type: none">• Ask about what the numbers represent in the problem. (Allow students to reference the problem, if needed.) <u>e.g.</u> What does the (13) in this problem represent?• What do we need to figure out? What is the unknown?
Represent	<p>Let’s model your thinking and math strategies for how you can represent this problem.</p> <ul style="list-style-type: none">• How could you represent this situation with manipulatives?• Can you use drawings to represent the problem?• What equation or number sentence might be used to represent this problem?• You can ask specific questions to connect to the context. <u>e.g.</u> Where is the amount of apples that fell from the tree?
Reason	<p>Let’s talk about your answer.</p> <ul style="list-style-type: none">• What were we trying to find out in the problem? Does this answer <u>make</u> sense in the problem? Why?• Does this answer make sense looking at your representation? Why?• Does this answer make sense looking at your equation? Why?

Table of Contents

1. Counting Notebook
2. More or Less Notebook
3. Combinations to 10 Notebook
4. Strategies to 20 Notebook
5. Place Value & Multi-Digit Addition and Subtraction Notebook
6. Multiplication & Division, and Multiplication Fluency Notebook

1. Counting

In the Counting Notebook, students practice counting to find out how many and determine one more and one less, without having to recount the whole pile. With hands-on experience involving games and estimation, students begin to associate meaning with numbers and quantities, rather than simply memorizing a sequence of numerals.

To show mastery in this concept, students will be able to:

1. Counts objects consistently and accurately.
2. Recognize and understand numerals.
3. Determine "one more" and "one less" without counting.
4. Recognize that smaller numbers are contained within larger numbers.
5. Solve word problems that involve counting.

The information below may assist you in helping your student.

- "Counting is more than reciting a rote sequence and recognizing numerals. Counting is finding out 'how many.'" – Kathy Richardson, [How Children Learn Number Concepts: A Guide to the Critical Learning Phases](#), 2012.
 - For example, when you place three counters out for a child and have them count them "One, Two, Three", they may have named or labeled the first object, "One," and the next object "Two," and the next, "Three." When you ask them to show you three, instead of scooping up all three counters and showing you three, they will show you the one counter that they labeled "Three."
 - Young children also often do not realize that they need to keep track of what has and has not been counted.
- Students need practice associating real objects with numerals to discover meaning behind quantities.
- Hands-on practice with real objects should help students become able to tell whether an estimate is reasonable, count consistently and accurately, and see and use relationships between numbers.

Counting Jams

- 1a. Counting and Rearranging Objects
- 1b. Counting Stories
- 1c. Large Handfuls
- 1d. Show and Build
- 1e. Show Me the Number
- 1f. Where on the Number Line?
- 1g. Knowing One More/ One Less
- 1h. Counting Forward and Backward
- 1i. Cereal Game for Counting
- 1j. Measuring Objects
- 1k. Story Problems for One More/One Less

Lesson Guide for: 1a. Counting and Rearranging Objects
Notebook: Counting

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Counting and Rearranging Objects."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice building the same number in different ways to discover that the way we arrange objects does not affect the total amount."**

For this activity, tutor will need to share their screen!

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather connecting cubes, a Number Cube and a blank Ten Frame from the Program Coordinator to complete today's activity with physical manipulatives.

Slide 3: Part I

To play, student rolls a Number Cube and then builds that number on their physical Ten Frame using their connecting cubes from the math kit. Student should angle their camera down so you can see their Ten Frame. Tutor can model doing the same thing on the screen by uncovering numbers (instead of rolling Number Cube) and building using the stars.

Have student rearrange the same cubes on the Ten Frame another way. Ask student, **"How many cubes are on the Ten Frame now?"** Then say, **"Please rearrange the cubes a third way."**

Repeat for several numbers.

Slide 4: Part II

For Part II, student rolls Number Cube and holds up fingers to show the number on the cube. Then ask student to use different fingers to show the same number.

Repeat for several numbers.

Example for #6- Student shows:

One hand with 5 fingers and one hand with 1 finger.

Both hands with 3 fingers.

One hand with 4 fingers and one hand with 2 fingers.

*If student struggles, ask questions to prompt thinking. For example, **"If I show three fingers on my left hand and two fingers on my right, how many fingers am I showing? What if I show my left thumb and four fingers on my right hand?"***

Slides 5-6: Apply Your Learning

Word Problem #1 & #2: Tutor and student will work through word problems to apply learning from this lesson.

Use the Word Problem Chart as a guide.

Student should use their connecting cubes from the math kit to model the number stories and count the totals.

Slide 7: Wrap Up

Lesson Guide for: 1b. Counting Stories
Notebook: Counting

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"Today we will practice counting to tell HOW MANY by making up stories that require counting. Then you will use cubes or pictures to show the story and find the answer."**

For this activity, tutor will need to share their screen!

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather a piece of paper and connecting cubes from their math kit to complete today's activity with physical manipulatives.

Slide 3: Story #1 – Example

Make up a story about frogs at the pond. For example, **"3 frogs and 4 ducks go swimming in the pond. How many animals are in the pond?"** *Students should be using their connecting cubes/math manipulatives to represent the ducks and frogs.*

Note: This problem is about counting, not addition – and may count all to solve!

Slides 4-5: Story #2 & Story #3

Let student choose which story they would like to do (choose one story per slide). Tutor will make up the story (like the pond example from Slide 3) and can type it in to the available spot. Student will model with their cubes to solve counting by ones.

Slide 6: Apply Your Learning

Tutor and student will work through the word problem to apply learning from this lesson. Use the Word Problem Chart as a guide.

Student should use their connecting cubes from the math kit to model the number stories and count the totals.

Slide 7: Wrap Up

Lesson Guide for: 1c. Large Handfuls

Notebook: Counting

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Large Handfuls."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice keeping track of an unorganized pile and counting to find out HOW MANY."**

**It is important to remember this activity does not require students to be able to count by 2's, 5's, or 10's. The focus is on rearranging groups and understanding the total remains the same no matter how the group is organized/reorganized.*

Slide 2: Math Vocabulary *Make sure student is sharing their screen.*

This activity involves "estimating". Review the definition with student then continue to slide 3.

Slide 3: Example

Ask student, **"How many bugs do you think are there? Make a guess or estimate, before counting."** Record estimate by writing/typing number next to sticky note.

Have student count the actual number of bugs. Ask student, **"How many are there?"** Record actual total.

Discuss whether the initial estimate was close to the actual number of bugs.

Slides 4-5: Part I

--Ask student, **"How many bugs do you think are there? Make a guess or estimate, before counting."** Record estimate.

--Have student count the actual number of bugs. Ask student, **"How many are there?"** Record actual total.

--Discuss whether the initial estimate was close to the actual number of bugs.

NOTE: Notice the following things about your student and compliment them as progress is made.

- Does student realize the importance of keeping track of the bugs while counting (no double-counting or missing any bugs)?
- Does student know "how many" after counting?
- Does student correct their estimate while counting if their estimate was significantly off?

Slides 6-8 Part II

Tell student, **"Sometimes organizing objects into groups helps when you are counting. Let's try it."**

NOTE: Some students will not yet trust that the total remains the same despite how the objects are arranged or grouped. This activity helps address that misconception.

Slide 6: Student will first count the total number of spiders. Then, student will organize spiders into groups of 2 and count the total again. If there are an odd number of cubes, explain that the extra cube must be added on at the end. Some students will know the sequence of counting by 2s easily (2, 4, 6, 8, 10) and others will need to count by ones despite the organized piles of 2. Either way is fine.

Then ask, **"Is that the same amount you counted before?"**

Slide 7: Student will count total number of spiders. Then, student will organize spiders into groups of 5 and count the total number again. Discuss if total changed.

Then ask, “**Is that the same amount you counted before?**”

Slide 8: Repeat instructions for previous slides, this time having student organize spiders into groups of ten.

Tutor Tip: *This activity does NOT require that the student is able to count by two’s, five’s, or ten’s. The focus is on rearranging groups and understanding that the total remains the same.*

Slide 9: Apply Your Learning Word Problem #1: Tutor and student will work through word problem to apply learning from this lesson.

Slide 10: Apply Your Learning Word Problem #2: Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide.
Student should use their connecting cubes from the math kit to model the number story and count the total.

Slide 11: Wrap Up

Lesson Guide for: 1d. Show and Build
Notebook: Counting

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Show and Build."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice counting and experiment with number relationships."**

For this activity, tutor will need to share their screen!

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather Connecting Cubes and blank Ten Frame cards from their math kit to complete today's activity with physical manipulatives.

Slides 3-5: Part I-Show and Build

Tell student, **"I am going to show you a Ten Frame Card and ask you to build what you see on your Blank Ten Frame. Then I'm going to show you a second Ten Frame Card and ask you to change your cubes to match the second Ten Frame Card. Let's give it a try."**

-Remove the top purple rectangle to show a partially filled Ten Frame. Student will use cubes to build this on their blank Ten Frame with cubes. They should angle their camera down to show you.

-Remove the bottom purple rectangle to show a different Ten Frame. Student should now change what they built on their Ten Frame to match what the second Ten Frame shows.

-Ask student, **"How many cubes did you put on the Ten Frame to start out?"**

"How many cubes do you have on your Ten Frame now?"

"What did you do to change to the second number?"

Repeat activity on slides 4 and 5.

NOTE: The goal is to allow student to practice counting and to experiment with number relationships. Allow student to perform the tasks however they choose. Many students will struggle to explain how they changed the cubes. If student struggles, ask questions (such as, **"Did you add some or take some away? Did you start over or use the ones you had already?"**) to prompt thinking. Some possible student answers are provided below:

"I started over and put 7 cubes on the Ten Frame."

"I counted the cubes that were on the Ten Frame and I continued to add cubes until I had 7."

"I knew I had 5 cubes, so I added two more to make the 7."

Slides 6-8: Part II-Flash and Build:

Remove the top orange rectangle to reveal the Ten Frame below long enough for student to recognize what the number is, then cover it again. Student will build that number on their blank Ten Frame with cubes.

Quickly reveal the second Ten Frame (allowing enough time for student to count the dots on the card) then re-cover. Ask student to change the cubes on their Ten Frame to match the number shown on the second Ten Frame on Jamboard. (If student struggles, you can show the second card again for closer examination.)

Ask student, **"How many cubes did you put on your Ten Frame to start? How many cubes are on your Ten Frame now? What did you do to change to the second number?"**

Repeat on slides 7 and 8.

Slides 9-11: Part III-Write and Build to 10:

-Write a number (1-10) on one of the sticky notes and allow student to build that number on a blank Ten Frame. Then write a second number on the other sticky note and ask student to change the cubes on their Ten Frame to make the new number.

-Ask student, **“What did you do to change the first number to the second?”**

Repeat on slides 10 and 11.

NOTE: *The goal is to allow student to practice counting and to experiment with number relationships. Allow student to perform the task however they choose. If student struggles, ask questions to prompt thinking, such as,*

“Did you add some or take some away?”

“Did you start over or begin with the cubes you had?”

Slides 12-13: Apply Your Learning Word Problem #1 & #2: Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.
Student should use their connecting cubes from the math kit to model the number stories and count the totals.

Slide 14: Wrap Up

Lesson Guide for: 1e. Show Me the Number
Notebook: Counting

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Show Me the Number."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice counting out a specific quantity."**

Note to Tutor: *Counting out a particular quantity is a different skill from counting a group of objects to determine how many. It requires students to remember the requested number while counting and therefore attribute meaning to that number. Often, students will count past the requested number, begin to self-correct, and only later be able to easily count out the particular quantity.*

Slide 2: Example

Tell student, **"Today we're going to use our cubes to count out a specific amount. You are going to show me the number of cubes I ask for.**

Remove the orange question mark to reveal the green number (number 9). Tell student, **"Do you want to pretend these cubes are fish or seahorses?"** Let student decide, and circle on screen. **"Now, tilt your camera down to show the cubes on the tabletop. Please count out and show me 9 _____."**

Student does not need to line up the cubes. Rather, they should understand that a loose pile of 9 has the same value as a straight line of 9.

Watch student work until they stop counting and announces they are finished. Observe whether student correctly finishes at 9, counts past 9, counts past and self-corrects, or loses track of the number altogether.

If student struggles, ask student to count aloud so that you can help catch any mistakes.

Slides 3-5: Part I (Numbers Between 5-15)

Remove an orange question mark to reveal a number. Tell student, **"Please show me ____ sneakers, etc."** (Choose one number per slide.)

Slides 6-8: Part II (Numbers Between 15-25)

Remove a pink question mark to reveal a number. Tell student, **"Please show me ____ rings, etc."** (Choose one number per slide.)

Slide 9-11: Part III (Numbers Between 25-35)

Remove a pink question mark to reveal a number. Tell student, **"Please show me ____ hats, etc."** (Choose one number per slide.)

Slide 12: 30-Second Break for Fun!

Slides 13-14: Apply Your Learning

Word Problems #1 & #2: Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Slide 15: Wrap Up

Lesson Guide for: 1f. Where on the Number Line?
Notebook: Counting

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: "The name of today's activity is **Where on the Number Line?**" Read aloud for student the purpose of today's math activity: "In this activity, we will practice putting numbers 1-20 in order to explore number relationships."

Make sure student is sharing their screen!

Slide 2: Ordering 1-10

Use this slide to build first part of the number line, 1-10. Help student understand that numbers on a number line go from left to right. Also, support in recognizing the appropriate spacing needed between numbers, such as 2 should be closer to the left part the line and 9 should be closer to the right.

Slide 3: Ordering 11-20

Use this slide to build second part of the number line, 11-20, again helping student to recognize the appropriate spacing between numbers.

If student struggles identifying number placement, use the number path on slide 4 as a guide.

Slide 4: (RESOURCE) Number Path 1-30 *resource to view/show student as needed

Slide 5: Build the Number Line 1-20 (Optional)

Challenge student to build the entire number line, 1-20. *If the squares are too small for student to maneuver, skip and go to slide 6.*

Slides 6-10: Extra Practice

Student determines the missing number on the displayed portion of the number line.

Slide 11: Apply Your Learning

Word Problem #1: Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide.

**You might have to discuss with students that less means 'not as many' and help them realize that "one less" means the number that comes before.*

Slide 12: Apply Your Learning

Word Problem #2: Tutor and student will work through the word problem to apply learning from this lesson. Use the Word Problem Chart as a guide.

Student should use their connecting cubes from the math kit to model the number story and count the totals.

**This is not an addition problem, but instead should focus on student counting out the total amount using the information from the story problem.*

Slide 13: Wrap Up

Lesson Guide for: 1g. Knowing One More/ One Less
Notebook: Counting

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is "Knowing One More/ One Less."**

Read aloud for student the purpose of today's math activity: **"In this activity, we will practice knowing how many when we add one more or take one away."**

Students should COUNT ON or COUNT BACK when solving.

Slide 2: Example *Make sure student is sharing their screen!*

Have student count the puppies in the red box; make sure the count is accurate. Then, remove one puppy and ask student, **"I took away one – how many are there now?"**

This activity is in three parts, with the number sizes increasing. Larger numbers may be more difficult for your student. Make a note in the progress log if student struggles (and in particular how they struggled) such as, "Can do one more with numbers up to 28 but struggled with one less for numbers 11-18 and 19-28."

**Slide 14 has the resource of a 1-30 Number Path, if needed.*

Slides 3-6: Part I: Numbers up to 10

Follow the instructions on the screen for how many of each object to count into the box. The second instruction box will tell tutor to either add one to the box or take one away. Based on the direction, tutor will ask student either **"How many are there if I add one more?"** or **"How many are there if I take one away?"**

Slides 7-9: Part II: Numbers 11-18

Follow the instructions on the screen for how many of each object to count into the box. The second instruction box will tell tutor to either add one to the box or take one away. Based on the direction, tutor will ask student either **"How many are there if I add one more?"** or **"How many are there if I take one away?"**

Slides 10-12: Part II: Numbers 19-28

Follow the instructions on the screen for how many of each object to count into the box. The second instruction box will tell tutor to either add one to the box or take one away. Based on the direction, tutor will ask student either **"How many are there if I add one more?"** or **"How many are there if I take one away?"**

Slide 13: Wrap Up!

Lesson Guide for: 1h. Counting Forward and Backward Game
Notebook: Counting

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is the Counting Forward and Backward Game."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice counting forward and backward by one from a given number."**

For this activity, tutor will need to share their screen!

Slide 2: Part I (Knowing "One More")

Remove an orange question mark to reveal a number. Ask the student to tell you the number that is **one more** than the number on the card (without starting at one to count/figure it out).

Repeat multiple times (approx. 8-10 times), more if needed. If student enjoys a point system, keep track of points for correct answers on slide 3.

If student struggles, they can use connecting cubes from their math kit to test and determine correct answer.

**Visual aid of a Number Path is on Slide 4 if needed.*

Slide 3: Scoreboard- Part I (Knowing "One More")

Slide 3 is optional, but can be used as a way to turn this activity into a game.

Each time a student is able to tell you "one more" correctly without starting at 1 and counting, they earn a point/coin.

To duplicate the coin: click on coin. Click three dots in upper right corner. Choose duplicate.

Slide 4: (RESOURCE) 1-30 Number Path

Refer to number path if student needs extra support for knowing one more/one less without counting from 1.

Slide 5: Part II (Knowing "One Less")

Remove a blue question mark to reveal a number. Ask the student to tell you the number that is **one less** than the number on the card (without starting at one to count/figure it out).

Repeat multiple times (approx. 8-10 times), more if needed. If student enjoys a point system, keep track of points for correct answers on slide 6.

If student struggles, they can use connecting cubes from their math kit to test and determine correct answer.

Slide 6: Scoreboard- Part II (Knowing "One Less")

Slide 6 is optional but can be used as a way to turn it into a game.

Each time a student is able to tell you "one less" correctly without starting at 1 and counting, they earn a point/coin.

To duplicate the coin: click on coin. Click three dots in upper right corner. Choose duplicate.

Slides 7-10: Extra Practice

Slides 7-8: Student says the number that is “one less” than the number on the frog and the number that is “one more” than the number on the frog.

Slides 9-10: Student says the number that is “one less” than the number on the vanilla scoop and the number that is “one more” than the number on the vanilla scoop.

Slides 11-12: Apply Your Learning

Word Problem #1: Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Student should use their connecting cubes from the math kit to model the number stories and count the totals.

Slide 12- Student may need support on understanding what an equation is. After determining the equation, student may still count all to solve.

Slide 13: Wrap Up

Lesson Guide for: 1i. Cereal Game for Counting
Notebook: Counting

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is the Cereal Game for Counting."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice counting to tell how many."**

For this activity, tutor will need to share their screen!

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather a piece of paper and connecting cubes from their math kit to complete today's activity with physical manipulatives.

Slide 3: Part I (Add One More)

Remove a bowl of cereal to reveal a number.

Student puts that number of cubes onto their paper.

Ask student, **"If you add one more piece of cereal, how much cereal will you have?"** (Aim is for student to be able to tell you without starting at one to count/figure it out).

If student does not know the new total and/or guesses the wrong number, have student count the cubes on the paper to figure out the answer and explore the Number Path (Slide 4, if needed) as a way to help predict the answer as shown below.

Repeat steps/questioning approximately 5-6 times (or more, if student needs extra practice).

Slide 4: (RESOURCE) Number Path

IF NEEDED: show student the Number Path and say, **"The Number Path can help you see what happened when we add or take away a piece of cereal."** Talk about the fact that one number follows the other.

Slide 5: Part II (Take One Away)

Follow same steps as for Part I, but this time focus on taking one away/one less.

Ask student, **"If we take away one piece of cereal, how much cereal will we have?"**

Repeat steps/questioning approximately 5-6 times (or more, if student needs extra practice).

Slides 6-9: Extra Practice

Student simply tells you what one more/one less is.

Slides 6 & 7: one more

Slides 8 & 9: one less

Slides 10-11: Apply Your Learning

Word Problems #1 & 2: Tutor and student will work through word problem. Student should use their Connecting Cubes to help them solve if needed.

Slide 12: Wrap Up

Lesson Guide for: 1j. Measuring Objects

Notebook: Counting

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Measuring Objects."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice counting numbers and estimating quantities."**

Slide 2: Math Vocabulary

This activity involves "estimating". Remind student of what "estimate" means, then continue to slide 3.

Slides 3-7: Measuring Objects *Make sure student is sharing their screen!*

For objects on screen, ask student, **"How many cubes do you think match the width of your name of object?"**

Notice whether student's estimate seems reasonable. Tell student to measure the name of object by making a train of virtual Connecting Cubes to match the length.

Use the Connecting Cubes on screen (by dragging and dropping into a row) to measure the large object on the slide. *This will be difficult for students to get in a row, so student may need to drop in the general area and then tutor can align the cubes into a row to measure.*

Notice whether student adjusts their estimate while measuring.

If student's estimate was unreasonable and they do not adjust while measuring, prompt them when they are halfway through by asking, **"Do you want to change your estimate?"**

****ALTERNATIVE WAY OF COMPLETING**:** *Instead of the screen, student may also measure items around them using the connecting cubes from their math kit. For example, they may measure their arm, iPad, desk, etc. Ensure you can see the student's video feed.*

Slides 8-9: Recording Sheets

Use slides 8 and 9 to record the length (in cubes) of the objects students measure (whether with their physical connecting cubes or virtually).

Slides 10-11: Apply Your Learning

Word Problems #1 & #2: Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Student should use their connecting cubes from the math kit to model the number stories and count the totals.

Tutor Tip: Student can continue to count by ones to solve! It does not need to be turned into an addition problem.

Slide 12: Wrap Up

Lesson Guide for: 1k. Story Problems for One More / One Less
Notebook: Counting

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Story Problems for One More and One Less."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice thinking about one more and one less without counting when numbers are presented to us out of sequence."**

Slide 2: Math Vocabulary

"Out of sequence" means "out of order"!

