Amplify Desmos Math
CALIFORNIA

Grade 2

UNIT 1 | SUB-UNIT 1

Adding and Subtracting

About Amplify

Amplify is dedicated to collaborating with educators to create learning experiences that are rigorous and riveting for all students. Amplify creates K–12 core and supplemental curriculum, assessment, and intervention programs for today's students.

A pioneer in K–12 education since 2000, Amplify is leading the way in next-generation curriculum and assessment. All of our programs provide teachers with powerful tools that help them understand and respond to the needs of every student.

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Amplify Desmos Math
CALIFORNIA

Grade 2

Unit 1: Working With Data and Solving Comparison Problems

Sub-Unit 1: Adding and Subtracting

Math Language Development Resource

Activity Pages and Teacher Support

Explore: A Pattern Puzzle

EL **Multilingual/English Learners** Use these scaffolds and supports during the **Activity, Connect** step to provide more support for your students as they:

- Work toward the language goal in this lesson.
- Interpret **(Reading and Listening)** and communicate **(Speaking)** about these statements as they reflect on the Activity.
- Interact in these meaningful ways:

Collaborative	• Exchanging information / ideas • Offering / supporting opinions	**ELD.PI.2.1** **ELD.PI.2.3**
Interpretive	• Listening actively • Reading closely	**ELD.PI.2.5** **ELD.PI.2.6**
Productive	• Presenting information / ideas • Supporting / evaluating opinions	**ELD.PI.2.9** **ELD.PI.2.11**

Spanish Cognates

English	*mathematics*
Spanish	*matemática*

Materials

Students need access to these materials.

In this Resource:

- *Ways to be a Mathematician* PDF, one per student
- *Questions and Sentence Frames* PDF (for display)

Explore, Ways to be a Mathematician

Distribute the *Ways to be a Mathematician* PDF and display the *Questions and Sentence Frames* PDF. To promote mathematical discussion, try to pair students who speak the same primary language together. **Sample responses shown.**

Emerging

Read aloud the first statement on the *Ways to be a Mathematician* PDF.

Then ask:

- "Did you work carefully and share your ideas clearly?"
- (If yes) "Which new mathematical words did you use or learn today?".

Read aloud the second statement on the PDF.

Then ask:

- "Did you connect ideas or use patterns to help solve the problem?"
- (If yes) "Which connections or patterns did you use?"

Read aloud the third statement on the PDF.

Then ask:

- "Can you explain why your thinking makes sense?"
- (If yes) "What math language can you use to explain your thinking?"
- "Can you ask questions to understand the thinking of others?"
- (If yes) "What is a question you can ask to understand someone else's thinking?"

Expanding

Invite students to work with their partner to read aloud each statement on the PDF and choose at least one statement they used during the activity.

Ask, "Which of the ways did you use to solve the problem?"

Then ask:

- (If students chose the first statement) "Which new mathematical words did you use or learn today?"
- (If students chose the second statement) "Which connections or patterns did you use?"
- (If students chose the third statement) "What math language can you use to explain your thinking?"
- "What is a question you can ask to understand someone else's thinking?"

Invite students to continue the discussion with their partner, using the provided questions and sentence frames to form their responses.

Invite each pair of students to share their chosen statements with another pair of students.

Bridging

Invite students to work with their partner to read aloud each statement on the PDF and choose at least one statement they used during the activity.

Invite each pair of students to discuss the questions on the *Questions and Sentence Frames* PDF. Encourage them to craft their own sentences in response to the questions, using the provided sentence frames as needed.

Then invite each pair of students to share the statements they chose with another pair of students.

Name _____ Date _____

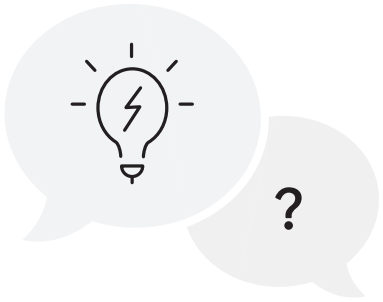
Ways to be a Mathematician: Formas de ser Matemático/ Matemática

1 I can work carefully and try to be clear when I share my ideas.

Puedo trabajar con cuidado y tratar de ser claro/clara cuando comparto mis ideas.

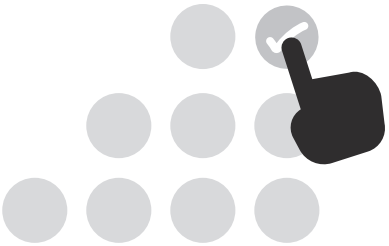
2 I can see how ideas are connected and use patterns to help solve problems.

Puedo ver cómo se conectan las ideas y utilizar patrones para ayudar a resolver problemas.



3 I can explain why my thinking makes sense and ask questions to understand the thinking of others.

Puedo explicar por qué mi pensamiento tiene sentido y hacer preguntas para comprender el pensamiento de los demás.



Name _____ Date _____

Questions and Sentence Frames

Why did you choose this statement?

Did you choose any others? Why or why not?

How did you use this thinking during the Activity?

Can you tell me more?

I chose this statement because . . .

I also chose _____ because . . .

In the Activity, I . . .

Exploring Within 10

Strengthening Fluency With Adding and Subtracting Within 10

EL **Multilingual/English Learners** Use these scaffolds and supports during the **Activity 2, Monitor** step to provide more support for your students as they:

- Work toward the language goal in this lesson.
- Interpret **(Reading and Listening)** and communicate **(Speaking)** using the language from this activity, such as *difference, expression, sum, addition, subtraction.*
- Interact in these meaningful ways:

Collaborative	• Exchanging information / ideas	**ELD.PI.2.1**
Interpretive	• Listening actively	**ELD.PI.2.5**
Productive