Slide 3: Part I (Knowing One More) *Make sure student is sharing their screen!*

NOTE: *Students at this stage may not trust numbers enough to believe it is possible to know how many there will be before they count. Introducing numbers out of sequence and asking student to practice figuring out one more/one less gives them additional confidence.*

Tell student: **"Katia picked out 9 lollipops at the candy store. Her mother told her to go back to the store and get 1 more lollipop. How many lollipops did Katia have after she went back to the store?"**

Encourage student to answer the question without using any additional tools but allow time for the student to think about it. If student cannot answer, ask student to use their connecting cubes to help them in finding the answer.

Tech Tip: To add one more lollipop to the pile, click a lollipop. From the 3 dots that appear, choose duplicate.

Observe whether student recounts the entire pile before stating the new total (10). If student recounts from one, use slide 4 to reference the Number Path.

Slide 4: (RESOURCE) Optional, Number Path

If student recounts the pile, help them see the relationship between the numbers by suggesting: "Let's look at another way we can see how many lollipops Katia will have. Look at the Number Path. What number represents how many lollipops Katia had at first? What number represents how many she had after getting one more? Do you notice that the number 10 is right next to the number 9?"

Slide 5: Part I (Knowing One More)

Move to a problem with higher numbers: **"There were 14 cars in the parking lot. One more car drove in. How many cars are in the parking lot?"**

If student cannot answer, ask student to use their connecting cubes to help find the answer. Refer to Number Path as needed.

Slide 6: More Part I (Knowing One More)

Repeat the activity with numbers from 12-30 **several times**, making up story problems for students as you go that require them to tell you "one more."

The eventual goal is for the student to become comfortable answering this type of question (*one more*) without using the Number Path or needing to recount the entire pile. Students can use their Connecting Cubes for support.

Slide 7: Part II (Knowing One Less)

Tell student: "Let's try another story: Marisela is 9 years old. How old was Marisela last year? She had 1 less year."

Encourage student to answer the question without using any additional tools. If necessary, suggest using their Connecting Cubes or the Number Path (slide 4) to reinforce student's answer.

Tech Tip: To remove a candle, click it and from the 3 dots that appear, choose delete.

Slide 8: Part II (Knowing One Less)

Repeat the activity with numbers from 12-30 several times, making up story problems for students as you go that require them to tell you "one less."

The eventual goal is for the student to become comfortable answering this type of question (*one less*) without using the Number Path or needing to recount the entire pile.

Slides 9-10: Part III (Story Problems)

Using the number provided in orange, ask the student to tell a story in which one item is added or taken away. You can type the story they tell you. When student tells the story correctly, compliment student and reinforce the idea that they know how many items will result.

If student seems ready, practice with stories where two items are added or taken away.

Slides 11-12: Apply Your Learning

Word Problem #1 & #2: Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Student can use their connecting cubes from the math kit or the Number Path (slide 4) to help them solve if needed.

Slide 13: Wrap Up

2. More or Less

In the More or Less Notebook, students practice comparing quantities and determining how many more by counting on and how many less by counting back. Students will look at larger differences in numbers, building on the skill of counting on and counting back that they began practicing in the Counting Notebook.

To show mastery in this concept, students will be able to:

1. Determine which quantity is *more* or *less*.
2. Determine *how many more* and *how many less* one quantity is than another.
3. Understand the language of *more* and *less* and use it correctly in spoken and written sentences.
4. Count forward from a given number.
5. Count back one or two from a given number.

The information below may assist you in helping your student.

- In this concept notebook, students will be working both on the *language* of *more* and *less*, and on the *mathematical concept* of telling the difference between two quantities.
- *More* and *less* are relative terms, relying on which numbers are being compared. This can be confusing to students. Comprehension of *less* can be harder than comprehension of *more* because “thinking about what is *not* there is harder than thinking about what *is* there.” – Kathy Richardson, Developing Number Concepts: Counting, Comparing, and Pattern, 1999.
- Students will work at different levels. Some students will first need to focus on determining whether one quantity is *more* or *less* than another and later move on to determining *how many more* or *how many less* one number is than another.

More or Less Jams

- 2a. Break the Train
- 2b. Roll and Add
- 2c. Give and Take
- 2d. Intro to How Many More/How Many Less
- 2e. Number Line with Stacks
- 2f. Mystery Trains
- 2g. Number Cards
- 2h. Stories About More and Less
- 2i. Dice War
- 2j. Bird Watching
- 2k. Comparing Colors in a Handful
- 2l. Game for How Many More or Less
- 2m. War for More or Less
- 2n. Visiting the Meadow

Lesson Guide for: 2a. Break the Train
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Break the Train."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice language for more, less, and equal."**

For this activity, tutor will need to share their screen!

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather Connecting Cubes from math kit to complete today's activity with math manipulatives.

Slide 3: Part I

To play, student builds a train of 10 cubes. Student breaks train and holds two pieces up to camera to compare. Ask student: **"How many cubes are in the piece of train that we broke off? How many cubes are left on the train? How are the two pieces of the train different?"**

Slide 4: Synonym Chart

Brainstorm synonyms for "more, less, equal." Say: **"We are going to be practicing using the words *more, less, and equal* when comparing numbers. Let's write down some words that mean the same thing as *more, less, and equal.*"**

If student struggles to think of synonyms, use the words below.

MORE: bigger, taller, longer (Spanish- mas, grande)

LESS: smaller, shorter, fewer, (Spanish- menos, pequeno, poquito)

EQUAL: same, match, same size, same length (Spanish- igual)

Slide 5: Extended Practice

To reinforce concept of "more" and "less", have student tell you which pile is more and which pile is less. Move the sticky notes to correctly label the piles. ***This activity is ONLY about "more" or "less", NOT difference (how many)!***

Slide 6: Part II

Have student build a train that is 15 cubes long and break it into two parts. Student compares pieces of train to each other using words from the Synonym Chart (i.e., "8 is more than 7" or "4 is less than 11.")

Repeat and practice several times.

Slides 7-8: Apply Your Learning

Word Problem #1 & #2: Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student can use their Connecting Cubes to help them solve.

***NOTE:** Remember, we are not asking students about "How many more?" and "How many less?" yet. The first three Jams of this notebook are simply building an understanding of the terms "more" and "less."

Slide 9: Wrap Up

Lesson Guide for: 2b. Roll and Add
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Roll and Add."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice COUNTING ON rather than COUNTING ALL to add."**

For this activity, tutor will need to share their screen!

Slide 2: Math Vocabulary

Today's activity involves "counting on". Review the phrase with student then continue to slide 3 for student to gather materials.

Slide 3: Let's Get Ready- Gather Materials Prompt student to gather Dot Cubes, Number Cubes and Connecting Cubes from math kit to complete today's activity with physical manipulatives.

Slide 4: Level I

Student will roll two Dot Cubes from their math kit. Ask student to determine the total number of dots by counting on. Write student's first initial in the column in the Level I gameboard (on Slide 6) that matches the sum.

Student can also roll for tutor's turn and hold up to camera what was rolled. Tutor adds the number of dots together and models "counting on" strategy. Write tutor's first initial in the column on the Level I gameboard (on Slide 6) that matches the sum. First person to get their initial in a column twice wins the level! *(Alternatively, tutor may use the virtual dice on slide 5 for their turns.)*

Observe method student uses to add. If they must count all the dots on both cubes, challenge them to start with one number and count on, as follows:

Identify the number of dots on the first cube. Start from that number and count forward using the dots on the second cube to determine the total.

Slide 5: Virtual Dice (for tutor, if they choose)

Slide 6: Level I Gameboard Use this as a gameboard for Level I (or you can just use paper/pencil)

Slide 7: Level II

Student will need one Dot Cube and one Number Cube for this level.

Student will roll one dot and one Number Cube. *Encourage student to start with the number on the Number Cube and to "count on" from that number using the dots on the Dot Cube to get the total.*

Write student's first initial in the column on the Level II gameboard (on Slide 9) that matches the sum. Student can also roll for tutor's turn (or tutor may use virtual dice on slide 8.) Tutor will model "counting on" strategy to find total. Write tutor's first initial in the column on the Level II gameboard (on Slide 9) that matches the total. First person to get their initial in a column twice wins the level.

Slide 8 Virtual Dice (for tutor, if they choose)

Slide 9: Level II Gameboard Use this as a gameboard for Level II (or you can just use paper/pencil)

Slide 10: Level III

Student will need two Number Cubes for this level.

Student will roll two Number Cubes. Without dots on the second cube to help student *count on*, student may need help keeping track of the units being added. (Fingers or Connecting Cubes can help keep track.) Model counting on. For further discussion, ask:

- **“Does it matter which number is your starting point?”** *Student should know that the answer would be the same regardless of where they start.*
- **“Which way makes you do more work?”** *Starting from the larger number requires less counting.*

Write student’s first initial in the column on the Level III gameboard (on Slide 13) that matches the total. Follow same game directions as Levels I & II, using Slide 12 as the Level III gameboard.

Slide 11: Virtual Dice (for tutor, if they choose)

Slide 12: Level III Gameboard Use this as a gameboard for Level III (or you can just use paper/pencil)

Slide 13: Apply Your Learning Word Problem #1: Solve and discuss word problem.

Slide 14: Apply Your Learning Word Problem #2: Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. Student can use their Connecting Cubes or fingers to support in solving/counting on to solve.

Slide 15: Wrap Up

Lesson Guide for: 2c. Give and Take
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Give and Take."** Read aloud for student the purpose of today's math activity: **"In this activity, we will change one number to another and talk about what was added or taken away."**

Slide 2: Example for Part I-Match Me *Make sure student is sharing their screen!*

Student and tutor each build a number (between 1-10) on one of the Ten Frames using the smiley faces. Ask student: **"What did you build? What did I build? What would you do to change your Ten Frame to match mine? Try it and see."**

Slide 3: Part I- Match Me

Student builds a number (from 1-10) on the Ten Frame using stars. Then tutor removes the curtain to show the number on their Ten Frame.

Ask student, **"What number did you build? What number is on my Ten Frame?"** **"What would you need to do to change your Ten Frame so that it matches mine?"** Responses might include, *"add some more"* or *"take some away."* Ask student to make a guess of *how many* they will have to add or take away to match your number.

Ask student to check their guess by adding or removing the Connecting Cubes they said are needed. **"Try it and see."**

- ***If student's prediction for how many should be added/subtracted proves correct,*** move to slide 4.
- ***If student's prediction is not correct,*** allow student to continue adjusting Stars until arriving at the matching number. Ask questions to prompt thinking as needed. Move to slide 4.

Slides 4-6: Part I- Match Me

Repeat same steps as Slide 3. On Slide 6 the student should build a number that is larger (between 11-20) using the two blank Ten Frames.

Slide 7: Example for Part II- Give and Take

Tell student, **"Let's keep practicing! But now you get to tell me what to do. You are going to tell me the number I need to add or take away to change the number on the Ten Frame."**

Direct student to put 5 apples on the Ten Frame. Ask what they would tell you to do if you had to change the total on the Ten Frame to 9. Add/take away the apples as student directs. Let student check to see if correct number is showing.

Slide 8: Part II- Give and Take

Tell student: **"Now you will direct me to add or take away a specific number of cubes to change the Ten Frame to a new number."**

NOTE: *This will move student beyond random guessing and checking, toward knowing number relationships.*

Change 3 to 5:

Add 3 cats to the left Ten Frame and say, **"I put 3 cats on my Ten Frame."**

Ask student, **"What would you tell me to do to change the Ten Frame to show 5?"** The student might say, *"Add 2 cats."* Add the cats as student directs. Let the student check to see if the correct number is showing. *(Student can also use their own cubes/Ten Frame from their math kit to check.)*

Change 5 to 2:

Ask student, **“What would you tell me to do to change the Ten Frame to show 2?”** The student might say, *“You need to take away 3 cats.”* Take away the cats as student directs. Let the student check to see if the correct number is showing. *(Student can also use their own cubes/Ten Frame from their math kit to check.)*

Repeat for the following examples:

Change 2 to 8

Change 8 to 6

Change 6 to 11

Change 11 to 15

Change 15 to 13

Change 13 to 18

Slide 9: Apply Your Learning Word Problem #1: Tutor and student will work through word problem to apply learning from this notebook.

Slide 10: Apply Your Learning Word Problem #2: Tutor can read problem to student if necessary, but student should try to solve independently.

Student will be comparing each jar of gumballs to the purple jar. If that jar has more than the purple jar, they will put the blue gumball above the word “MORE.” If it has less than the purple jar, they will put the blue gumball above the word “LESS.”

Slide 11: Wrap Up

Lesson Guide for: 2d. Intro to How Many More? And How Many Less?
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Introduction to How Many More? And How Many Less?"** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice comparing numbers and describing 'how many more' and 'how many less' one number is when compared to another number."**

Slide 2: Let's Explore *Make sure student is sharing their screen.*

Example problem to introduce student to concept.

Tell student, **"So far we have been answering the questions 'which is more' and 'which is less.' Now we are going to be answering the questions 'how many more' and 'how many less.' Let's look at the image."**

"The plate on the left has some candy and the plate on the right has some as well. Which one has more?"

Once the child has determined that the left plate has more, say, **"Great! We know that the left plate has more. That was the easy part! Now we want to know *how many more* pieces of candy are on it."**

If student struggles to figure this out, say,

"Another way to ask this, is how many extras does the left plate have?"

"How many candies would we need to eat so that the left plate matched the right plate?"

"How many candies would we need to add to the right plate to make it the same as the left?"

If the student still struggles, have student use cubes to represent the pieces of candy. Then ask the student the above questions again.

Once the student has determined that the left plate has two more, say, **"Let's practice the four questions again –**

- 1) Which has more? *The left! (Allow student to answer)***
- 2) How many more? *Two***
- 3) Which has less? *The right!***
- 4) How many less?" *Two.***

Slide 3: Synonyms Chart

Brainstorm synonyms for "How many more?" and "How many less?" Say: **"We are going to be practicing using the phrases 'how many more' and 'how many less' when comparing numbers. Let's write down some phrases that mean the same thing as 'how many more' and 'how many less'."**

Type in all expressions that student equates with the phrase "How Many More?" and "How Many Less?" If student struggles thinking of synonyms, assist with the following phrases:

For How Many More:

- How many extras?
- How many does the smaller pile need to be the same as the larger pile?

For How Many Less:

- How many to catch up to the larger pile?
- How would you make the larger pile the same as the small pile?

Slides 4-7: Practice

Student will complete multiple comparisons to practice finding "how many more?" and "how many less?"

Ask the 4 questions: **"Which has more? How many more? Which has less? How many less?"**

(continued on next page)

Students can solve however they need to but should do so using their cubes. They can: build them into trains to compare, buddy the cubes up, or count out the smaller number within the larger number. Work with student on different strategies to compare the amounts. Tutor- you can model these strategies using screen.

Use supporting language (like in the first candy example) as necessary: "How many extra...", "How many would we need to add...", etc.

Slide 8-10: Additional Practice

For these comparisons, continue following the same questions, flow, methods and dialogue as slides 4-7.

Slides 11-12: Apply Your Learning

Word Problems #1 & #2: Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student should be using their Connecting Cubes to help them solve.

Slide 13: Wrap Up

Lesson Guide for: 2e. Number Line with Stacks
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: "The name of today's activity is "Number Line with Stacks." In this activity, we will practice comparing numbers and describing "how many more" or "how many less" one number is when compared to another."

For this activity, tutor will need to share their screen!

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather connecting cubes from math kit to complete today's activity with physical manipulatives.

Slide 3: Part I – How Many More?

Tell student, "In the last activity, you learned about determining *difference* using the questions "how many more?" and "how many less?" Now we will continue learning how to use those questions by comparing stacks. Let's look at this row of stacks together!"

Ask student to describe what they see. If student struggles, ask, "What is different about each stack?"

Help student see that when going up, each tower has one more, and when going down, each tower has one less.

Slide 4: Synonyms Chart

Refer to the Synonym Chart throughout this activity if student needs additional language support.

Slide 5: Comparing 1-6

Students will need to use Connecting Cubes to build stacks of their own for stacks 1 thru 6.

Have student choose two stacks to compare. You will move them to the white space on the board so they are side-by-side. Student will hold up their two stacks of this length of Connecting Cubes. Ask student, "Which stack has more? Can you tell me *how many more* squares are in the taller stack?"

If student struggles, ask supporting questions:

- "How many extras are in the taller stack?"
- "How many would you need to break off to make the stacks the same?"
- "How many does the shorter stack need to catch up to the taller stack?"

Move the two stacks back to their original position and choose two more. Repeat questions above.

Repeat process at least three times to make three comparisons.

Slide 6: Comparing 1-10

Same instructions as Slide 5, but now comparing numbers up to 10. Make at least four comparisons, ensuring student is comfortable answering, "How many more?"

Student should continue to use their own cubes to build trains/stacks and compare numbers!

Slide 7: Part II – How Many Less?

Tell student, **“Now we are going to figure out *how many less* one stack is than another.”**

Use two of the stacks on the slide to explore the questions *how many less*. Ask student, **“Which stack has less? Can you tell me how many less cubes are in the shorter stack?”** Student should be using their own cube stacks.

If student struggles, ask support questions:

- ***“How many are missing in the shorter stack?”***
- ***“What would you do to make the tall stack the same as the short stack?”***

Move to slide 8 to continue practicing *how many less?*

Slide 8: Comparing 1-10

Have student choose two stacks and hold them up, stacks should be side by side. Tutor move the same stacks to the white space on the board. Ask student, **“Which stack has less? Can you tell me *how many less* squares are in the shorter stack?”**

If student struggles, ask supporting questions from Slide 7.

Move the two stacks back to their original position and choose two more stacks. Repeat activity several times.

Note: Students often struggle with the question *How many less?* because it is more difficult to determine *what is not there*. Do not rush through this slide!

Slide 9: Using Complete Sentences

Tell student, **“It is important to use complete sentences when comparing numbers.”** Have students fill in the blanks in the sentences with the correct numbers. Student should still be using the stacks they build for hands-on comparison practice.

Note: There are two ways to make comparison sentences and both are correct – student only needs to practice one! They can choose which sentence structure they like better.

Slide 10:

Follow instructions from slide 9, now answering *how many less?*

Slide 11: Apply Your Learning

Word Problem #1 & #2: Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student should use their Connecting Cubes to help them solve.

Note: *These are not to be turned into subtraction problems. Student is discovering through use of cubes how to determine how many more/how many less.*

Slide 12: Wrap Up

Lesson Guide for: 2f. Mystery Trains
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Mystery Trains."** Read aloud for student the purpose of today's math activity: **"In this activity, we will explore relationships between numbers by counting ON rather than counting ALL to find the length of a second train."**

Slides 2-4: Part 1 Make sure student is sharing their screen!

Slide 2: Mystery Train 1- Student builds the train of 7 using the yellow blocks.

It doesn't have to be perfect but should resemble a train/row. If student drags and drops the cube into the general area, to help them and ease any frustrations, you can slide the cubes into a train so they connect (like actual Connecting Cubes would).

Say to student: **"I'm going to show you one of the mystery trains. Can you figure out how many cubes are in the mystery train *without* counting every cube in the train? You can use the train you made to help you measure."**

Remove the bricks to reveal the first mystery train!

Ask student: **"How many cubes are in the mystery train?"**

Some students will count forward by ones starting from the train of 7 to determine that there are 11. (This process is called "counting on". The goal is ultimately for students to "count on" from the original number without recounting from one.) Others will count every cube in the train of 11 to figure out its length. If student counts every cube in the train of 11 to determine its length, allow them to do so and acknowledge their correct answer.

Then, help student see relationships between numbers by saying,

--"I want to see if you can figure out the length of the mystery train without having to count every cube. Let's start with the train you made to help us measure."

--"How many cubes are in the train you made?" (Student answers 7.)

--"Since you know there are 7 cubes in the train you made, how many cubes do you think are in the mystery train?"

If the student has counted from 1 to determine the length of the mystery train, it would be helpful to have them build the two trains with their physical cubes and then practice "counting on" from 7 to 11 using the physical models. You may model this on the screen by using the pen tool to draw marks or slashes where you are 'counting on.'

Slide 3: Mystery Train 2- Base train of 7 already built. Repeat same steps/questioning as slide 2 to discover the length of this mystery train (5).

Slide 4: Mystery Train 3- Base train of 7 already built. Repeat same steps/questioning as slide 2 to discover the length of this mystery train (16).

Slides 5-7: Part II

Repeat same steps as example 1. For this second set of examples, the length of the base train is 9. Student will build the train of 9 (with your assistance). Model/talk through "counting on" strategy as necessary.

Slide 5: Mystery Train A- Repeat same questioning as in Part 1, slide 2, to discover the length of this mystery train (13).

Slide 6: Mystery Train B- Base train of 9 already built. Repeat same questioning to discover the length of this mystery train (6).

Slide 7: Mystery Train C- Base train of 9 already built. Repeat same questioning to discover the length of this mystery train (7).

Slides 8-9: Apply Your Learning

Word Problem #1 & #2: Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. Student should use their Connecting Cubes from their math kit to model the story problems and help them solve.

Slide 10: Wrap Up

Lesson Guide for: 2g. Number Cards

Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Number Cards."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice changing one quantity to another and describe how to make two groups the same."**

For this activity, tutor will need to share their screen!

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather Connecting Cubes from their math kit to complete today's activity with physical manipulatives.

Slide 3: Part I (Numbers 1-10)

Remove a question mark to reveal a number card. Student will make a tower of that many cubes.

Remove a second question mark to reveal a second number card. Student will need to change their tower to match the second number card.

Ask student, **"What did you do to change the tower?"**

Notice the following:

- When adding, does student add on to the original number without recounting from one, or do they need to start counting again from the beginning? Ultimately, the goal is for student to add on to the original number without recounting from one, though it may take time to become comfortable with this.
- Is student able to keep track of the number of cubes they add or subtract? Encourage them to experiment with ways to keep track.

Note: Tutor can use the virtual manipulatives on slide 4 to model the changing numbers/support student if needed.

Repeat exercise several times with multiple number cards to go from one number to the next. Do as many as the student needs for practice.

****For added fun, keep track of correct answers as "points" and challenge student to earn 10 points.**

Slide 4: Virtual Option for tutor, if needed

Slide 5: Part II (Numbers 10-20)

Repeat same steps as Part I, but this time the numbers students are working with will be between 10 and 20.

Note: Tutor can use the virtual manipulatives on slide 6 to model the changing numbers/support student through if needed.

Slide 6: Virtual Option for tutor, if needed

Slides 7-8: Apply Your Learning

Word Problem #1 & #2: Tutor and student will work through word problems to apply learning from the notebook's lessons. Student should use their Connecting Cubes to assist in solving. Use the Word Problem Chart as a guide.

Note: This is not a subtraction problem, but instead students should be discovering "how many more" by making trains to compare, 1-1 pairing, or finding the smaller group within the larger group.

Slide 9: Wrap Up

Lesson Guide for: 2h. Stories About More or Less
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Stories About More or Less."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice using the language of more and less through stories."**

For this activity, tutor will need to share their screen!

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather Connecting Cubes from math kit to complete today's activity with physical manipulatives.

Slides 3-8: Story Scenarios-

Student chooses the stories to create. Tell student: **"Today we are going to make up stories about two groups that can be compared. First, we will choose a situation for the story. Then, we will determine the amounts (the numbers) we want to represent with our story. Finally, you will use your Connecting Cubes to model the story."**

Flip through slides to show student the topics to choose from.

- Slide 3- Apples and Bananas
- Slide 4- Sharks and Minnows
- Slide 5- Tigers and Lions
- Slide 6- Boys and Girls on the Playground
- Slide 7- Ducks and Chickens
- Slide 8- Pretzels and Cookies

Example: Mr. Jones picked vegetables from his garden. He picked 8 tomatoes and 5 carrots. How many fewer (less) carrots did he pick? (Or- how many more tomatoes did he pick?)

Choose multiple slides to create multiple stories for practice. You don't have to do all of the slides/stories; do as much practice as student needs.

Tutor- Type story student makes up into the text box on the slide.

Students- Should use Connecting Cubes (two colors) as support to model the story and solve.

Slide 9: Think Up Your Own Story Idea

Student can make up own story about any scenario they choose. Type story into slide.

Students should use Connecting Cubes (two colors) as support to model the story and solve.

Slide 10: Apply Your Learning

Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. Student should use their Connecting Cubes to assist in solving.

Slide 11: Wrap Up

Lesson Guide for: 2i. Dice War
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Dice War."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice comparing two numbers and answer "how many more" and "how many less."**

For this activity, tutor will need to share their screen!

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather Connecting Cubes and one Number Cube from their math kit to complete today's activity with physical manipulatives.

Tell student: **"Today we are going to play a game where the person who rolls the larger number gets a point. You will also get a point after each roll if you can tell me the difference between the numbers!"**

Slide 3: Dice War!

Student rolls their Number Cube and tutor uncovers one dice on slide 4.

Ask student: **"Which number is larger? What is the difference between the numbers? How many more (or less) would I need to equal your number?"**

Example: Student rolls a 6. Tutor uncovers an 8. Student could say, "I would need two more to match your number."

If student is unable to figure out the difference in their head or on their fingers, suggest using either the Number Path (slide 5) or Connecting Cubes to figure out the difference.

Keep points on a sheet of paper or on a blank screen on the Jamboard. Play until someone reaches 10 points. Ask the questions above (bolded) after each roll.

At the end of the game, ask the student, **"Who won? How many points did you win by?"**

Slide 4: Virtual Dice for tutor

Slide 5: Number Path (Optional Support)

Use for optional support as needed to help figure out how many more/less.

Slides 6 & 7: Apply Your Learning

Word Problems #1 & 2: Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. Student should use their Connecting Cubes to assist in solving.

NOTE: Helpful strategies for student to use would be making trains to compare, pairing up cubes 1-1 and seeing how many extras, or finding the smaller number within the larger number to see the extras.

Slide 8: Wrap Up

Lesson Guide for: 2j. Bird Watching
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is Bird Watching."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice changing one number to another and telling how many were added or taken away."**

Slide 2: Level I *Make sure student is sharing their screen!*

Say to student, **"We are going to play a game that involves birds getting on and off of a telephone wire. To play the game I will tell you how many birds are on the wire at each time of the day. You will add or take away birds to show that number and tell me how many birds got on or off the wire.**

If you change the number correctly, you get a point. If you can tell me how many birds got on or off the wire, you get another point. We'll play the game until you get 12 points."

Tell student, **"At 8:00AM, you look outside and see 4 birds on the telephone wire."** *Wait for student to add the four birds to the wire.*

"At 9:00AM, you check again and see 7 birds on the telephone wire." Remove the orange question mark to reveal the number 7. *Wait for the student to change the number of birds on the wire to 7.*

"Did more birds land on the wire or did some fly away?" "How many got on/off?"

Notice the following:

- When adding, does student add on to the original number without recounting, or do they need to start counting again from the beginning? Ultimately, the goal is for student to add on to the original number without recounting, though it may take time to become comfortable with this.
- Is student able to keep track of the number of cubes they add or subtract? Encourage student to experiment with ways to keep track.

THROUGHOUT ACTIVITY: If student is having trouble changing the numbers and/or keeping track of how many they add/take away, encourage student to use their Connecting Cubes to practice changing from one number to the other.

Keep track of points on a piece of scratch paper that can be held up to the screen.

Slide 3: Level I (cont'd)

This slide starts with the 7 birds from 9:00.

"At 10:00AM, you look out the window and see 5 birds on the telephone wire." Remove the orange question mark to reveal the number 5. *Wait for the student to change the number of birds on the wire to 5.*

"Did more birds land on the wire or did some fly away? How many got on/off?"

Slide 4: Level I (cont'd)

This slide starts with the 5 birds from 10:00.

"At 11:00AM, you look out the window and see 9 birds on the telephone wire." Remove the orange question mark to reveal the number 9. *Wait for the student to change the number of birds on the wire to 9.*

"Did more birds land on the wire or did some fly away? How many got on/off?"

Slide 5: Level II

Tell student, "**Now it is after lunch! Let's look for more birds. At 1:00PM, you look outside and see 12 birds on the telephone wire.**" *Wait for student to add the 12 birds to the wire.*

"At 2:00PM, you check again and see 16 birds on the telephone wire." Remove the yellow question mark to reveal the number 16. *Wait for the student to change the number of birds on the wire to 16.*

"Did more birds land on the wire or did some fly away?" "How many got on/off?"

Slide 6: Level II (cont'd)

This slide starts with the 16 birds from 2:00.

"At 3:00PM, you look out the window and see 13 birds on the telephone wire." Remove the yellow question mark to reveal the number 13. *Wait for the student to change the number of birds on the wire to 13.*

"Did more birds land on the wire or did some fly away? How many got on/off?"

Slide 7: Level II (cont'd)

This slide starts with the 13 birds from 3:00.

"At 4:00PM, you look out the window and see 17 birds on the telephone wire." Remove the yellow question mark to reveal the number 17. *Wait for the student to change the number of birds on the wire to 17.*

"Did more birds land on the wire or did some fly away? How many got on/off?"

Slides 8-9: Apply Your Learning

Word Problems #1 & #2: Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. Student should use their Connecting Cubes from their math kit to model and solve the story problem.

Slide 10: Wrap Up

Lesson Guide for: 2k. Comparing Colors in a Handful
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: "The name of today's activity is Comparing Colors in a Handful." Read aloud for student the purpose of today's math activity: "In this activity, we will practice determining 'how many more' and 'how many less' one group has than another."

For this activity, tutor will need to share their screen!

Slide 2: Math Vocabulary

The questions "How many more?" and "How many less?" determine the difference between two numbers. Talk through the meaning of "difference" with student, then continue to slide 3.

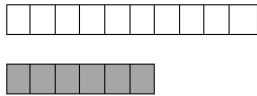
Slide 3: Let's Get Ready- Gather Materials Prompt student to gather Connecting Cubes from math kit to complete today's activity with physical manipulatives.

Slide 4-6: Methods for Determining Difference

Slides 4-6 describe the various methods a student may use to determine the difference between numbers, as well as providing them an opportunity to practice each method.

Slide 4: Making Trains:

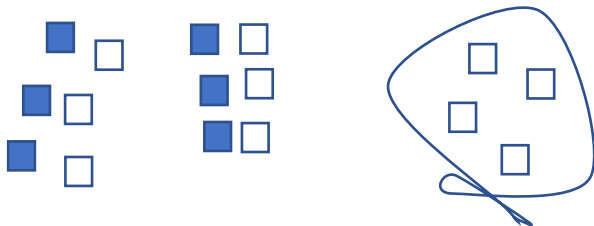
- *Make two trains by snapping together all the cubes of the same color, as shown below. Place the trains side by side to compare them. Student may want to break off the "extras" to make the trains the same length before counting them.*



Practice once, then continue to slide 5!

Slide 5: Making Pairs:

- *Pair one of each color and see the leftovers.*

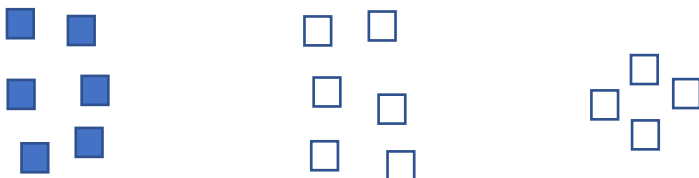


I paired each blue with a white cube and I have 4 white left over.

Practice once, then continue to slide 6!

Slide 6: Finding Numbers in other Numbers:

- *Recognize one number within the other.*



I counted 6 blue. I counted 6 white, and I have 4 white left over.

Practice once, then continue to slide 7!

Slide 7: Continued Practice

Have student mix connecting cubes into one bag (to mix the colors together.) Ask PC for help if student struggles! Have student pull out a small handful of cubes, then sort the cubes by color.

Ask student to choose a method to compare the colors: Making a Train, Making Pairs, Finding One Number within Another. Once student chooses the method, ask **“Which pile has less? How many less?”** Allow student time to use chosen method to answer questions.

Repeat several times, allowing student to practice all three methods. Alternate asking **“How many more?”** and **“How many less?”**

Slide 8: Discussion

Allow a minute or two to talk to student about the different methods, what they found easy or challenging, which method they prefer, etc.

Slides 9-12: Using Sentences with How Many More/Less?

Your student has just finished practicing methods to determine how to find the answer to the questions *how many more* or *less*. Now, they will practice how to make complete sentences when comparing the number of cubes: **7 cubes are 5 more than 2** OR **7 cubes are more than 5 by 2.**

Student should use their Connecting Cubes to practice comparing the given amounts of cubes. Tutor can use the cubes on slide 9 and 11 to model if needed.

Slides 13-14: Apply Your Learning

Word Problems #1 & #2: Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. Student should use their Connecting Cubes to model and solve.

Slide 15: Wrap Up

Lesson Guide for: 2I. Game for How Many More and How Many Less
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is "Game for How Many More and How Many Less." Read aloud for student the purpose of today's math activity: "In this activity, we will practice describing the difference between two quantities in terms of *how many more* and *how many less*."**

Slide 2: Practice *Make sure your student is sharing their screen!*

Choose which player is the red circle and which is the blue diamond, then each player will count the pieces of cereal in their respective shapes.

Type the number of cereal pieces in the text boxes beneath the shapes.

Move the green square. Underneath there will be either be a '+' or a '-'.

- If '+', the player with the larger pile must answer **"How many more pieces of cereal do I have?"**
- If '-', the player with the smaller pile must answer, **"How many less pieces of cereal do I have?"**

NOTE: Students can and should use their Connecting Cubes from their math kit to help solve. Tutors can help them by modeling on the screen, if needed. Student may solve by counting, by making rows of the objects to compare, by pairing objects – any way they choose!

The person who answered can type their answer in the star. Award one point for a correct answer and another point for using a full sentence.

If needed, write the sentence structure as a model and visual aid:

__ is less than __ by __ OR __ is __ less than __.
__ is more than __ by __ OR __ is more than __ by __.

Slide 3: Synonym Chart

Refer to Synonym Chart if your student is struggling with the language of "how many more" or "how many less"

Slides 4-6: Part I (Comparing Numbers up to 10)

Play using the instructions for slide 2. The player with the most points wins!

Slides 7-9: Part II (Comparing Numbers up to 20)

Play using the same instructions for slide 2. This time the amounts will be higher.

Higher numbers may be trickier for students – and that's okay! Allow them time to solve in whatever way they feel comfortable. Encourage them to use the Connecting Cubes method for comparing and finding the difference they have liked the best in previous activities.

Slides 10-11: Apply Your Learning

Word Problems #1 & #2: Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student should use their Connecting Cubes to model and help them solve.

Slide 12: Wrap Up

Lesson Guide for: 2m. War for More or Less
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is a fun game called War for More or Less."** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice understanding and using the language of 'how many more' and 'how many less'."**

Slide 2: Part I -War for LESS *Make sure your student is sharing their screen!*

Players will pick which card will be their stack (Player A or Player B).

Each player removes the top (cover) card to see the first hand.

The player with the lower number says a complete sentence to describe *how many less* their card is than the other.

Examples:

8 is 2 less than 10. 7 is less than 9 by 2.

Whoever wins the hand, can put the two playing cards in the "Cards Won" box on their side.

Once those cards are moved, you will then automatically see the next hand. Once the stack runs out of cards, that round of the game is over!

Encourage students to use their cubes for strategies as needed (trains, pairs, etc.) to help them solve. If student struggles to verbalize a sentence, student may write the sentence. If students need help with how to say the sentence, view Slide 3 with sentence prompt reminders to demonstrate the structure of the language of more/less.

Slide 3: Sentence Stems

If needed for student support: use this slide as a reminder for how to say MORE sentences and how to say LESS sentences.

Slides 4: Part II -War for MORE

Play the same way as for slide 4, but this time for HOW MANY MORE. The player with the higher number wins after saying a complete sentence to describe *how many more* their card is than the other.

Examples:

10 is 2 more than 8. 8 is more than 5 by 3.

If you encounter "War" where both players have the same card for a hand (you should 😊), simply move that card to the side to see the next hand. Whoever wins that hand will take all 4 cards!

Slides 5-6: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student can use their Connecting Cubes to model and assist in solving.

Slide 7: Wrap Up

Lesson Guide for: 2n. Visiting the Meadow
Notebook: More or Less

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student: **"The name of today's activity is "Visiting the Meadow".** Read aloud for student the purpose of today's math activity: **"In this activity, we will practice changing one number to another and telling how many were added and taken away."**

Slide 2: Level I *Make sure your student is sharing their screen!*

Say to student, **"We are going to play a game that involves bunnies hopping into and out of a meadow. To play the game I will tell you how many bunnies are in the meadow at each time of the day. You will add or take away bunnies to show that number and tell me how many bunnies came into or left the meadow.**

If you change the number correctly, you get a point. If you can tell me how many bunnies came into or left the meadow, you get another point. We'll play the game until you get 12 points."

Tell student, **"At 8:00AM, you see 5 bunnies in the meadow.** *Wait for student to add the five bunnies to the meadow.*

"At 9:00AM, you look again and see 8 bunnies in the meadow." Remove the orange square to reveal the number 8. *Wait for the student to change the number of bunnies to 8.*

"Did more bunnies come into the meadow or did some hop away? How many hopped in/hopped away?"

Notice the following:

- When adding, does student add on to the original number without recounting, or do they need to start counting again from the beginning? Ultimately, the goal is for student to add on to the original number without recounting, though it may take time to become comfortable with this.
- Is student able to keep track of the number of cubes they add or subtract? Encourage student to experiment with ways to keep track.

****NOTE** THROUGHOUT ACTIVITY:** *If student is having trouble changing the numbers and/or keeping track of how many they add/take away, encourage student to use their Connecting Cubes to practice changing from one number to the other.*

Keep track of points on a piece of scratch paper that can be held up to the screen.

Slide 3: Level I (cont'd)

This slide starts with the 8 bunnies from 9:00.

"At 10:00AM, you look again and see 6 bunnies in the meadow." Remove the orange square to reveal the number 6. *Wait for the student to change the number of bunnies to 6.*

"Did more bunnies come into the meadow or did some hop away? How many hopped in/hopped away?"

Slide 4: Level I (cont'd)

This slide starts with the 6 bunnies from 10:00.

"At 11:00AM, you look out the window and see 10 bunnies in the meadow. Remove the orange square to reveal the number 10. *Wait for the student to change the number of bunnies to 10.*

"Did more bunnies come onto the meadow or did some hop away? "How many hopped in/hopped away?"

Slide 5: Level II

Tell student, "**Now it afternoon! Let's look for more bunnies. At 12:00PM, you look outside and see 11 bunnies in the meadow.**" *Wait for student to add the 11 bunnies to the meadow.*

"At 1:00PM, you check again and see 15 bunnies in the meadow." Remove the green square to reveal the number 15. *Wait for the student to change the number of bunnies to 15.*

"Did more bunnies come into the meadow or did some hop away? "How many hopped in/hopped away?"

Slide 6: Level II (cont'd)

This slide starts with the 15 bunnies from 1:00.

"At 2:00PM, you look out the window and see 12 bunnies in the meadow." Remove the green square to reveal the number 12. *Wait for the student to change the number of bunnies to 12.*

"Did more bunnies come into the meadow or did some hop away? "How many hopped in/hopped away?"

Slide 7: Level II (cont'd)

This slide starts with the 12 bunnies from 2:00PM.

"At 3:00PM, you look out the window and see 19 bunnies in the meadow. Remove the green square to reveal the number 19. *Wait for the student to change the number of bunnies to 19.*

"Did more bunnies come into the meadow or did some hop off? "How many hopped in/hopped away?"

Slides 8-9: Apply Your Learning

Word Problem #1 & #2: Tutor and student will work through word problems to apply learning from this notebook. Use the Word Problem Chart as a guide. Student can use the Connecting Cubes from their math kit to model the story problem and assist in solving.

Slide 10: Wrap Up

3. Combinations to 10

In the Combinations to 10 Notebook, students practice composing and decomposing all numbers up to 10 quickly, without having to count. An understanding of relationships between numbers, practiced in the More or Less notebook, helps students to internalize the ways numbers up to 10 can be broken into two parts ("combinations"). **Students will do all of the lessons in this notebook with one Focus Number at a time, learning all of the combinations for that number before moving to the next.**

To show mastery in this concept, students will be able to:

1. Find and describe all the ways a number can be broken into two parts.
2. Determine the missing part of numbers *without counting* when the other part is unknown.
3. Describe the parts of numbers using symbols +, -, and =.
4. Use knowledge of combinations to solve word problems.

The information below may assist you in helping your student.

- When students can break up any number to ten and put the parts together again with ease, they will be able to work flexibly and powerfully with larger numbers.
- Internalizing combinations of numbers to 10 is critical to building a strong foundation and may take several months, requiring frequent review.
- Subitizing – recognizing small groups of objects without counting each one. This is a fundamental skill in the development of number sense.

Combinations to 10 Jams

- 3a. On/Off Game
- 3b. Dot Arrangement Flash Cards
- 3c. Combinations Trains
- 3d. Domino Fact Families
- 3e. Finding Combos Card Game
- 3f. Adding and Subtracting on the Ten Frame
- 3g. Hiding Game
- 3h. Domino War
- 3i. Dice Race
- 3j. Elimination
- 3z. Composition Roadmap

Lesson Guide for: 3a. On/Off Game
Notebook: Combinations to 10

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'On/Off Game'." Read aloud the purpose of today's math activity to student: "In this activity, we explore all the ways your Focus Number can be split into two parts."

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather pencil, paper, and Connecting Cubes.

Slide 3: Create Board and Begin Playing *Make student is sharing their screen!*

Prompt student to tear paper in half width-wise.

On one half, create recording chart (as shown on the Jam). The second half will be used as the game board – student will drop cubes onto it, recording how many land on and how many land off the paper.

Part I: Ask student to hold the cubes over the second half of paper and to let them drop on the paper. Some cubes will stay on the paper and some will fall off. Ask student to write the number of cubes "on" versus "off" the paper on the recording sheet. Ask student to repeat 10 or more times, continuing to record. Discuss any patterns the student sees.

Watch to see if student can predict how many cubes are off the paper after identifying the number "on" OR whether they need to count each cube to determine the number "off". If student is counting, challenge them to predict the second number based on previous rolls.

Part II: Make the task a game! Say to student, "We are going to drop these cubes seven more times on the paper. Each of us will pick a combination and we will see whose combination comes up the most. What combination do you think will come up the most?" After student chooses a combination, tutor chooses a different one. The person whose combination comes up the most is the winner!

Slide 4: True or False

Prompt student to get on the Jam (if not already) and use the pen tool to circle the true statements.

Slide 5: More Practice

Have students read and solve the word problems related to their current focus number. Student may use cubes if they need support.

Slides 6-7: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Students are welcome to use cubes to solve if needed and should explain their reasoning for their answer.

Slide 8: Wrap Up

Lesson Guide for: 3b. Dot Arrangement Flash Cards
Notebook: Combinations to 10

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is 'Dot Arrangement Flash Cards.'** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice recognizing groups and combining them! We will work with your focus number and below."**

Slides 2 & 3: Dot Arrangement Cards *Make sure student is sharing their screen.*

Tell student, **"We are going to practice figuring out how many shapes we see without counting by ones or twos. The best way to do this is to practice breaking big numbers into groups we can see right away and then combining those groups."** Prompt student to slide the question marks off the dot cards one by one.

For each card, ask the student, **"What groups do you see, and how many is that altogether?"** If the student immediately tells you the total for each card, ask, **"How did you see that?"**

Example for 9 Card:

The student might see groups of 4 and 5 and say, **"4 + 5 = 9."** Another student might see groups of 4, 3, and 2 and say **"4 + 3 + 2 = 9."**

*If student counts by ones or twos, ask them, **"Is there another way you can see that?"***

Encourage student to identify larger groups emphasizing the combinations for their Focus Number. Counting by twos is still considered "counting" and is not the same skill as recognizing groups and adding them together.

Slide 4: Drawing Arrangements

Tell student, **"Now you are doing to make your own design! Arrange the strawberries into a design that helps you know how many there are without having to count by ones or twos."**

Have student create three different designs. If a student creates a straight line with the strawberries, encourage them to break up the number into smaller groups.

Slides 5-6: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Students are welcome to use cubes to solve if needed and should explain their reasoning for their answer.

Slide 7: Wrap Up

Lesson Guide for: 3c. Combinations Trains
Notebook: Combinations to 10

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is 'Combination Trains'."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice identifying and visualizing combinations for our Focus Number."**

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather cubes and a Combinations Train Sheet (located in student's progress folder!)

Slides 3-4: Adding to Find the Missing Part *Make sure student is sharing their screen!*

Slide 3: Building Trains

Tell student, **"Let's use two colors of cubes to help us find all the ways your Focus Number can be broken into two parts. You'll make trains that show combinations for your focus number!"** Point student's attention to the example at the bottom of the Jam. Let student experiment with any method they choose.

If student struggles to get started, prompt student's thinking by asking questions such as: "If you start by putting 2 red cubes on the outline, how may yellow cubes would you need to fill it all the way up?"

Have student continue building trains for all of the combinations of their Focus Number. Then, have student lay out the trains on the Combinations Train Sheet in descending order.

Slide 4: *Tutor should build the same trains on the Jamboard on slide 4 to support student.*

Slide 5: Coloring Trains

Student will color their trains on their worksheet. Tutor can model on this slide on the Jam!

Prompt student to use their combinations reference sheet to draw the combination trains they built. For each train, ask student to write the matching equation beside the combination on the grid.

After coloring and writing equations ask student, **"What would happen to the equations if we flipped our trains and the piece on the left and right switched places? Does the total stay the same? Can each of these equations be written a second way?"**

Help student recognize that the order of the two parts being added does not matter. For example, $1 + 5$ is the same combination as $5 + 1$.

Slides 6-7: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Offer for student to read the problem and explain their answer.

Slide 8: Wrap Up

Lesson Guide for: 3d. Domino Fact Families
Notebook: Combinations to 10

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Domino Fact Families'." Read aloud the purpose of today's math activity to student: "In this activity, we will continue exploring ways to make your Focus Number, using dominos."

Slide 2: Finding Dominos *Make sure student is sharing their screen!*

Ask student to use the pen tool to circle Domino Cards with dots that add up to the Focus Number. *Ensure the student is determining the number of dots by recognizing groups rather than counting by ones or twos.*

If the student is counting, ask them, "Are there any larger groups you can see on this domino and then combine?"

Slide 3: Ordering Dominos

Ask student to slide the Domino Cards into order so that the number of dots on the top half increases by one. Ask student if they see a pattern. *(When the dots on the top half increase by one, the dots on the bottom half decrease by one.)*

Slide 4: Fact Families

Ask student to draw the fact families on paper and to say the four equations that match each of the different dominos.

Example Fact Family for 3 + 4 Domino:

$$3 + 4 = 7$$

$$4 + 3 = 7$$

$$7 - 3 = 4$$

$$7 - 4 = 3$$

Slide 5: What's Missing?

Ask student to name the number on the hidden side. Again, ensure the student is determining the number of dots by recognizing groups rather than counting by ones or twos.

Slides 6-7: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Students are welcome to use cubes to solve if needed and should explain their reasoning for their answer.

Slide 8: Wrap Up

Lesson Guide for: 3e. Finding Combos Card Game
Notebook: Combinations to 10

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Finding Combos Card Game'." Read aloud the purpose of today's math activity to student: "In this activity, we will practice finding all of the ways your Focus Number can be broken into two parts."

Slides 2-3: Finding Combos Card Game *Make sure student is sharing their screen!*

Slide 2: Student's Turn

Ask student to uncover all of their cards (underneath the popcorn, hot dogs, and soda). Student should then find all of the combinations of two cards that add up to their Focus Number and slide them into pairs.

Slide 3: Tutor's Turn

Tutor will do the same on slide 3.

Whoever has the most pairs wins!

Slide 4: What's Hiding

Ask student, "Which card is hiding in each pair?"

Student can slide off the top card to check their answers.

Slide 5: Algebraic Equations

Write equations that demonstrate the written form of naming the hidden card. Students can do this on a whiteboard from the cart or paper/pencil, and tutor- you can copy onto the screen what they wrote!

Follow the example given for the first pair of cards!

Slides 6-7: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Students are welcome to use cubes to solve if needed and should explain their reasoning for their answer.

Slide 8: Wrap Up

Lesson Guide for: 3f. Adding and Subtracting on the Ten Frame
Notebook: Combinations to 10

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Adding and Subtracting on the Ten Frame."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice using the Ten Frame two ways: adding to find the missing part and subtracting by taking cubes away."**

Slide 2: Brief Instructions for Part I

Slides 3 & 4: Part I: Adding on the Ten Frame *Make sure student is sharing their screen!*

Have student remove one of the green question marks to reveal a dot cube; place that many squares of one color on the blank Ten Frame. Then ask student to use the second color of squares to add the number needed to make the Focus Number.

Ask student to fill in the Fact Family diagram and type the equation in the provided text box.

Clear the Fact Family Diagram and equation text box. Remove another green question mark and repeat activity.
Repeat the process for each green question mark.

Slide 5: Brief Instructions for Part II

Slide 6 & 7: Part II: Subtracting from the Focus Number

Have student fill the blank Ten Frame with squares equal to the Focus Number. Then, have student remove one of the blue question marks to reveal a dot cube. Student will take away that many squares from the Ten Frame.

Ask student to write the equation that matches the action taken and draw the corresponding fact family diagram.

Clear the Fact Family Diagram and equation text box. Remove another blue question mark and repeat activity.
Repeat the process for each blue question mark.

Slide 8: Story Problems

Tell student, **"Now we will make up stories using combinations for your Focus Number. First, you will choose a situation for your story. Next, you will look at the equations you are trying to represent with your story. Finally, don't forget to solve the equation!"**

If student struggles to start story problem, assist. However, try to have the student create the story on their own.
Students are not often asked to create their own story problems and it may be difficult for them to get started!

Slides 9-10: Apply Your Learning *Take time to review the graph with your student!*

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Students are welcome to use cubes to solve if needed and should explain their reasoning for their answer.

Slide 11: Wrap Up

Lesson Guide for: 3g. Hiding Game
Notebook: Combinations to 10

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is 'The Hiding Game'."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice naming the missing part of your Focus Number when one part is known."**

Slide 2: Hiding Game

Count out cubes (or whichever items you have!) that equal your student's focus number. Tell student, **"The goal is for you to tell me what's hiding as quickly as you can without counting."**

Hide all of the cubes under your hand and then pull out two, leaving them visible on the table. Ask student, **"If I have [X] and show you two, how many are still hiding under my hand?"**

Repeat by showing different quantities of cubes until every possible combination has been tested.

Tips for helping students:

- *If the quantity shown is large, it may be easier to think about the problem as addition. (If $8 - 6$ is difficult, suggest thinking about $6 + \underline{\quad} = 8$)*
- *If the quantity shown is close to a double, it may be easier to think of the double and make an adjustment to find the answer. ($8 - 4 = 4$, so $8 - 3$ must be 5)*

Slide 3: Reflection

Ask student, **"Were any combinations tricky? Which were easiest?"** You can write down easy combos on one side of the screen and tricky combos on the other side.

Slides 4-6: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Students are welcome to use cubes to solve if needed and should explain their reasoning for their answer.

Slide 7: Ten Frame

Tell student, **"Ten is the most important number in our number system, so it is helpful for us to think about numbers as they relate to 10. Five is also an important number because it is halfway to the number 10. The Ten Frame can help us see numbers in relation to 5 and 10. The standard way to fill a Ten Frame is to fill the top row first, starting at the left. When the top row is full, the bottom row can be filled, starting at the left."**

Prompt student to place enough cars on the Ten Frame to equal their Focus Number (Focus Number 6 = 6 cards, Focus Number 9 = 9 cars, etc.), filling the top row first then the bottom row starting at the left. Once this is complete, ask the questions on the Jamboard:

"What does your Focus Number look like on the Ten Frame? How many are on the top, and how many are on the bottom?"

How many more is this number than 5? How many more do you need to have 10?"

Slide 8: Wrap Up

Lesson Guide for: 3h. Domino War
Notebook: Combinations to 10

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Domino War.'" Read aloud the purpose of today's math activity to student: "In this activity, we will practice recognizing groups and combining them. We will work with your Focus Number and below."

Slide 2: Domino War Round 1 *Make sure student is sharing their screen!*

Tutor and student will each slide off a giraffe icon to reveal a domino card. Each player will say the sum showing on their card.

Then, the student will say the difference between the two cards within 3 seconds.

If the student says the difference in 3 seconds, they keep the cards (drag them to the section that says "student cards") and if not, the tutor keeps the cards. Play until all the cards are uncovered.

Slide 3: Domino War Round 2

Tutor and student play again with the same rules as in Slide 4.

Slides 4-5: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Students are welcome to use cubes to solve if needed and should explain their reasoning for their answer.

Slide 6: Wrap Up

Lesson Guide for: 3i. Dice Race
Notebook: Combinations to 10

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Dice Race.'" Read aloud the purpose of today's math activity to student: "In this activity, we will review all of our combinations up to 10."

Slide 2: Let's Get Ready- Gather Materials Prompt student to get their two Yellow Number Cubes and 2 Yellow Dot Cubes from their math kit.

Slides 3-4: Dice Race

Part I – Dot Cubes

Ask student to roll 2 Yellow Dot Cubes and to tell the sum as quickly as they can. If student tells the sum within 3 seconds, *without counting by ones*, student gets a point. If student has not announced the sum within tutor's count of three, tutor tells the sum and gets the point. Continue until student has 20 points.

Part II – Number Cubes

Repeat activity with Number Cubes until student has 20 points.

Slides 5-6: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Students are welcome to use cubes to solve if needed and should explain their reasoning for their answer.

Student should solve with knowledge of their combinations, not counting by ones or using their fingers!

Slide 7: Wrap Up

Lesson Guide for: 3j. Elimination
Notebook: Combinations to 10

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Elimination'." Read aloud the purpose of today's math activity to student: "In this activity, we will review all of your combinations up to 10 without counting by ones!"

Slide 2: Let's Get Ready- Gather Materials Prompt student to get their two Yellow Number Cubes OR 2 Yellow Dot Cubes from their math kit.

Slide 3: Elimination

Student rolls two cubes and determines the sum. They then use the pen tool to cross out EITHER the sum OR any combination that adds up to the sum.

For example, if a player rolls 4 and 5, they can cover one of the following:

9

8 and 1

7 and 2

6 and 3

5 and 4

Student continues to roll and cover numbers until they are stuck, meaning all possible combinations for the numbers rolled have already been crossed out, and they are not able to do anything on the board.

When the student becomes stuck, they calculate their final score by adding all numbers that are not yet covered. Tutor then plays their turn, using the virtual dice on slide 4. Whoever has the lowest score wins!

Slide 4: Virtual Dice (for tutor, if needed!)

Slide 5: Elimination Round 2

Play the game again following the instructions as on slide 3.

Slide 6: Virtual Dice (for tutor, if needed!)

Slides 7-8: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Students are welcome to use cubes to solve if needed and should explain their reasoning for their answer.

Slide 9: Wrap Up

Lesson Guide for: 3z. Composition Roadmap
Notebook: Combinations to 10

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is 'Composition Roadmap'."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice recognizing groups and combining them."**

Slides 2 & 3: Dot Arrangement Cards *Make sure student is sharing their screen!*

Tell student, **"We are going to practice figuring out how many shapes we see without counting by ones or twos. The best way to do this is to practice breaking big numbers into groups we can see right away and then combining those groups."** Prompt student to slide the question marks off the dot cards one by one.

For each card, ask the student, **"What groups do you see, and how many is that altogether?"** If the student immediately tells you the total for each card, ask, **"How did you see that?"**

Example for 9 Card:

The student might see groups of 4 and 5 and say, **"4 + 5 = 9."** Another student might see groups of 4, 3, and 2 and say **"4 + 3 + 2 = 9."**

If student counts by ones or twos, ask them, "Is there another way you can see that?"

Encourage student to identify larger groups emphasizing the combinations for each card's total. Counting by twos is still considered "counting" and is not the same skill as recognizing groups and adding them together.

Slide 4: Domino War

Tutor and student will each slide off a giraffe icon to reveal a domino card. Each player will say the sum showing on their card.

Then, the student tries to say the difference between the two cards within 3 seconds.

If the student says the difference in 3 seconds, they keep the cards (drag them to the section that says "student cards") and if not, the tutor keeps the cards. Play until all the cards are uncovered.

Slide 5: Drawing Arrangements

Tell student, **"Arrange the strawberries into a design that helps you know how many there are without having to count by ones or twos. Make a design for the numbers 7, 8 and 9."**

Have student create three different designs. If a student creates a straight line with the strawberries, encourage them to break up the number into smaller groups.

Slide 6: Wrap Up

4. Strategies to 20

In the Strategies to 20 Notebook, students practice adding and subtracting numbers up to 20 by rearranging the numbers into tens and leftovers. Students will rely on their knowledge of combinations and their ability to decompose numbers up to 10 to rearrange the addends or subtract using ten as a landmark. At this level, students need to be able to *explain* how they got their answer.

To show mastery in this concept, students will be able to:

1. Recognize groups of 10 as units that can be added.
2. Add and subtract groups of 10 to numbers without counting.
3. Add and subtract numbers up to 20 using known combinations and the underlying structure of ten and ones and explain the process.
4. Solve word problems for numbers up to 20.

The information below may assist you in helping your student.

- Our number system is based on tens. Ten Frames are used in this unit to help students use 10 as a reference point when adding and subtracting. These skills are important for working in the “teens” (numbers between 11 and 20) and for future work with much higher numbers.
- Tutors should focus on helping student use their knowledge of parts of numbers (combinations) to work efficiently in the base ten system.
- The questions being asked in this Notebook are “How many do you need to make a ten?” and “How many do you have left over?”

Strategies to 20 Jams

- 4a. Adding 10s with Ten Frame Cards
- 4b. Rearranging into Tens and Leftovers
- 4c. Ten Frame Addition (8+, 9+)
- 4d. Visualizing Addition with Ten Frames
- 4e. Ten Frame Card Game – Addition
- 4f. Subtracting 9 and 8 with Ten Frames
- 4g. Ten Frame Card Game – Subtraction
- 4h. Teen Addition and Subtraction
- 4i. War for Sums Greater than 10
- 4j. War for Subtraction in the Teens

Lesson Guide for: 4a. Adding Tens with Ten Frame Cards
Notebook: Strategies to 20

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Adding Tens with Ten Frame Cards."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice knowing how many dots are on a Ten Frame, as well as adding and subtracting completed tens'."**

Slide 2: Part I- Looking at Partially Filled Ten Frames *Make sure student is sharing their screen!*

Prompt student to identify the number of dots on each Ten Frame WITHOUT counting by ones. Once student has determined how many dots are on the first Ten Frame, remove a blue rectangle to uncover the next Ten Frame.

If student struggles, help them to break the number into parts.

Example for 9:

Ask student, **"What's an easy way to see that there are 9 dots here?"**

Help student see the groups of 5 and 4 and to see that one dot is missing from 10.

Slide 3:

Additional practice identifying number of dots on Ten Frames without counting by ones. Move rectangles to reveal a Ten Frame for student to identify.

Slide 4: Part II - Adding One Ten to a Partially Filled Ten Frame

Ask student to identify the amount on each Ten Frame.

Ask student, **"How many dots are on both cards together?"**

Allow student to figure out the total in whatever way they choose. Ask student to write the addition equation ($10 + 8$) on paper to help them recognize the structure of tens and ones.

Slide 5: Additional practice adding one ten to a partially filled Ten Frame

Move rectangles to reveal partially-filled Ten Frames. Have student write addition equations for the three example problems. ($10+3$, $10+6$, $10+1$)

Student can either write on the Jam, use paper and pencil, or a white board from the cart.

Slide 6: Practice subtracting a full ten

Ask student, **"How many dots are on both cards together? How many would be left if we took ten away?"**

Allow student to solve in whatever way they choose. Ask student to write the subtraction equations for the three example problems ($12-10$, $15-10$, $20-10$) to help them recognize the structure of tens and ones.

Slide 7:

Have student solve the equations. If student needs physical Ten Frames to help solve, ask your Program Coordinator to provide them!

Do not rush through this activity! Students often need more practice with this concept than is initially apparent.

Slide 8: Part III- Adding more than one ten to a partially filled Ten Frame

Similar to Part II: Have student identify the total of the uncovered full Ten Frames (3 tens = 30).

Move the rectangles to reveal partially-filled Ten Frames; student will then add 30 to the revealed amounts.

Have student write the equations on paper (or the Jamboard) to help them recognize the structure of tens and ones.

Slide 9: Subtracting more than one ten

For each total, ask student, “**How many dots are on all cards together? How many would be left if we took thirty away?**”

Student may cover Ten Frames with hands or use physical Ten Frames to help solve, if needed.

Repeat question with the second total on Ten Frames under the blue rectangle.

Slide 10:

Have student solve the equations. Allow them to use physical Ten Frame cards to help solve, if needed.

Do not rush through this activity! Students often need more practice with this concept than is initially apparent.

Slides 11-12: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Slide 12: Wrap Up

Lesson Guide for: 4b. Rearranging into Tens and Leftovers
Notebook: Strategies to 20

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Rearranging into Tens and leftovers."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice using combinations to rearrange numbers into tens and leftovers ."**

Slide 2: ***Make sure student is sharing their screen!***

Tell student, **"Our number system is organized into tens. You have seen how easy it is to add a ten to any number. You also know how to break numbers into two parts (combinations). We are going to practice using combinations to rearrange numbers into tens and leftovers."**

Allow time for any questions student may have or discussion needed.

Slide 3:

Have student identify the number of cubes on each Ten Frame, as well as the addition problem (8+5).

Ask student, **"How can you rearrange these cubes so it is easy for you to quickly see how many you have in all?"**

Allow student to brainstorm about ways to make it easier. After exploring whatever options student recommends, encourage student to move orange cubes to complete the Ten Frame with blue cubes.

Note: If student struggles, help them to see that they would need two orange cubes to make a ten.

Slide 4:

It can be helpful to break problems into steps, first making a ten and then adding the remainder (called "leftovers".)

Review the steps involved in rearranging numbers to make a ten and leftovers. ***These steps are used to solve problems throughout this notebook and the next notebook (Place Value) – it is important that your student understands them!***

1. How many do I need to make a ten? *Answer: 2*
2. How many will be leftover? *Answer: 3*
3. How many will that be all together? *Answer: 13*

Make sure student understands the connection to combinations:

- ***I broke 5 into 2 and 3***
- ***I knew the 8 and 2 made 10.***

Slide 5: Practice rearranging numbers to make 10s and leftovers

Have student identify number of cubes on each Ten Frame, as well as the addition equation (6+7). Then, student should move the cubes to complete a ten and solve the problem. Student may complete (make a ten) out of either number.

Ask student: **"Which number are you making into a ten? Tell me how you will do that. Which combination did you use?"**

Make sure student is using combinations and not counting by ones!

Slide 6: Additional Practice

Have student identify number of cubes on each Ten Frame, as well as the addition equation (5+7).

Ask student, **“Which combination did you use? Is there another way you could have solved this problem?”**

Slides 7-8:

Student picks numbers for the addition equations. If student struggles, tutor can choose starting numbers for student. Student should place the correct number of cubes in each Ten Frame to represent the numbers chosen.

Solve addition problem by rearranging the numbers to make a ten and leftovers and identifying combinations used.

***If your student needs extra practice, slide 12 has additional practice Ten Frames/addition problems.**

Slides 9-10: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide to support your student with these word problems. Student may use connecting cubes or pencil and paper, if needed. Encourage them to use knowledge of combinations to solve, rather than counting.

Allow student time to solve on their own, prompting only if they become frustrated.

Note: Word Problem #2 is an opportunity to build student's vocabulary in addition to practicing math!

Slide 11: Wrap Up**Slide 12: Additional Practice (if needed)**

optional Additional practice if needed/have time. Will repeat same steps as slides 5 and 6.

Lesson Guide for: 4c. Ten Frame Addition (9+, 8+)
Notebook: Strategies to 20

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Ten Frame Addition."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice adding a variety of numbers to 9 and 8. We will use our knowledge of COMBINATIONS to break apart numbers and create 10s and leftovers'."**

Slide 2: Combinations to 10 Review

Tell student, **"First, let's do a few minutes of combinations review!"**

Through the camera, play the hiding game with at least 3 different Focus Numbers (between 6 and 10). Have student choose first Focus Number.

In progress log, note any combinations student struggled with.

To play:

Pick a Focus Number to review. Count out cubes (or whichever items you have!) that equal that Focus Number. Tell student, **"The goal is for you to tell me what's hiding as quickly as you can without counting."**

Hide all of the cubes under your hand and then pull out two, leaving them visible on the table. Ask student, **"If I have [X] and show you two, how many are still hiding under my hand?"**

Repeat by showing different quantities of cubes until every possible combination has been tested. Pick another Focus Number to play a round for, and repeat. ****Repeat until a round has been played for all Focus Numbers, 6-10.**

Tips for supporting students:

- *If the quantity shown is large, it may be easier to think about the problem as addition. (If $8 - 6$ is difficult, suggest thinking about $6 + \underline{\quad} = 8$)*
- *If the quantity shown is close to a double, it may be easier to think of the double and make an adjustment to find the answer. ($8 - 4 = 4$, so $8 - 3$ must be 5)*

Slide 3: Part I- Adding Any Number to 9 *Make sure student is sharing their screen!*

Tell student, **"Okay, now that our combinations are fresh in our mind, we are going to practice adding any number to 9."**

"We have 9 on the Ten Frame. I want to add 4 cubes to this 9. (So, $9 + 4$.)"

"How many will I have altogether?"

Allow student to answer in whatever way they choose. **Remind them to explain their answer!**

Model how to use knowledge of tens to find the total without having to count by ones, saying:

"How many cubes do you need to make a ten?"

"If you take 1 cube from the 4 cubes, how many will be leftover?"

"What is that altogether?"

Slide 4:

Tell student, **“Now I want you to try a few more. Move a square to reveal a number beneath, then add that to 9.”**

For the first one or two problems, student may use the red circles to complete the 10 and to see the leftovers.

For the remaining problems, encourage student to use their knowledge of combinations to predict what the leftovers will be.

Note: Student may use physical Ten Frame Cards and connecting cubes, if additional support is needed.

Slide 5: Part II- Adding Any Number to 8

Repeat same steps as in Part I/Slide 3, but now using 8 as the starting number.

Slide 6:

Repeat instructions from Slide 4, now using 8 as the starting number.

Note: Student may use physical Ten Frame Cards and connecting cubes, if additional support is needed.

Slide 7: Part III- Using Fact Families to Add

Tell student, **“It’s important that you are always using your knowledge of combinations to add, rather than counting by ones. One way to help us with this is to use the visual of fact families to see what combination will allow us to make a new ten.”**

Walk through example fact family image: In $8+6$, we break 6 into 2 and 4 because I know that if I add 2 to my 8, it will give me 10. Then we have 4 leftovers. $10+4=14$ so $8+6=14$.

Slide 8:

Use pen tool to fill in the appropriate combinations for each problem.

Note: Student should break numbers into parts that make sense – that can easily make the starting number into 10. For the first problem, $9+5$, student should break 5 into 1 and 4, since $9+1=10$. If student uses a different combination, remind them they are trying to make a ten and to think of another combination that will work for the problem.

Slides 9-10: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student may use cubes or pencil and paper, if needed. Encourage them to use knowledge of combinations to solve, rather than counting.

Slide 11: Wrap Up

Lesson Guide for: 4d. Visualizing Addition with Ten Frames
Notebook: Strategies to 20

Slide 1: Let's Get Started

Intro/icebreaker activity or question to get student engaged in session. If student does not know another way to say "hello", take a moment to teach them one!

Tell student, **"The name of today's activity is Visualizing Addition with Ten Frames."** Read aloud the purpose of today's math activity to student: **"In this activity, we will use our knowledge of combinations to add numbers with sums up to 20. However, instead of moving squares to complete a Ten Frame, we will practice visualizing the solution."**

Slide 2: Combinations to 10 Review - Elimination Game *Make sure student is sharing their screen!*

Tell student, **"First, let's practice our combinations with a quick game of Elimination. You will be able to practice the combinations for all numbers up to ten while playing this game!"**

First player rolls two dice or uncovers two virtual dice on slide 3 and determines the sum. They then use the pen tool to cross out EITHER the sum OR any combination that adds up to the sum.

For example, if a player rolls 4 and 5, they can cross out one of the following:

9
8 and 1
7 and 2
6 and 3
5 and 4

First player continues to roll and cross out numbers until they are stuck, meaning all possible combinations for the numbers rolled have already been crossed out, and they are not able to do anything on the board.

When the first player becomes stuck, they calculate their final score by adding all numbers that are not yet crossed out. Second player repeats what first player has done. Whoever has the lowest score wins!

Note: Student use two dot or number cubes from their math kit, and tutor should use the virtual dice on Slide 3 (uncover two for each "roll")!

Slide 3: Virtual Dice for Tutor

For elimination game: uncover two dice for your roll. Continue with instructions as written above!

Slide 4: Part I- Visualizing 9+

Tell student, **"Okay, now that you have practiced your combinations, we are ready to continue with Strategies to 20!"**

Ask student, **"How could you use ten and your knowledge of combinations to solve the problem on the screen (9+6)?"**

Encourage student to think about combinations rather than counting to determine the leftovers. One way to do so in the example above is to ask, "What combination of 6 would you use to break it apart to make a ten and have leftovers?"

Slide 5: Practice Adding to 9

Make sure student is using knowledge of combinations to solve, explaining their answers (How many to make a ten? How many leftovers? How many altogether?) if student becomes stuck. Move green rectangles to reveal additional practice problems.

If student continues to struggle determining appropriate combinations, prompt “Which combinations should we break this into so that we can make a ten?”

Slide 6: Part II- Visualizing 8+

Repeat Part I, now using 8 as the starting number.

Slide 7: Practice Adding to 8

Make sure student is using knowledge of combinations to solve. If student struggles, remind them of the guiding questions (How many to make a ten? How many leftover? How many altogether?)

Remove green rectangles to reveal additional practice problems.

Slide 8: Part III: Visualizing 7+

Repeat Part II, now using 7 as the starting number.

Slide 9: Part III: Visualizing 6+

Repeat Part II, now using 6 as the starting number.

**Note: With 6, student may realize it easier to make a 10 out of the second addend (such as in the problem 6+9.) This is fine! Allow student the flexibility to begin with either addend.*

Slides 10-11: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student may use cubes or pencil and paper, if needed. Encourage them to use knowledge of combinations to solve, rather than counting.

Slide 12: Wrap Up

Lesson Guide for: 4e. Ten Frame Card Game - Addition
Notebook: Strategies to 20

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Ten Frame Card Game for Addition."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice adding a variety of numbers between one and nine using relationships to ten."**

Slide 2: Combinations to 10 Review *Make sure student is sharing their screen!*

If student is struggling with their combinations to ten, play this review game for a few minutes. If not, continue to slide 3.

Domino War

Tutor and student will each slide off an ice cream icon to reveal a domino card. Each player will say the sum showing on their card.

Then, the student tries to say the difference between the two cards within 3 seconds.

If the student says the difference in 3 seconds, they keep the cards; if not, the tutor keeps the cards. Play until all the cards are uncovered.

Slide 3: Adding to 7

Student moves a question mark to reveal a playing card. Using their knowledge of tens and combinations, have student add the playing card and Ten Frame together. Make sure they explain their answers!

If student struggles, prompt **"What do you need to make a ten? What combination will help you to do that?"**

If student answers correctly, they receive a point. If not, tutor receives a point.

Student should reveal and correctly add AT LEAST 4 cards before continuing!

Slide 4: Adding to 8

Repeat game, now adding playing cards to the 8 Ten Frame.

Student should reveal and correctly add AT LEAST 4 cards before continuing!

Slide 5: Adding to 6

Repeat game, now adding playing cards to the 6 Ten Frame.

Student should reveal and correctly add AT LEAST 4 cards before continuing!

Slide 6: Adding to 9

Repeat game, now adding playing cards to the 9 Ten Frame.

Student should reveal and correctly add AT LEAST 4 cards before continuing!

Slide 7: Part II- Addition without Ten Frame Cards

Play the game again but this time without the Ten Frame card. This will challenge the student to think about what is needed to complete the ten without using the Ten Frame card as a visual.

Remove one of the squares to reveal the starting number. Then, remove a question mark to reveal the addend.

Student should practice with each of the four starting numbers AT LEAST three times. Remind student that it doesn't matter which number they start with when adding!

Student MUST explain their answer!

Slides 8-9: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student may use cubes or pencil and paper, if needed. Encourage them to use knowledge of combinations to solve, rather than counting.

Slide 10: Wrap Up

Lesson Guide for: 4f. Subtracting 9 and 8 with Ten Frames
Notebook: Strategies to 20

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Subtracting 9 and 8 with Ten Frames."** Read aloud the purpose of today's math activity to student: **"We know that thinking of numbers as tens and some leftover ones helps us to add numbers with sums greater than 10. In this activity, we are going to think about tens and leftover ones when we subtract."**

Make sure student is sharing their screen!

Slide 2: Combinations to 10 Review

Tell student, **"First, let's review your combinations with a quick game!"**

Dice Race: Student can use either Dot Cubes or Number Cubes from their math kit OR the virtual cubes on slides 3 and 4.

Ask student to roll the 2 chosen cubes and to tell the sum as quickly as they can.

If student tells the sum within 3 seconds, *without counting by ones*, student gets a point. If student has not announced the sum within tutor's count of three, tutor tells the sum and gets the point. Continue until student has 10 points.

Slides 3 and 4: Dice Race (Virtual Option)

Student removes two emblems at a time to reveal two virtual dice (slide 5) or virtual number cubes (slide 6) instead of rolling the cubes from their math kit.

Follow remaining instructions from slide 4.

Slide 5:

Tell student, **"Okay, now we have finished our review. We know that thinking of numbers as tens and some leftover ones helped us add numbers with sums greater than 10. Now we are going to think about tens and leftover ones when we subtract."**

Ask student, **"If we subtract 9 from this number, how many would be left? What combination of 9 did you use?"**

"Let's break this problem down on the next slide!"

If student counts by ones to take away 9, let student know that their answer is correct, but encourage them to use knowledge of parts of numbers (*combinations*) and tens and ones to subtract more quickly and consistently.

Slide 6:

Tell student, **"If you take the card showing 6 away first, how many would you still need to take from the ten?"** *Answer: 3, because 9 take away 6 leaves 3.*

"After you take away 3 how many would be left?" *Answer: 7.*

NOTE: Student may need to use fingers to cover dots. Encourage them to use known combinations rather than counting one by one. One way to do so in the example above is to ask, **"What combination could we use to easily subtract 9?"**

Slide 7:

Tell student, **“We can also look at this problem in a different way.”**

“If you take 9 away from the completed ten first, how many would be left on that Ten Frame?”

Answer: 1.

“If you have 1 left and 6 left, how many are left in all?” *Answer: 7.*

Slide 8:

Practice subtracting 9 from the Ten Frames (14, 12, 17). Student should explain their answer using combinations. Remove orange rectangles to reveal second and third problems.

Even if student says, “I just know it”, we want to be sure they demonstrate an understanding of tens and ones – they should explain HOW they know!

Slide 9: *optional* Only complete if student needs additional practice subtracting 9!

Additional practice subtracting 9. Remove orange rectangles to reveal second and third problems.

Slide 10: Practice Subtracting 8

Tell student, **“We can use the same method to subtract 8!”**

Ask student, **“How would you take 8 from this number?”**

NOTE: *Student may need to use fingers to cover dots or the pen tool to cross out the dots they are taking away. Encourage student to use known combinations rather than counting one by one. One way to do so in the example above is to ask, “What combination could you use to easily subtract the 8?”*

Slide 11:

Practice subtracting 8 from the Ten Frames (12, 13, 15). Student should explain answer using combinations. Removes orange rectangle to reveal second and third problems.

Even if student says, “I just know it”, we want to be sure they demonstrate an understanding of tens and ones – they should explain HOW they know it!

Slide 12: *optional* Only complete if student needs additional practice subtracting 8!

Additional practice subtracting 8. Removes orange rectangle to reveal second and third problems.

Slides 13-14: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student may use cubes or pencil and paper, if needed. Encourage them to use knowledge of combinations to solve, rather than counting.

Slide 15: Wrap Up

Lesson Guide for: 4g. Ten Frame Card Game - Subtraction
Notebook: Strategies to 20

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Ten Frame Card Game - Subtraction."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice subtracting from a variety of numbers between 11 and 20 using relationships to ten."**

Make sure student is sharing their screen!

Slide 2:

Have student identify the starting number (15), then remove a question mark to reveal a playing card. Student will then subtract the number on the playing card from 15.

If student struggles, prompt ***"Do you want to start with the leftovers or the full ten? What combination will you use to break apart the number you are subtracting?"***

If student answers correctly, they receive a point. If not, tutor receives a point.

Student should reveal and correctly subtract AT LEAST 4 cards before continuing!

Slide 3: Practice subtracting from 13

Have student identify the starting number (13), then remove a question mark to reveal a playing card. Student will then subtract the number on the playing card from 13.

If student struggles, prompt ***"Do you want to start with the leftovers or the full ten? What combination will you use to break apart the number you are subtracting?"***

If student answers correctly, they receive a point. If not, tutor receives a point.

Student should reveal and correctly subtract AT LEAST 4 cards before continuing!

Slide 4:

Follow same instructions from slides 2 and 3, this time subtracting from 16.

Slide 5:

Follow same instructions as preceding slides, this time subtracting from 12.

Note in progress log if any starting numbers were difficult for student.

Slide 6: Part II- Subtraction without Ten Frame Cards

Play the game again but this time without the Ten Frame card. This will challenge the student to think about where to begin subtracting without using the Ten Frame as a visual.

Remove one of the yellow question mark squares to reveal the starting number. Then, remove a red question mark to determine how much to take away.

Student should reveal and correctly subtract AT LEAST 3 cards for each starting number before continuing!

Student MUST explain their answer in terms of combinations/the Ten Frames!

Slides 7-8: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student may use cubes or pencil and paper, if needed. Encourage them to use knowledge of combinations to solve, rather than counting.

Slide 9: Wrap Up

Lesson Guide for: 4h. Teen Addition and Subtraction
Notebook: Strategies to 20

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Teen Addition and Subtraction."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice solving a few addition and subtracting problems WITHOUT seeing the Ten Frames."**

Make sure student is sharing their screen!

Slides 2 & 3: Combinations to 10 review

If student needs additional review for combinations, play Dice Race for a few minutes. Otherwise, continue to slide 4.

Dice Race! Materials needed: 2 Number Cubes OR virtual dice on slide 3.

Ask student to roll 2 Yellow Number Cubes and to tell the sum as quickly as they can. If student tells the sum within 3 seconds, *without counting by ones*, student gets a point. If student has not announced the sum within tutor's count of three, tutor tells the sum and gets the point. Continue until student has 20 points.

Slides 4 and 5:

Student moves question mark to reveal problems. Student should solve mentally and explain their answers.

If student struggles, ask **"Describe the Ten Frame cards you would use. If adding, what would need to make a ten? If subtracting, what would you take away first?"**

NOTE: *If student struggles with a particular subtraction problem, suggest that they experiment with finding the answer by thinking in terms of addition. For example, if the problem is $12 - 8$, some students may prefer to think about "8 plus what makes 12". This is especially true when the number being subtracted is large.*

If student needs additional support from physical Ten Frame cards, ask your PC to provide them!

Slides 6-7:

Practice adding and subtracting with word problems. Have student say or write equation first, then solve. Note in progress log if student reverts to counting or otherwise struggles with the concepts.

NOTE: *The word "more" can sometimes mislead students because they see it as a key word for needing to add. While this is sometimes true, they must remember that the question "how many more?" requires comparing to find the difference, which is subtraction.*

Slide 8: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student may use cubes or pencil and paper, if needed. Encourage them to use knowledge of combinations to solve, rather than counting.

Slide 9: Wrap Up

Lesson Guide for: 4i. War for Sums Greater than 10
Notebook: Strategies to 20

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is War for Sums Greater than 10."** Read aloud the purpose of today's math activity to student: **"You have practiced adding using tens and leftovers, Today we are going to play a card game to practice using that strategy in our minds!"**

Make sure student is sharing their screen!

Slide 2: Combinations to 10 Review

Tell student, **"First, we will review your knowledge of combinations. We will practice figuring out how many shapes we see without counting by ones or twos. The best way to do this is to practice breaking big numbers into groups we can see right away and then combining those groups."** Prompt student to slide the question marks off the dot cards one by one.

For each card, ask the student, **"What groups do you see, and how many is that altogether?"** If the student immediately tells you the total for each card, ask **"How did you see that?"**

Example for 9 Card:

The student might see groups of 4 and 5 and say, **"4 + 5 = 9."** Another student might see groups of 4, 3, and 2 and say **"4 + 3 + 2 = 9."**

If student counts by ones or twos, ask them, "Is there another way you can see that?"

*Encourage student to identify larger groups. Counting by twos is still considered "counting" and is not the same skill as recognizing groups and adding them together. **Only spend five minutes on this slide, then move to slide 3!***

Slide 3: War for Sums Greater than 10

Explain rules of game to student:

- First player chooses two cards and adds them together.
- Second player chooses two cards and adds them together.
- **Make sure each player explains their answer using tens and leftovers!**
- The player with the highest sum wins the hands and takes all four cards!

Note: *It may be easiest to "collect" cards in the bottom of the screen.*

Slides 4 & 5: Rounds 2 and 3!

Follow same instructions as in Slide 3.

Slides 6-7: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student may use cubes or pencil and paper, if needed. Encourage them to use knowledge of combinations to solve, rather than counting.

Slide 8: Wrap Up

Lesson Guide for: 4j. War for Subtraction in the Teens
Notebook: Strategies to 20

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is War for Subtraction in the Teens."** Read aloud the purpose of today's math activity to student: **"You have practiced subtracting using tens and leftovers. Today we are going to play a card game to practice using that strategy in our minds."**

Make sure student is sharing their screen!

Slide 2: War for Subtraction in the Teens

- Each player has a 10 card; they keep this 10 for the duration of the game.
- First Player moves a question mark to reveal a card. Add that number to your 10. This is your starting number.
- Next, First Player moves a second question mark to reveal another card. This is what you will subtract from the starting number.
- Second Player repeats the above steps.
- Whoever has the highest answer wins the round!

Some things to note:

- *Move chosen cards to the space identified as "tutor" and "student".*
- *Student can write equation on paper if that is easier for them to then solve. (Sometimes seeing numbers helps!)*
- *It may be easiest to "collect" cards at the bottom of the board.*

Slide 3: Round 2!

Follow same instructions as in Slide 2.

Slide 4: Final Round!

Follow same instructions as in Slides 2 & 3. However, this round has an added challenge as your starting number will be 20+ rather than 10+!

If 20+ is too difficult for student, delete the extra 10 and play as in slides 2 & 3.

Slides 5-6: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide. Student may use cubes or pencil and paper, if needed. Encourage them to use knowledge of combinations to solve, rather than counting.

Slide 7: Wrap Up

5. Place Value & Multi-Digit Addition and Subtraction

In the Place Value and Multi-Digit Addition and Subtraction Notebook, students practice solving multi-digit addition and subtraction problems using strategies based on place value, rather than only by memorizing the procedures for borrowing and carrying over. Students will use knowledge of tens and leftovers and parts of numbers, practiced in Strategies in 20, to add and subtract larger numbers.

To show mastery in this concept, students will be able to:

1. Make as many hundreds and tens as possible and see the leftovers to determine the total.
2. Mentally add and subtract groups of 10 and 100 fluently.
3. Represent two- and three-digit numbers in different ways by breaking apart and rearranging hundreds, ten, and ones.
4. Solve multi-digit addition and subtraction problems based on knowledge of place value and parts of numbers.
5. Show understanding by explaining solutions verbally or by demonstrating with cubes, a number line, or numeric form.

The information below may assist you in helping your student.

- In this concept notebook, students will be asked to solve two- and three-digit addition and subtraction problems in a variety of ways to strengthen their ability to think flexibly about numbers.
- Some students may already know the standard algorithms that call for "borrowing" and "carrying over", but often they have learned these as *procedures* without truly understanding the number relationships behind the steps involved. Rather than refer to "borrowing" and "carrying over", tutors should encourage students to make "new tens" and/or "make new hundreds" when adding, and "break up a ten into ones" or "break up a hundred into tens" when subtracting.
- While using standard algorithms is not wrong, relying on rules and procedures can prevent students from thinking logically and efficiently about problems, and when a calculation error occurs, they may be unable to recognize that their answers are unreasonable.

Place Value Jams

- 5a. Candy Store
- 5b. Different Ways/ Ten Frames Quickly
- 5c. First to 40
- 5d. First to Zero
- 5e. Capture 3
- 5f. Two-Digit Racing
- 5g. Adding with Expanded Form 2 Digit
- 5h. Adding and Subtracting 2 Digits on a Number Line
- 5i. Friendly Numbers/What's Missing?
- 5j. Close to 100
- 5k. Adding with Expanded Form 3 Digit
- 5l. Adding and Subtracting 3 Digits on a Number Line
- 5m. Number Line – Adding Up to Subtract
- 5n. Close to 1,000
- 5o. Rolling Dice to Make Three-Digit Problems
- 5p. Three-Digit Word Problems

Lesson Guide for: 5a. Candy Store
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Candy Store'." Read aloud the purpose of today's math activity to student: "In this activity, we are going to explore making groups of ten and see how they relate to the total number."

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather whiteboard or paper and pencil.

Make sure student is sharing their screen!

Slide 3: Create Chart Have student create a recording sheet like the one shown on the Jam file/below.

<u>Boxes</u>	<u>Individuals</u>	<u>Total Candies</u>

Slide 4: Candy Store – Blue Blast

Read the following situation and subsequent questions to the student. Have them retell as you go to double check for understanding: "Congratulations! You have purchased a candy store and are preparing for the grand opening. The candy is shipped to you in bags. Each bag holds a different number of pieces depending on the type of candy. You are going to sell your candy to customers in boxes of ten same-colored candies or as individually wrapped pieces. Let's get ready!"

Tell student,

"Slide your 'Blue Blast' candies on the Ten Frames to see how many boxes you will need for those candies."

Once completed, ask student,

"How many boxes will you need for 'Blue Blast' and how many individuals will you have leftover? How many total pieces of blue candy do you have?"

Have student record their findings on their recording sheet.

Slide 5: Candy Store – Green Gummies

Tell student, "Now slide your 'Green Gummies' candies on the Ten Frames to see how many boxes you will need for those candies."

Once completed, ask student, "How many boxes will you need for 'Green Gummies' and how many individuals will you have leftover? How many total pieces of green candy do you have?"

Have student record their findings on their recording sheet.

Slide 6: Candy Store – Peppermint Patties Complete the same process with the peppermint patties.

Slides 7-8: What If?

To ensure understanding, ask student, "If you order a bag of 'Lemon Limes' with 52 pieces how many boxes would you need and would you have any leftover to sell individually?"

You may have to support student in asking questions to get them to think about what they learned about filling the boxes of candy from slides 3-5.

Next, ask student, **“If I bought 7 boxes of candy and 6 individual pieces, how many total pieces would I have?”**

Slides 8-9: Apply Your Learning Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Slide 10: Workspace – if needed for student to solve story problems.

Slide 11: Wrap Up

Lesson Guide for: 5b. Different Ways/ Ten Frames Quickly
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Different Ways and Ten Frames Quickly.'" Read aloud the purpose of today's math activity to student: "In this activity, we will represent two- and three-digit numbers in different ways by breaking apart, then rearranging hundreds, tens and ones. We will also practice finding the total by combining tens and ones."

Make sure student is sharing their screen!

Slide 2: Problem 1- 2-Digit Number

Using the Base Ten rods and cubes, have student build 45. One rod = 10 and one cubes = 1. (The easiest way to build 45 is using 4 rods and 5 cubes.). Then ask student to write the expanded form equation in the provided text box ($40 + 5 = 45$).

Ask student, "How do the rods and cubes show $40 + 5$?"

Slide 3: Problem 1- Rearranged

Ask student to build 45 again, but this time with a different arrangement of rods and cubes. Ask student to write the new equation (that mirrors the new arrangement of cubes) in the provided text box.

Ask student, "With your new arrangement, is the total the same? How do you know?"

Slide 4: Problem 2- 3-Digit Number

Repeat the same process as in slide 4 but now with a 3-digit number: 136. Student now has access to Base Ten Squares (100), rods and cubes.

(Expanded Form Equation for 3-digit is Hundreds + Tens + Ones.... $100 + 30 + 6 = 136$)

Slide 5: Problem 2- Rearranged

Repeat same process as in slide 3.

Ask student, "With your new arrangement, is the total the same? How do you know?"

Slides 6-9: Ten Frames Quickly

This is designed to help students visualize numbers as groups of tens and some ones. For each slide, remove the blue square, showing the Ten Frame image for ~3 seconds, then recover with blue square. Ask student, "How many tens did you see? How many ones? How many is that altogether?"

If student struggles, fully uncover Ten Frame image and work with student to identify total. The goal is for student to be able to correctly identify the amounts on the majority of the images.

Slides 10 & 11: Apply Your Learning

Tutor and student will work through word problems to apply learnings. Use the Word Problem Chart as a guide.

Slide 12: Workspace – If student needs space to work out story problems.

Slide 13: Wrap Up

Lesson Guide for: 5c. First to 40
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'First to 40'." Read aloud the purpose of today's math activity to student: "In this activity, we are going to practice adding by making tens and leftovers to determine the total."

Slide 2 & 3: First to 40 (And Virtual Dice) *Make sure student is sharing their screen!*

Tell student, "In the last notebook, Strategies to 20, you learned how to add numbers by making tens and determining the leftovers. Today we are going to play a game that uses the same kind of thinking to help you add larger numbers. As you know, our number system is based on tens, so keeping our cubes organized into tens will make it easy to see how many we have altogether."

Next, allow student to choose whether they would rather slide flags onto the Ten Frames as markers (left side) or use the "pen" tool to shade in/mark squares on the Ten Frames (right side). Tutor will use the side the student doesn't choose.

Student can use dice in their math kit or virtual dice on Slide 3 by removing an animal image to show the number they will add. This will be their starting number. They will fill in their first Ten Frame (with flags or pen marks) with that amount. Prompt student to write the equation on their paper or whiteboard ($0 + x$, etc.). Tutor and student will take turns uncovering a number on Slide 5 and adding that number to their Ten Frames on Slide 4. The winner of the game is the first to reach 40.

Ensure student is determining the total mentally before moving flags to mark squares. To prompt thinking, ask, "Can you use the strategy of thinking about tens and leftovers to predict your new total?"

Student must determine whether the number added will complete a ten and if so, what the leftovers will be.

Model this way of thinking aloud on your turn. An example for $28 + 5$ is, "I can use 2 to complete a ten and reach 30. I will have 3 left over, so my new score will be 33."

After each new total is reached, ask student, "How many tens do you have and how many ones? What is the total?"

Slides 4-5: Apply Your Learning Tutor and student will work through word problems to apply learnings. Use the Word Problem Chart as a guide.

Slide 6: Workspace – if student needs space to solve story problems on slide 4.

Slide 7: Wrap Up

Lesson Guide for: 5d. First to Zero
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'First to Zero'." Read aloud the purpose of today's math activity to student: "In this activity, we will practice subtracting using known combinations and the underlying structure of tens and ones."

Slide 2 & 3: First to Zero (And Virtual Dice) *Make sure student is sharing their screen!*

Student can use dice in math kit or virtual dice on slide 3. Players take turns rolling dice to determine how many flags to **remove** from their Ten Frames. The winner of the game is the first to clear their Ten Frames. Make sure student is not counting by ones. Rather, they should use known combinations to remove the flags. Student should also determine the total left without counting by ones.

To elicit this way of thinking ask, "How many do you need to take away to get down to a ten? And how many are you supposed to take away altogether?"

Model this way of thinking aloud on your turn. An example for $43-7$, is "I will take away the 3 ones to get 40. I still need to take away 4. When I take 4 from one of the tens, I will be left with 6 ones. My new score will be 36."

Student should record both their and tutor's equations and totals on a sheet of paper (or whiteboard) after each turn.

Once student is comfortable, ask them to *predict* the resulting number before removing flags from the board.

Slides 4-5: Apply Your Learning Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Slide 6: Workspace – If student needs space to work out story problems.

Slide 7: Wrap Up

Lesson Guide for: 5e. Capture 3
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is 'Capture 3'."** Read aloud the purpose of today's math activity to student: **"In this activity, we are going to practice mentally adding and subtracting tens and ones using the Hundreds Chart."**

Make sure student is sharing their screen!

Slide 2 & 3: Capture 3 & Virtual Dice *Student may use dot cubes from their math kit OR the virtual dot cubes on Slide 3.*

Allow your student to choose the green or blue elephant to act as their game piece.

Say to student, **"The Hundreds Chart is a helpful visual to see what happens when you mentally add and subtract numbers. As you move right along the chart, numbers increase by 1. As you move up the chart, numbers increase by 10."**

Allow student to confirm that the above is correct.

"We are going to play a game where we will both add and subtract tens and ones on the Hundreds Chart to try and capture peanuts. Whoever first captures 3 peanuts wins!"

Student starts on the 13 square and Tutor starts on the 85 square. Tutor and student take turns trying to capture 3 of the 12 peanuts on the Hundreds Chart. Moves along the chart are made by each player deciding if they want their roll to be plus (+) or minus (-) and then deciding if it should be tens or ones. (Player will choose +/- and tens/ones *AFTER* rolling/uncovering their dot cubes.) Player then moves the appropriate number of spaces. If a player lands exactly on one of the 12 peanuts, they "capture" it, removing the peanut from the chart.

Examples

- *When the tutor begins on the 85, they can see that there is a peanut at the 82 square. They uncover a 3 on the dice and decide the roll will be minus (-) 3 ones. This means they will land on 82 and a capture a peanut!*
- *When the student starts at 13, they see a peanut at the 33 square. They roll a 2 and decide their move will be plus (+) 2 tens. They land on 33, capturing a peanut!*

*The student should add their tens **WITHOUT** counting. They could say "13 plus 2 tens is $13 + 20 = 33$."

With each move, players should say the equation they create.

Slide 4: Apply Your Learning Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Slide 5: Workspace If student needs space to solve story problem on slide 4.

Slide 6: Wrap Up

Lesson Guide for: 5f. Two Digit Racing

Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Two-Digit Racing'." Read aloud the purpose of today's math activity to student: "In this activity, we will practice adding and subtracting two-digit numbers using our knowledge of tens and ones."

Slides 2 & 4: Racing Up *Make sure student is sharing their screen!*

Tutor and student take turns uncovering the virtual dice on page 3 (or student may roll number dice from their math kit) by removing an emoji from the tens place and the ones place to determine the number of cubes they will add on their respective slides (Student Slide 2 and Tutor Slide 4). The winner of the game is the first player to reach or pass 100!

For each problem, student will use the base ten materials (tens rods and ones cubes) to add the number they "rolled." Ensure student explains their thinking as they are solving the problem with the base ten materials.

Student **should not** count up or add cubes one by one. For each roll, prompt student to write out the equation on a separate sheet of paper/white board. Ensure student is joining cubes into tens and moving them to the "Tens" column. Student may use the black rectangles as a way to keep track of ones that have been joined to create a ten.

Example for $25 + 37$: I have 25 and I rolled 37. I will add the three new tens and have 5 tens. Next, I will add the 7 ones. I need to use 5 of them to join with the ones I already have and make a new ten. Then I'll have 2 ones leftover. That will leave me with 6 tens and 2 ones, or 62.

Slide 3: Virtual Dice (optional) *If student chooses not to use Number dice from their math kit.*

Slides 5 & 7: Racing Down

Tutor and student take turns uncovering the virtual dice on slide 6 (or student may roll number dice from their math kit) to determine the number of cubes they will subtract on their respective slides (Student Slide 5 and Tutor Slide 7). The base ten materials are set up such that the players can remove whole tens and individual ones, as several of the tens are already made up of moveable ones. The winner of the game is the first player to reach or pass zero!

Student and tutor should write their equations on a separate sheet of paper/whiteboard. **For each problem ensure student explains their thinking.** Student may subtract in any way that makes sense to them (taking away tens first or ones first), but student **should not** count backwards or take off cubes one by one.

Example for $63 - 18$: I have 63 and I rolled 18. I will take away 3 to get down to 60. Then I will take away the other 5 ones from one of the tens and move them to the ones place. Then I have 55. Now I need take away the ten, leaving me with 45.

Slide 8: Apply Your Learning Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Slide 9: Wrap Up

**Lesson Guide for: 5g. Adding with Expanded Form – 2 Digit
Notebook: Place Value**

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is Adding with Expanded Form." Read aloud the purpose of today's math activity to student: "In this activity, we will add two-digit numbers using expanded form."

Slide 2: Problem 1 *Make sure student is sharing their screen!*

Student may use paper and pencil or a whiteboard to help solve the problems in this activity!

Have student read the word problem aloud and determine the equation we will use to solve the problem. Ensure student knows we are going to combine the two numbers to find the total number of tickets. Next, tell student, "We're going to solve this problem using expanded form."

First, ask student to write the two numbers in expanded form on their own paper. Allow student to move the first ticket to see if they expanded the numbers correctly. Secondly, move the second ticket ask student to combine the tens and then combine the ones.

Finally, ask student to combine the tens with the ones to get the final answer. Allow the student to move the final ticket image to see if they correctly combined the numbers to find the total number of tickets!

Slide 3: Problem 2

Have student read the word problem aloud and determine the equation we will use to solve the problem. Ensure student knows we are going to combine the two numbers to find the total number of points.

Next, follow the same three steps as the previous slide, having the student expand the number, combine the tens/ones, then find the total. Student can remove the basketballs to check their work.

We want students to use methods other than the traditional algorithm (borrowing and carrying) to ensure they understand how the numbers work rather than memorizing a procedure. If the student reverts to this method for any portion of the activity, ask them if they can think about combining to get to landmark numbers. For example, if the student is adding $60 + 50$ and tries to "carry" the one, ask if they can make 100 and see what's leftover? Or see if they can think about $60 + 50$ as adding 6 tens and 5 tens – how many tens is that and what is that total?

Slides 4-6: Additional Expanded Form Word Problems

Student should solve using expanded form as practiced on slides 2-3.

Prompt student to estimate first and then begin solving while talking through their steps.

Slide 7: Workspace – If student needs space to solve story problems on previous slides.

Slide 8: Wrap Up

Lesson Guide for: 5h. Adding and Subtracting 2 Digits on a Number Line
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Adding and Subtracting 2 Digits on a Number Line'." Read aloud the purpose of today's math activity to student: "In this activity, we will practice adding and subtracting two-digit numbers on a number line, using what we know about tens and ones."

Slide 2: Number Lines *Make sure student is sharing their screen!*

An open number line is an empty line that can be used to find solutions for addition and subtraction problems. Tell student, "You have used Ten Frames and Connecting Cubes to add and subtract numbers up to 100. Now we will use the same ideas, but we will keep track of our thinking using a number line."

Slide 3: Problem 1

Prompt student to read the word problem in the top left corner. Next, point out the blue number line modeling one way to solve the problem. Ask student to describe what's happening in the model.

Slide 4: Problem 1 Breakdown

Read the yellow note in the top left corner – "For $36 + 44$, she started with 36 offices and then added the 44 conference rooms by moving to the right 44 spaces. Instead of jumps of ones, she made jumps using parts of 44 that were easy to add in her head!"

Point to the first jump with your cursor and read the pink sticky note, "On a Ten Frame, you reach the next friendly ten by filling up the Ten Frame. On a number line, you can put a hash where it would be and label the jump you need to get there."

Then, point to the 80, or the "landing point" and read the final pink sticky note, "You don't need to label every number on the number line, just those we use as stopping points! Once she added the 44, she got to the total number of rooms!"

Slide 5: Problem 1 Alternative Processes *Student can solve on the Jam or on a whiteboard from the Heart cart.*

Ask student, "Can you think of a different way to solve $36 + 44$?"

The goal is for student to recognize that there are a lot of different jumps you can make to solve a problem and they can be completed in any order that makes sense. It's most important to choose jumps that are easy on your brain when thinking about numbers.

Student can either write on whiteboard and talk you through the process or use the pen tool to write on the blank space on the slide.

Slide 6: Problem 2

NOTE: This problem uses the same numbers as problem 1 to give students opportunities to recognize the interconnected relationship between addition and subtraction; it is okay if they recognize the answer immediately!

Prompt student to read the problem on the left side of the board. Discuss the question in the yellow sticky note with student. Next, ask student, "How would you use the number line to solve this problem?"

Slide 7: Problem 2 continued *-Subtracting Using a Number Line (By Jumping Back/Down)*

Tell student, **“We are going to solve the problem by thinking about subtraction, where we will take away 36 (the number of rooms that are offices) from our total (80 rooms). The answer will tell us the number of rooms left to be meeting rooms.”**

Explain to student, **“We can use a numeric representation, or equation, to state the problem we are solving. For this problem, our equation is ‘ $80 - 36 = ?$ ’. We are going to figure out how many are left when we subtract 36 from 80.”**

Have student set up a number line on their whiteboard with a starting point of 80, or use the one on Slide 8.

Slide 8: Problem 2 continued -Subtracting Using a Number Line (By Jumping Back/Down)

Have student walk you through the jumps they are going to make when starting at 80 and jumping back/taking away 36. Student can use either the Jam or the whiteboard to show their work. Encourage students to explain to you why they are choosing their jumps. If student is having trouble, suggest jumps that take you close to friendly numbers.

Slide 9: Adding Up to Subtract

Explain to students, **“Going backwards in subtraction problems can be trickier than going forwards in addition. So another way we can subtract is by ‘adding up to subtract.’”**

Explain to student, **“We are going to turn the subtraction problem, “ $65 - 39 = ?$ ” into an addition problem. So instead of thinking about it as, “How many will I have left when I take away 39 from 65?”, we can think about it as addition, “How many do I need to add to 39 to get to 65?”. The answer for both, or our missing piece, will be the same!”**

Walk student through the example problem so they understand the arrival at the missing piece of 26.

Slide 10: Problem 2-Another Way! -Subtracting Using a Number Line (By Adding Up)

This problem still uses the same numbers as problems 1 & 2 to give students opportunities to naturally recognize the interconnected relationship between addition and subtraction, so it is okay if they recognize the answer immediately! It also gives student the ability to practice using the number line flexibly w/o challenging arithmetic.

Tell student, **“Let’s try Problem 2 again, but instead of jumping back to subtract, we will add up to subtract like we just saw in the example on the previous slide.”** Have student reread word problem.

Explain to student, **“We will start with 36 offices and figure out how many we need to add by jumping until we get to 80, our total number of rooms. We will add together our jumps to find the missing amount, or in the case of our problem, the number of rooms that will be meeting rooms.”**

Ask student, **“What is the numeric representation we are going to use? Why does ‘ $36 + ? = 80$ ’ make sense?”** Ensure student understands this time we are going to think about the problem by knowing we have 36 rooms that are offices to start with, and we have to figure out how many meeting rooms will get us to our total of 80 rooms.

Have student set up a number line on their whiteboard with a starting point of 36, or use the one on Slide 11.

Slide 11: Problem 2-Another Way! continued -Subtracting Using a Number Line (By Adding Up)

Have student walk you through the jumps they are going to make to get from 36 to 80 (our known ending number/total rooms). Student can use either the Jam or the whiteboard to show their work. Encourage students to explain to you why they are choosing their jumps.

To ensure students understand how the number line represents what they’re solving for, ask **“Why did we start at 36?” (That is the number of rooms that were already offices).** Ask, **“What do the jumps represent?” (The**

number of rooms that need to be meeting rooms). Ask, **“Why did we stop the number line at 80?”** *(That is the total number of rooms in our building).*

Slides 12-15: Problems 3 - 6

Prompt student to read the problem on the left side of the board. Next, ask student, **“How would you set up this problem to solve it on the number line?”** Have student explain/discuss why they are choosing that set up.

Before they begin working, ask, **“What is your estimate?”**

Students can either write on their whiteboard and talk you through the process or use the pen tool to write on the blank space on the slide.

Slides 16-18: Optional Extra Practice, Problems 7 - 9 *Complete if you feel student needs extra practice & reinforcement with solving 2-digit problems on the number line!*

*NOTE: *Number lines can take time for students to grasp and feel confident at- use these slides as needed, don't feel the need to rush through. It's important for students to take the time now while working with 2-digit numbers to build a strong understanding and feel confident in making/explaining their jumps.*

Prompt student to read the problem on the left side of the board. Next, ask student, **“How would you set up this problem to solve it on the number line?”** Have student explain/discuss why they are choosing that set up.

Before they begin working, ask, **“What is your estimate?”**

Students can either write on whiteboard and talk you through the process or use the pen tool to write on the blank space on the slide.

Slide 19: Wrap Up

Lesson Guide for: 5i. Friendly Numbers/What's Missing
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is 'Friendly Numbers'."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice adding and subtracting two-digit problems mentally, without any extra tools."**

Slide 2: Let's Recap *Make sure student is sharing their screen!*

Ask student, **"What strategies do you know so far for adding and subtracting two-digit numbers?"**

After the student has brainstormed, prompt them to slide the sandwiches and see which strategies they recognize either from Heart or from class.

Slide 3: Let's Talk about Friendly Numbers

Tell student, **"It is easier to add to a ten, or multiples of ten, so we call these 'friendly numbers'. Friendly numbers are also easy to add in your head. Let's try one problem together."**

Slide 4: Practice Problem

Read aloud the "thought bubble," **"38 is close to 40, which is a FRIENDLY NUMBER. I can move 2 from 17 over to 38, which makes 40. Now, my problem is $40 + 15$ which is easy to add in my head. $40 + 15 = ?$ "**

Have student solve $40 + 15$ and check their work by moving the question mark sticky note.

Ask student, **"How is this similar to making a ten in Strategies to 20?"**

If student struggles to make the connection, tell them, **"In Strategies to 20, we rearranged numbers to make a ten and see what was left. Here we are still rearranging to make an easy number, but we're making a group of several tens and seeing what's left!"**

Slide 5: More Practice Problems

Tell student, **"Making one number in the equation 'friendly' is another way to approach problem solving in addition to the other strategies you've learned. Now it's your turn to practice!"**

Students can either write on whiteboards and talk you through the process or use the pen tool to write on the blank space on the slide. Allow student to work through the practice problems, telling you which number is closest to a ten, or "friendly number", and how they can rearrange the numbers to make one "friendly."

After solving these problems, tell student, **"You can also use friendly numbers when subtracting though it is a bit trickier than addition, so we'll stick with addition for today!"**

Slide 6: Larger Practice Problems

Tell student, **"This isn't a strategy that will be helpful on every problem, but when looking at a set of numbers, think to yourself, 'Are any of these numbers close to a friendly number (a ten?) Let's think about that with the next set of larger numbers.'"**

Allow student to work through the practice problems, telling you which number is closest to a ten, or "friendly number", and how they can rearrange the numbers to make one "friendly."

Slide 7: What's Missing

Tell student, "These images are "pieces" of a Hundreds Chart with blanks where specific numbers belong. Let's use mental math to determine the numbers missing."

See if student knows what's happening as you move up, down, left and right on the Hundreds Chart. From there, see if they can fill in the missing numbers without counting by ones, using the pen tool or text box tool.

Slide 8: Wrap Up

Lesson Guide for: 5j. Close to 100
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Close to 100'." Read aloud the purpose of today's math activity to student: "In this activity, we will practice adding and subtracting two-digit numbers using what we know about tens and ones, as well as using the different strategies we have so far used in these Jamboards."

Slide 2: Round 1 *Make student is sharing their screen!*

Student may use paper and pencil or whiteboard to solve problems, or solve the problems in their head!

Tell student, "We will each choose 4 cards at random and drag them to our workspace below. We will then organize them to make two 2-digit numbers and determine whose numbers make a sum closest to 100."

Model for the student how to remove a red question mark to reveal a card underneath and then drag it to under the "tutor" spot. Once you and your student each have 4 cards, do a "think aloud" and model creating two 2-digit numbers and show how they can rearrange the numerals to change the value of their numbers.

Example: with cards 8, 1, 2, and 5, you could create $81 + 25$, $21 + 58$, $12 + 85$, etc.

Allow student to move around their cards and make the two 2-digits numbers they would like.

Next, model how you would add your two-digit numbers (expanded form, friendly numbers, number line, etc) and talk through whether it is close to 100. Allow student to do the same, explaining their thinking. *If student uses borrowing and carrying to solve, ask them to show a second way using one of the strategies from this notebook.*

Finally, both tutor and student should subtract to determine who was closer to 100. Keep track of who won!

Slide 3: Round 2

Play the same game using the directions for slide 2 and keep track of who won!

Slide 4: Last Round

Play one more round of Close to 100 and see who won the most rounds!

Slide 5: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Slide 6: Brain Check Ask your program coordinator for a brain check!

Slide 7: Wrap Up

Slide 8: Workspace If student needs space to solve story problems on slide 5.

**Lesson Guide for: 5k. Adding with Expanded Form – 3 Digit
Notebook: Place Value**

Slide 1: Brain Check – Call your PC to complete a brain check with your student before continuing!

Slide 2: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Adding with Expanded Form."** Read aloud the purpose of today's math activity to student: **"In this activity, we will add three-digit numbers using expanded form."**

Slide 3: Problem 1 *Make sure student is sharing their screen!*

Student may use paper and pencil or a whiteboard to help solve the problems in this activity!

Have student read the word problem aloud and determine the equation we will use to solve the problem. Ensure student knows we are going to combine the two numbers to find the total number of tickets. Next, tell student, **"We're going to solve this problem using expanded form."**

First, ask student to write the two numbers in expanded form on their own paper. Allow student to move the first Pokémon to see if they expanded the numbers correctly. Then move the second Pokémon- ask student to combine the tens and then combine the ones.

Finally, ask student to combine the hundreds total, tens total, and ones total to get the final answer. Have student move the final image to see if they correctly combined the numbers to find the total number of cards!

Slide 4: Problem 2

Have student read the word problem aloud and determine the equation we will use to solve the problem. Ensure student knows we are going to combine the two numbers to find the total number of points.

Next, follow the same three steps as the previous slide, having the student expand the number, combine the hundreds/tens/ones, then find the total. Student can remove the donuts to check their work.

NOTE: *We want students to use methods other than the traditional algorithm (borrowing and carrying) to ensure they understand how the numbers work rather than memorizing a procedure. If the student reverts to this method for any portion of the activity, ask them if they can think about combining to get to landmark numbers. For example, if the student is adding $60 + 50$ and tries to "carry" the one, ask if they can make 100 and see what's leftover? Or see if they can think about $60 + 50$ as adding 6 tens and 5 tens – how many tens is that and what is that total?*

Slides 5-7: Additional Expanded Form Word Problems

Have student read aloud the three word problems and solve using expanded form.

Prompt student to estimate first and then begin solving while talking through their steps.

Slide 8: Wrap Up

Slide 9: Workspace – If student needs space to solve story problems.

Lesson Guide for: 5I. Adding and Subtracting 3 Digits on a Number Line
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is **Adding and Subtracting Three Digits on a Number Line.**" Read aloud the purpose of today's math activity to student: "In this activity, we will add and subtract three-digit numbers using what we know about hundreds, tens, and ones, and keeping track of our work on a number line."

Slide 2: Problem 1 -Adding Using a Number Line

Student may use the Jam to solve, a whiteboard, or use paper & pencil.

Ask student to read the word problem aloud, then have them draw an open number line with 127 as the starting place.

Slide 3: Problem 1 (continued)

Tell student, "We will start with 127 meals and add 115 meals by moving to the right 115 spaces. Rather than moving up by ones, we will make jumps that are easy for you to do in your head. You don't need to label every number on the number line – only those you use as stopping points. Once you add 115, you will be at your answer, which here is the total number of meals."

Ask student, "What do you think the answer will be? What is your estimate?"

Slide 4: Problem 1 (continued)

Tell student, "Let's walk through one possible way to solve this." Walk through the example problem with student, explaining the jumps (emphasizing that there are lots of different jumps you could do, this is just an example).

To ensure students understands the structure, ask "Where on my number line does it show the 115 meals I added?" Have them circle this with the pen tool. Ask, "Where does it show the sum of 127 and 115 (the total number of meals)?" Have them put a square around this.

Slide 5: Problem 1 – Your Way

Ask student, "Would you have solved it differently? Try on the Jam or on your whiteboard now and talk me through your steps!"

If student struggles to come up with a different way to solve the problem, ask student, "What jump could we add to 127 to get it close to a friendly number?"

Slide 6: Problem 2 -Subtracting Using a Number Line (By Jumping Back/Down)

Tell student, "We are going to solve the problem by thinking about subtraction, where we will take away 127 (the number of chicken meals we know) from our total (242 meals). The answer will tell us the number of pieces of fish we need."

Explain to student, "We can use a numeric representation, or equation, to state the problem we are solving. For this problem, our equation is ' $242 - 127 = ?$ '. We are going to figure out how many are left when we subtract 127 from 242."

Have student set up a number line either on the screen or their whiteboard with a starting point of 242.

Slide 7: Problem 2 continued

Have student walk you through the jumps they are going to make when starting at 242 and jumping back/taking away 127. Student can use either the Jam or the whiteboard to show their work. Encourage students to explain to you why they are choosing their jumps. If student is having trouble, suggest jumps that take you close to friendly numbers.

Slide 8: Problem 2- Another Way! *-Subtracting Using a Number Line (By Adding Up)*

Tell student, **“Sometimes it can be challenging for our brain to think about jumping backwards. This time we will try to solve the same problem, but go the other direction where we ‘add up to subtract’ instead.”**

Explain to student, **“We will start with 127 meals and figure out how many we need to add by jumping until we get to 242, our total meals. We will add together our jumps to find the missing amount, or in the case of our problem, the number of pieces of fish needed.”**

Ask student, **“What is the numeric representation we are going to use? Why does ‘ $127 = ? = 242$ make sense?”** Ensure student understands this time we are going to think about the problem by knowing we have 127 pieces of chicken to start with, and we have to figure out how many pieces of fish will get us to our total of 242 meals.

Have student set up a number line either on the screen or their whiteboard with a starting point of 127.

Slide 9: Problem 2-Another Way! continued

Have student walk you through the jumps they are going to make to get from 127 to 242 (our known ending number/meals total). Student can use either the Jam or the whiteboard to show their work. Encourage students to explain to you why they are choosing their jumps.

To ensure students understand how the number line represents what they’re solving for, ask **“Why did we start at 127?” (That is the number of chicken meals we already had)**. Ask, **“What do the jumps represent?” (The pieces of fish that need ordered)**. Ask, **“Why did we stop the number line at 242?” (That is the total number of meals needed for the event)**.

Slide 10: Talk About It!

Ask student, **“Think about Problem 2 we just completed two different ways where we had to find the number of fish. Which way did you prefer to subtract? Why?”** Ensure student understands that both methods led them to the same answer and helped them find the missing information.

Slides 11-14: Problems 3-6

Have student draw an open number line either on the Jam or on their whiteboard. On the Jam, use a text box to display the numeric representation of the problem. *Remind students that subtraction problems can be represented two ways- as a subtraction equation -or- by adding up to subtract.*

Problem 3: $156 + 377 = ?$

Problem 4: $533 - 377 = ?$ -or- $377 + ? = 533$

Problem 5: $480 - 168 = ?$ -or- $168 + ? = 480$

Problem 6: $480 - 312 = ?$ -or- $312 + ? = 480$

Before solving each problem, ask student, **“What is your estimate?”** Discuss the reasonableness of each estimate before beginning to solve.

Ensure student talks through their problem solving and rationale for making the jumps they did on their number line.

Slide 15: Bonus Question

Have student draw an open number line either on the Jam or on their whiteboard. On the Jam, use a text box to display the numeric representation of the problem.

Before solving the problem, ask student, **“What is your estimate?”** Discuss the reasonableness of the estimate before beginning to solve.

Ensure student talks through their problem solving and rationale for making the jumps they did on their number line.

Slides 16-17: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Slide 18: Wrap Up**Slide 19: Workspace**

Lesson Guide for: 5m. Number Line – Adding Up to Subtract
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Number Line – Adding Up to Subtract'" Read aloud the purpose of today's math activity to student: "Today we will practice solving subtraction problems by adding to find the missing piece."

Slide 2: Problem 1 – Jumping Back *Make sure student is sharing their screen!*

Student may solve on the Jam, using pencil & paper, or a whiteboard.

Tell student, "Today we will try some more problems and use a number line to keep track of your thinking."

Prompt student to solve the subtraction problem " $165 - 139 = 26$ " by jumping back on the number line. (Student might jump back 100, jump back 30, jump back 5, and then jump back 4 more, to get the answer, 26. They could also take away 39 by using other pieces/jumps. Let student verify that the answer is 26 however they choose.)

Slide 3: Problem 1 – Adding Up to Subtract

Tell student, "Now we are going to solve the same problem another way. Instead of thinking $165 - 139 = ?$, we will think of 165 as the total, and 139 as one of the pieces, so to find the other piece we can solve $139 + ? = 165$."

Ask student to start at 139 and figure out the distance to 165, moving in jumps/chunks. One possibility would be to add 1 to get to 140 and 20 to get to 160, then 5 to get to 165. The sum of the parts or pieces added is 26.

After solving, ask student, "Can you find all the parts of our equation modeled in our number line drawing? Where is the 165 we started with? Where is the 139? Where is our answer?"

If student struggles, go to slide 4 to see an example of one way to solve this problem. Otherwise, skip to slide 5.

Slide 4: Problem 1 – Example Solution

Explain "I am at 139. One way to add up is to add 1 to get to 140 and then add 20 to get to 160. I am getting closer, and it's important I keep track of my jumps above. I will then add 5 more to get to 165. When I look at my jumps, I have pieces of 1, 20, and 5. If I add these together, that means I added 26 total."

Slide 5: Problem 1 – Fact Family

Tell student, "Essentially you broke the number 165 into two pieces, 139 and 26. That means that $165 - 139$ is 26. Another way to look at this connection is to create a fact family, like you've done with smaller numbers. Look at our diagram and tell me what the missing "part" is to represent the way you broke apart 165. Then write 4 matching equations below the diagram."

Equations are:

$$165 - 139 = 26 \qquad 165 - 26 = 139$$

$$26 + 139 = 165 \qquad 139 + 26 = 165$$

Slide 6: Problem 2 – Adding Up to Subtract

Just like on slide 3, student should solve the problem " $299 - 147 = 152$ " by adding up to subtract on the number line. Have student record the jumps they made either using the Jam, pencil and paper, or whiteboard.

Slide 7: Problem 2 – Fact Families

Have student fill in the “missing part” of the fact family for the problem that they found on slide 6. Then have student fill in the 4 corresponding equations below.

Slides 8-11: Problems 3 and 4

Have student solve the problem on the Jam by adding up to subtract on the number line. Then have student fill in the fact family and the 4 corresponding equations.

Slides 12-13: Apply Your Learning Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

If they solve using the algorithm (borrowing and carrying) you can prompt them to show how they could also solve by adding up to subtract on the number line.

Slide 14: Wrap Up

Slide 15: Workspace – If student needs space to solve story problems on slides 12-13.

Lesson Guide for: 5n. Close to 1,000
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Close to 1,000'." Read aloud the purpose of today's math activity to student: "In this activity, we will add and subtract three-digit numbers using what we know about hundreds, tens, and ones and estimating."

Slide 2: Round 1 *Make sure student is sharing their screen!*

Student may use paper and pencil or a whiteboard to solve the problems or solve the problems in their head!

Tell student, "We will each choose 6 cards at random and drag them to our workspace below. We will then organize them to make two 3-digit numbers and determine whose numbers makes a sum closest to 1,000."

Model for the student how to remove a red question mark to reveal a card underneath and then drag it to under the "tutor" spot.

Once you and your student each have 6 cards, do a "think aloud" and model creating two 3-digit numbers and show how they can rearrange the numerals to change the value of their numbers. Modeling estimation skills will be helpful here as well.

Allow student to move around their cards and make the two 3-digits numbers they would like.

Example: Cards 8, 5, 2, 7, 6, and 3 could be $852 + 763$, $325 + 687$, $582 + 736$, etc.

Next, model how you would add your three-digit numbers (expanded form, friendly numbers, number line, etc.) and talk through whether it is close to 1,000. Allow student to do the same, explaining their thinking.

Finally, both tutor and student should subtract to determine who was closer to 1,000. Keep track of who won!

Slide 3: Round 2

Play the same game using the same directions for slide 2 and keep track of who won!

Slide 4: Final Round

Play one more round of Close to 1,000 and see who won the most rounds!

Slides 5-6: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Slide 7: Wrap Up

Slide 8: Workspace If student needs space to solve story problem on slides 5-6.

Lesson Guide for: 50. Rolling Dice to Make Three-Digit Problems
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is 'Rolling Dice to Make Three-Digit Problems'." Read aloud the purpose of today's math activity to student: "Today we will practice adding and subtracting three-digit problems using the various methods you have practiced in these Jams."

Slide 2: Recap *Make sure student is sharing their screen!*

Tell student: "We are going to use Number Dice to create three-digit addition and subtraction problems. You will earn one point for solving the problem using the method on the Jam, and one point for explaining how you got your answer. Get ten points to complete this activity!"

Have student remove the hippos to reveal the strategies they have worked on in this notebook.

Slide 3: Virtual Number Dice (if student does not want to use the Number Dice in their math kit.)

Slide 4: Adding on a Number Line

Student may use the Number Dice from their math kit or use the virtual number cubes on slide 3.

If student is using the Number Dice from their math kit, have them roll 3 times to create their first 3-digit number, and three more times to create their second 3-digit number. Record the problem at the top of the slide, and have your student make an estimate before starting!

If using the virtual dice, student will uncover six dinosaurs to create two 3-digit numbers.

Reminder for how to solve using the Number Line

Student should solve the problem using the Number Line by starting with one three-digit number and making jumps of hundreds, tens, and ones until they get to the answer. *Example for $295 + 127$. First, I can start with 295 and jump 100 to get to 395. Then I will jump 5 to get to 400. Next, I can jump 20 more to get to 420, and then I still need to add 2 more so that jump will take me to 422.*

If student can accurately solve the problem and explain their method, give them 2 points! (You and your student can keep track of points using tallies on the Jam or a sheet of paper.)

Slide 5: Adding with Friendly Numbers

Have student roll their Number Dice (or use virtual number dice on slide 3) to create their three-digit addition problem. Record the problem at the top of the slide and have your student make an estimate before starting!

Reminder for how to solve using Friendly Numbers

Student can solve using friendly numbers by rearranging numbers to get to multiples of 10. *Example $295 + 127$. 295 is close to 300 so I will take 5 from the 127 and add it to the 295 to make the problem $300 + 122$. Then it is easy to see that the answer is 422!*

If student can accurately solve the problem and explain their method, give them 2 points! (You and your student can keep track of points using tallies on the Jam or a sheet of paper.)

Slide 6: Adding with Expanded Form

Have student roll their number dice (or use virtual number dice on slide 3) to create their three-digit addition problem. Record the problem at the top of the slide and have your student make an estimate before starting!

Reminder for how to solve using the expanded form

Student should solve the problem using the Expanded Form. *Example* $295 + 127$. 295 becomes $200 + 90 + 5$ and 127 becomes $100 + 20 + 7$. Add the hundreds ($100 + 200 = 300$) then the tens ($90 + 20 = 110$) and the ones ($5 + 7 = 12$)

Your problem becomes $300 + 110 + 12 = 422$.

If student can accurately solve the problem and explain their method, give them 2 points!

Slide 7: Virtual Number Cubes (optional, for next two problems)

Slide 8: Subtracting on a Number Line

Have student roll their number dice (or use virtual number dice on slide 7) to create their three-digit subtraction problem. Record the problem at the top of the slide and have your student make an estimate before starting!

Reminder for how to solve using the Number Line

Student should solve the problem using the Number Line by starting with one 3-digit number and making jumps of hundreds, tens, and ones until they get to the answer *Example for* $295 - 127$. *First, I can start with 295 and jump back 100 to get to 195. Then I will jump back 20 to get to 175. Next, I can jump back 5 to get to 170, then I still need to take away 2 so that jump will take me to 168.*

If student can accurately solve the problem and explain their method, give them 2 points!

Slide 9: Adding up to Subtract on a Number Line

Have student roll their own dice or use virtual number dice on slide 5 to create their 3-digit subtraction problem. Record the problem at the top of the slide, and have your student make an estimate before starting!

Reminder for how to solve by adding up to subtract on the Number Line

Student should solve the problem using the Number Line by starting with the smaller number and adding up to find the missing piece. *Example for* $295 - 127$. *First, I start with 127. I will jump 100 to get to 227. Then I can jump 3 to get to 230. Then if I jump 60 more, I get to 290, and if I jump 5 more, I land on 295. So, the missing piece is 168!*

If student can accurately solve the problem and explain their method, give them 2 points!

Slides 10-11: Apply Your Learning

Tutor and student will work through word problems to apply learning from this lesson. Use the Word Problem Chart as a guide.

Slide 12: Wrap Up

Lesson Guide for: 5p. Three-Digit Word Problems
Notebook: Place Value

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is **Three-Digit Word Problems.**" Read aloud the purpose of today's math activity to student: "In this activity, we will solve three-digit word problems using a variety of strategies that you have practiced in these Jams that show an understanding of place value."

Slide 2: Recap *Make sure student is sharing their screen!*

Tell student, "What strategies do you have so far for adding and subtracting three-digit numbers? Slide the owls and see which strategies you recognize!" Ask student to explain each strategy as they are revealed.

Tell student, "Let's keep all these strategies in mind when we solve our word problems!"

Slides 3-4: Problem 1

Student may solve using Jam, a whiteboard, or pencil & paper.

Use the Word Problem Chart as a guide. Have student follow the four steps below to solve the word problem:

- 1) **Read the problem.**
- 2) **Make an estimate.**
- 3) **Solve while explaining your thinking.**
- 4) **Re-assess. Was your answer close to your estimate? Is it reasonable?**

Ensure student is using a strategy that makes sense for the problem. (Friendly numbers is not a helpful strategy for all problems, and expanded form is only for addition.)

Slides 5-7: Problems 2-4

Follow all steps from the previous slide to coach student as they solve the word problem. Student should be using a strategy to solve that was practiced in this notebook. Use the Word Problem Chart as a guide.

Slide 8: Wrap Up

6. Understanding Multiplication and Division, & Multiplication Fluency

In the Understanding Multiplication and Division Notebook, students practice solving multiplication and division problems using objects, drawings, arrays, and skip counting. Students will know from memory or quick reasoning all products of two numbers up to 10×11 . Students' familiarity with repeated groups and parts of numbers, similar to ideas practiced in Combinations to 10, will reinforce the concepts of repeated addition and subtraction in multiplication and division.

To show mastery in this concept, students will be able to:

1. Solve multiplication problems using objects, drawings, arrays, and skip counting.
2. Solve division problems (sharing and grouping) using objects, drawings, arrays, and the inverse relationship between multiplication and division.
3. Use and interpret multiplication and division notation.
4. Solve and create multiplication and division word problems.

The information below may assist you in helping your student.

- Many students who are not fluent with their multiplication combinations lack understanding of the operation itself and what each combination actually means. Students need practice creating, describing, and counting equal groups to internalize this concept.
- Students gain understanding of multiplication through concrete experiences, rather than through work with symbols. The first goal in teaching multiplication is to help students become familiar with the process of multiplication as it appears in the real world – repeated equal groups.
- It is important to provide opportunities for students to work with multiplication and division problems that are related without rushing them to see the relationship between them. The more at ease they become with interpreting the language of multiplication/division and solving problems, the more likely they will be to discover the relationship between the operations.

Multiplication and Division Jams

- 6a. Brainstorming Things in Groups
- 6b. Using Counters to Solve Multiplication
- 6c. Using Rows to Solve Multiplication Story Problems
- 6d. Acting Out Sharing Problems – Division
- 6e. Acting Out Grouping Problems – Division
- 6f. Drawing to Solve Division Problems, plus Remainders
- 6g. Name the Array – 4s, 6s, 8s
- 6h. Find the Error
- 6i. Name the Array – 11s, 9s, 7s
- 6j. The Matching Game
- 6k. The Product Game
- 6l. Creating Multiplication and Division Word Problems
- 6m. Name the Missing Factor
- 6n. Claim Your Territory!

Lesson Guide for: 6a. Brainstorming Things in Groups
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "You are starting in the Multiplication and Division Notebook! The name of today's activity is **Brainstorming Things in Groups.**" Read aloud the purpose of today's math activity to student: "In this activity, we will become familiar with multiplication as it appears in the 'real world': repeated equal groups."

Slides 2: Groups of 2 *Make sure student is sharing their screen!*

Groups of 2: Discuss pictures with student, identifying the groups of 2 in each. Help student brainstorm other things that come in groups of 2.

Slide 3: Groups of 3

Groups of 3: Same instructions as Slide 2, now looking at groups of 3.

Slide 4: Groups of 4

Groups of 4: Does student recognize the groups in these pictures? Brainstorm other things that come in groups of 4.

Slide 5: More Groups

Continue brainstorming groups that occur naturally (5 fingers on a hand, six legs on an ant, 8 legs on a spider), as well as man-made groups (7 days in a week, 24 hours in a day). Ask student if they know of anything that comes in groups of 9, of 10, etc. (such as 10 dimes in one dollar, 10 fingers, 10 toes, 9 squares in a Sudoku game, and so on.)

Slide 6: Matching Game

Have student move green sticky notes to the corresponding pictures.

Slide 7: How Many?

Have student identify both the groups and the number of groups seen on the board (for example, the calendar displays 2 groups of 7; the dog displays 3 groups of 4 when looking at the legs; the birds show 6 groups of 2 when looking at the wings; how many dimes in two dollars?)

Once student identifies the group, have them solve for each: How many in total is 3 groups of 4?

Note: Student may solve any way they choose, including counting or repeated addition. This first lesson is for exploration and in later lessons they will work on fluency.

Slide 8: Extra Practice

Extra practice if time allows! Follow same instructions as in Slide 7. How many pairs of cherries? (9 groups of 2.) How many groups of 3 leaves? (8 groups of 3.) How many months in three years? (3 groups of 12.)

Slide 9: Wrap Up

Lesson Guide for: 6b. Using Counters to Solve Multiplication Problems
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is **Using Counters to Solve Multiplication Problems.**" Read aloud the purpose of today's math activity to student: "**When solving for multiplication, it is helpful to use counters. In this activity, we will practice using objects to act out multiplication problems.**"

Slide 2: Example *Make sure student is sharing their screen!*

Have student identify groups in word problem, then move the cookies into the circles. Student should also write down the equation.

If student struggles, say, "**You made 4 groups of 3 cookies, which makes 12 cookies altogether. The multiplication equation that goes with this problem is $4 \times 3 = 12$.**"

Counters can represent any object, and you can use bowls to help make groups for any problem, not just problems with food."

Slides 3: Math Vocabulary

Review the math terms used in multiplication: what a factor is and what a product is.

NOTE: *The standard way to write multiplication problems is to have the first factor represent the number of groups and the second factor represent the number of objects in each group. (This is not something to emphasize with your student at this time but simply a best practice.)*

Slide 4: Part I, Using Counters

Student should move the "one" square to reveal the word problem. Then, move the blue square to reveal counters to create groups and solve the problem. Make sure student also writes the appropriate equation! Also, when discussing the equation student gives for the problem, be sure to use the multiplication terms reviewed on Slide 3.

Student may solve using cubes from their math kit if they prefer!

Note: Some students will want to draw pictures and count. Others will use repeated addition or know the multiplication combination. Compliment student for whatever effective strategy they use to determine the correct answers.

Slides 5 & 6:

Follow same instructions as in Slide 4.

Slide 7: Part II, Creating Story Problems

Ask student to create their own multiplication story problems for the multiplication combinations shown on the Jam slide.

Student will use the workstation on Slide 8 to draw objects and solve the problem or use cubes from their math kit to solve.

Note: If student struggles, use prompts to start, such as: What comes in groups of 2? What if you had 5 triangles?

Slide 8: Workstation

Workstation for Part II for student to draw objects and solve the problems.

Slide 9: Apply Your Learning

Tutor and student will work through word problem to apply learning from this lesson. Student may use cubes or draw counters to solve. Use the Word Problem Chart as a guide.

Slide 10: Wrap Up

Lesson Guide for: 6c. Using Rows to Solve Multiplication Problems
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is **Using Rows to Solve Multiplication Story Problems.**" Read aloud the purpose of today's math activity to student: "**Sometimes, it is helpful to think about multiplication in a different way: using rows to keep track of groups. These are known as 'arrays' and are helpful for understanding the properties of multiplication.**"

Slide 2: Example *Make sure student is sharing their screen!*

Have student identify groups in word problem, then use the green squares to create an array displaying the 4 rows of cars with 5 in each row. (*Students may also model using their Connecting Cubes.*) Student should also write down the equation ($4 \times 5 =$) using the sticky note, text box, or the pen tool.

Slides 3-6: Part I: Creating Arrays and Identifying Equations

Follow same instructions as the example in Slide 2. Use the words "factor" and "product" when discussing problem with student.

NOTE: *The standard way to write multiplication problems is to have the first factor represent the number of groups and the second factor represent the number of objects in each group. (This is not something to emphasize with your student but simply a best practice.)*

Slide 7: Intro to Part II

Slides 8-9: Part II: Creating Arrays when the problem does not refer to rows

Follow same instructions as in Slides 3-6, having the student use the counters to create arrays.

Note: If student struggles determining rows (or groups) and number of items in each group, help them to start the array.

Slide 10: Part III: Your Turn to be the Storyteller!

Ask student to create their own multiplication story problems for the combinations shown on the slide and to solve them by using arrays.

Student may use Slide 11 as a workstation for creating arrays. They may use the squares and circles provided, or use the pen tool to create arrays.

Slide 11: Workstation

Slide 12: Wrap Up

Lesson Guide for: 6d. Acting Out Sharing Problems
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is **Acting Out Sharing Problems.**" Read aloud the purpose of today's math activity to student: "In this activity, we will practice using objects to solve division problems related to sharing."

Slide 2: Let's Get Ready- Gather Materials Prompt student to gather connecting cubes from math kit to complete today's activity with physical manipulatives, as well as up to 6 paper plates or pieces of paper. Instruct student to find the Division Chart in their progress folder. (If needed, ask your coordinator for help finding the Division Chart!)

Slide 3: Example *Make sure student us sharing their screen!*

Have student use 12 Connecting Cubes (for pretzels) and 2 pieces of paper to act out this problem by dividing (sharing equally) the pretzels between the two pieces of paper. (Student will probably know from experience to pass out the "pretzels" (cubes) like dealing cards (one for you, one for me, etc.) until there are 6 pretzels on each plate.)

Student should complete their Division Chart after they have finished sharing cubes. Tutor fill it in on the screen.

Slide 4: Additional Practice Solving Sharing Problems

Additional practice solving sharing problems. All of the examples involve 12 pretzels but different groups!

Tell student, "We are going to use the Division Chart to do some more problems with pretzels, but this time we will be sharing with more friends. We can use an extra plate for each friend."

Have student fill out their own Division Chart for each problem and solve.

Ask student, "Does division remind you of multiplication? What are the multiplication problems for each division problem?" If student struggles to identify the connection between multiplication and division, assist them in creating the appropriate multiplication problems and looking at the similarities between the division and multiplication equations.

Slide 5: More Practice, Different Problems

Have student solve division problems by first filling out the appropriate information on their division chart, then solving using their cubes.

Once finished, continue to Slides 6 & 7 to complete two more story problems!

Slides 6 & 7: Apply Your Learning

Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. Students may use cubes to model the story and help solve, as needed.

Slide 8: Workstation for word problems on Slides 6&7

Slide 9: Wrap Up

Lesson Guide for: 6e. Acting Out Grouping Problems
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Acting Out Grouping Problems."** Read aloud the purpose of today's math activity to student: **"Last time, we divided using sharing problems. In this activity, we will practice acting out division problems related to 'grouping'."**

Slide 2: Let's Get Ready- Gather Materials

Prompt student to gather connecting cubes from math kit to complete today's activity with physical manipulatives, as well as up to 7 pieces of paper. Ask Program Coordinator for a Division Chart!

Slide 3: *Make sure student is sharing their screen!*

Tell student, **"In the last activity, you solved problems where objects were divided – or shared – evenly into a specific number of groups. We think of those as 'sharing problems.' Some problems include creating groups of a specific size and determining how many groups can be made. We think of these as 'grouping problems.' We are going to work on some today!"**

Have student read example problem, then ask student, **"How many teams (groups) do you have?"**

Student should then fill out their Division Chart with the known information from the word problem.

NOTE: Grouping problems are typically harder for students to model than sharing problems. To solve, student may want to use 21 connecting cubes to represent the students and put 7 of them onto one plate, then 7 onto the second plate, and so forth until all the cubes are gone.

Slide 4: Visualizing Grouping

Use this slide to help student visualize a grouping problem.

Tell student, **"In a sharing problem, you know how many groups you have. When using cubes and plates to solve a sharing problem, you can pass out the cubes one by one until the cubes are gone, then count how many cubes are on each plate. But in grouping problems, you already know how many cubes should be on one plate. You need to find out how many plates you will need."**

Slides 5-6: Additional Practice with Grouping

Have student solve division problems by first filling out the appropriate information on their Division Chart, then solving using their cubes.

Remind student that the cubes can represent any objects and the plates can represent any groups.

Once finished, continue to slides 7 & 8 for word problems.

Slides 7 & 8: Apply Your Learning

Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. Students may use cubes to model the story and help solve, as needed.

Slide 9: Workstation for word problems on slides 7 & 8

Slide 10: Wrap Up

Lesson Guide for: 6f. Drawing to Solve Division Problems
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

"Today's activity is Drawing to Solve Division Problems." Tell student, **"You have used models to act out two types of division problems. Now, you will draw circles and tally marks instead of using plates and cubes. We will continue to use the Division Chart to keep track of information in our problems."**

Slide 2: Example *Make sure student is sharing their screen!*

Have student fill in the appropriate information in the Division Chart in their folder. If needed, help them to identify the different components in the story problem. (Number in all: 27; Number of groups: 9; etc.)

Student will draw circles and tallies to solve on the next screen.

Slide 3: Example Workspace

Ask student to model this problem using circle and tally marks (started on the slide.)

If help is needed, suggest drawing 9 circles (children) and then "dealing out" tally marks (cookies) as if playing a card game until 27 tally marks have been made.

Slides 4-6: Additional Practice

Additional practice for drawing to solve division problems. For each problem, student should fill out their Division Chart and draw tallies & circles on the Jamboard to solve.

NOTE: Student may need help noticing that:

- *When the number of groups is known, it is best to start by drawing the groups and then to use tally marks to "deal out" the number in all as you would when playing a game of cards, thus determining the number of items in each group.*
- *When the number of items in each group is known, student will need to draw all of the objects in one group, then another group, and another group until the number in all is reached, thus determining the number of groups.*

Slide 7: More Practice

Student should still draw tallies and circles to solve the word problem but try and do so without using the Chart.

If student struggles, talk them through how they would fill out the Division Chart with the available information.

Slide 8: Introducing Remainders

Remind student, **"Remember that sometimes a quantity cannot be divided equally, and some items are left over. The leftover amount is called a 'remainder'. We can still draw circles and tallies to solve these division problems."**

Slides 9-11: Remainders Practice

Have student solve word problems drawing circles and tallies, identifying the remainders in each.

Slide 12: Wrap Up!

Lesson Guide for: 6g. Name the Array – 4s, 6s, 8s
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Name the Array."** Read aloud the purpose of today's math activity to student: **"In this activity, you will practice recalling multiplication combinations by reviewing array cards, focusing on the combinations – or multiples – of 4, 6, and 8."**

Slide 2: Instructions *Make sure student is sharing their screen!*

Basic instructions for the game for student and tutor to review together.

Slides 3-5: Flash Cards

Delete the top card for each array, allowing the student time to give the product for each array.

1. For each flash card that is "easy" – student gives product in ~3 seconds or with minimal think time – move those cards to the right of the screen.
2. For each flash card that is "tricky" – student is unable to determine answer or needs alternate methods to solve (drawing pictures, repeated addition, counting array rows) – move those to the left of the screen.
3. Student may return to this Jam in the future for additional practice of the tricky flash cards.
4. Repeat with slides 4 and 5.

Slide 6: Instructions

Basic instructions for the game on slides 7-9.

Slides 7-9: Name the Array!

These three slides check a student's memory of both combinations reviewed in this Jam and of combinations reviewed earlier in the notebook. Delete the top rectangle for each array and allow student to give the product for the uncovered array.

For "tricky" combinations – those that student is unable to answer or struggles to answer – make a pile on the left side of the screen. Place a sticky note on the "tricky" pile, so that student may return in the future for additional practice.

Repeat with slides 8 and 9.

Slides 10-11: Apply your Learning

Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. If student struggles, encourage them to use strategies practiced in this notebook, including drawing pictures, creating arrays or acting out the problems. Use slide 13 as a workspace, if needed!

Slide 12: Wrap Up!

Slide 13: Workspace

Lesson Guide for: 6h. Find the Error
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Find the Error."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice recognizing word problems that accurately reflect various multiplication and division scenarios."**

Slides 2, 4, & 6: Finding the Error Problems *Make sure student is sharing their screen!*

Student will find the error in each word problem, then solve.

Use the example to allow student to notice what they are looking for (in this problem, the question is the error!)

Note: To demonstrate mastery in multiplication and division, students must be able to create accurate story problems and correctly solve them. These problems are designed to help students recognize the importance of asking the right question, as well as including all of the necessary information when creating story problems.

Use the "workstations" on Slides 3 & 5 if student needs space to solve the problems!

Slides 3 & 5: Workspace (If student needs space to solve story problems.)

Slide 7: Extra Practice- Fluency

Have student fill in the blank rows on the multiplication chart (2, 4, 5, and 10).

Student may either say the multiples OR use the pen feature to write in the chart.

Slide 8: Wrap Up

Lesson Guide for: 6i. Name the Array – 11s, 9s, 7s
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Name the Array."** Read aloud the purpose of today's math activity to student: **"In this activity, you will practice recalling multiplication combinations by reviewing array cards, focusing on the combinations – or multiples – of 11, 9 and 7."**

Slide 2: Instructions *Make sure student is sharing their screen!*

Basic instructions for the game for student and tutor to review together.

Slides 3-5: Flash Cards

Delete the top card for each array, allowing the student time to give the product for each array.

1. For each flash card that is "easy" – student gives product in ~3 seconds or with minimal think time – move those cards to the right of the screen.
2. For each flash card that is "tricky" – student is unable to determine answer or needs alternate methods to solve (drawing pictures, repeated addition, counting array rows) – move those to the left of the screen.
3. Student may return to this Jamboard in the future for additional practice on the tricky flash cards!
4. Repeat with slides 4 and 5.

Slide 6: Instructions

Basic instructions for the game for student and tutor to review together.

Slides 7-9: Name the Array!

These three slides check a student's memory of both combinations reviewed in this Jamboard and of combinations reviewed earlier in the notebook. Delete the top rectangle for each array and allow student to give the product for the uncovered array.

For "tricky" combinations – those that student is unable to answer or struggles to answer – make a pile on the left side of the screen. Place a sticky note on the "tricky" pile, so that student may return in the future for additional practice.

Repeat with slides 8 and 9.

Slides 10-11: Apply your Learning

Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. If student struggles, encourage them to use strategies practiced in this notebook, including drawing pictures, creating arrays or acting out the problems. Use slide 13 as a workspace, if needed!

Slide 12: Wrap Up!

Slide 13: Workspace

Lesson Guide for: 6j. The Matching Game
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is The Matching Game."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice recognizing multiplication and division scenarios. We will also practice creating our own story problems."**

Slides 2-3: Part I- The Matching Game *Make sure student is sharing their screen!*

Student will drag equation or product to matching picture.

Slides 4-5: Part II- Story Problems

Tell student, **"For this activity you will look at images and create story problems that match what is happening in each image. Most situations could be either multiplication or division, but it is up to you to decide and then create a correct story problem. I will write down what you say."**

As student tells their story, tutor should write down the story using the text box feature or using paper and pencil. Read the story back to student to ensure the story makes sense. Together, make any adjustments needed. Once student has finished creating the story, student should solve.

If student struggles to recognize the division or multiplication scenarios in each picture OR struggles to think of a story, provide student with prompts. For example, 4 friends want to equally share some pizza. What other information do we know by looking at the picture? Let's use that to create our story.

You may have to remind students of all the parts a story needs to have to be complete, including a question that makes sense.

Slide 6: Apply Your Learning

Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. If student struggles, encourage them to use strategies practiced in this notebook, including drawing pictures, creating arrays or acting out the problems.

Slide 7: Wrap Up!

Lesson Guide for: 6k. The Product Game
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is The Product Game." Read aloud the purpose of today's math activity to student: "In this activity, we will review multiplication combinations and practice thinking backwards from the products to possible factors with a fun board game!"

Slide 2: Round 1 *Make sure student is sharing their screen!*

1. Each player picks the color of cubes they will be for this round of the game.
2. Blue Player chooses one of the factors listed at the bottom of the game board and places the blue M cube below it. This will serve as a Marker.
3. Orange Player then chooses one of the factors and places the orange M their cube below it as a second Marker. (Picking the same factor is allowed.)
4. Orange Player then figures out the product of the two marked factors and puts one of the blank orange cubes (NOT the Marker cube) on the game board covering the product.
5. Blue Player chooses EITHER of the Markers at the bottom of the game board and moves it to another factor. Blue Player then puts one of the blank blue cubes on the new resulting product on the gameboard.
6. Each player, in turn, continues to move EITHER factor Marker and place another of their color cubes on the resulting product on the gameboard. If a product is already covered, players may not put a cube there and must choose a different factor.
7. The winner is the first player to mark four squares in a row- vertically, horizontally or diagonally.

Slide 3: Round 2

Follow same instructions as Slide 2.

Slide 4: Final Round

Same instructions as Slide 2 & 3, with larger factors to multiply together.

Slides 5-6: Apply Your Learning

Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. If student struggles, encourage them to use strategies practiced in this notebook, including drawing pictures, creating arrays or acting out the problems. Use slide 8 as a workspace, if needed!

Slide 7: Wrap Up!

Slide 8: Workspace

Lesson Guide for: 6I. Creating Multiplication and Division Word Problems
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is **Creating Multiplication and Division Word Problems.**" Read aloud the purpose of today's math activity to student: "**In this activity, we will practice recognizing multiplication and division scenarios and creating word problems that represent those situations.**"

Slides 2-7: Practice: Creating Story Problems *Make sure student is sharing their screen!*

To demonstrate mastery in understanding multiplication and division, students must be able to connect equations to situations. In other words, students must be able to create their own story problem when given an equation.

Student should create a story for the equation shown on each board by telling the story to tutor.

Tutor should write what student says, using either the text box OR using paper and pencil. Read the problem back to student. Ask student if the story makes sense in what it is asking. If necessary, guide student to what does not make sense and help them to correct it. (Check for coherency: story problem matches the equation, question reflects the equation, etc.)

Student should then accurately solve problem.

If student struggles to begin, provide prompts for the first one or two problems. However, avoid giving prompts for all problems because the intent of the activity is that student practices creating stories on their own.

Slide 8: Wrap Up!

Lesson Guide for: 6m. Name the Missing Factor/Fluency Practice
Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, "The name of today's activity is Name the Missing Factor." Read aloud the purpose of today's math activity to student: "In this activity, we will use division to practice our multiplication combinations."

Slide 2: Round 1 *Make sure student is sharing their screen!*

1. Each player picks their game token.
2. Players take turns revealing cards. (Remove the image of the deck first!)
3. If a player can think of a number to multiply with the number on their card to create a product displayed on the Game Board, the player covers the product with their game token. If not, player loses their turn.
4. Players continue to reveal cards and cover products until all the cards are used.
5. The player with the most tokens on the board is the winner.

NOTE: *If student fails to recognize a product on the board that they would be able to cover, encourage them to keep looking and to try out different possible combinations that include the card number.*

Slide 3: Fluency Practice

Have student use pen tool to fill in multiples of 3, 6 & 9.

If student struggles, encourage them to look at the patterns in the filled chart and use that to apply to the blank spaces. E.g., student is struggling with 6×7 , ask if they know what $49 - 7$ or $35 + 7$ is.

Slide 4: Round 2

Same instructions as Slide 2.

Slides 5-6: Apply Your Learning

Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. If student struggles, encourage them to use strategies practiced in this notebook, including drawing pictures, creating arrays or acting out the problems. Use slide 8 as a workspace, if needed!

Slide 7: Wrap Up!

Slide 8: Workspace

Lesson Guide for: 6n. Claim Your Territory! Notebook: Multiplication and Division

Slide 1: Let's Get Started Intro/icebreaker activity or question to get student engaged in session.

Tell student, **"The name of today's activity is Claim Your Territory."** Read aloud the purpose of today's math activity to student: **"In this activity, we will practice multiplication fluency by reviewing a mix of multiplication combinations."**

Slide 2: Instructions *Make sure student is sharing their screen!*

Basic instructions for the game for student and tutor to review together.

Slides 3-5: Round 1

The object of the game is for players to fill in their "territory" (their side of the graph paper) by coloring in arrays. As the game continues and the graph paper fills up, there will be less room for shading in squares. Players will need to be strategic and creative!

1. Use Slide 4 for virtual dice – delete the squares on top to reveal the numbers underneath!
2. Player 1 reveals two numbers on Slide 4 and announces the product (e.g., Player 1 reveals 6 and 4 and so announces "24".)
3. On Slide 3, Player 1 uses the pen tool to color in squares on the graph in the shape of an array. The array can match the original multiplication problem (6×4) or can use any factors *that equal the same product*. For our example (24), the array could be 6×4 , 3×8 , 2×12 or 1×24 .
4. Once Player 1 has completed their turn, Player 2 follows the same instructions for their turn.
5. Players continue alternating turns until one player is "stuck" – they are unable to make an array based on their current product. The player that does not get stuck is the winner!
6. Alternately, the player that has the least amount of unfilled territory is the winner.

If student struggles to determine a product, use the workspace on Slide 5 to allow student to work out the problem. Encourage them to skip count, draw pictures, etc. They may also use paper and pencil or a whiteboard.

Slides 7-8: Round 2

A second opportunity to practice multiples and multiplication fluency! Follow same instructions as above.

Slides 9-10: Apply Your Learning

Tutor and student will work through word problem to apply learning from this lesson. Use the Word Problem Chart as a guide. If student struggles, encourage them to use strategies practiced in this notebook, including drawing pictures, creating arrays or acting out the problems. Use slide 12 as a workspace, if needed!

Slide 11: Wrap Up!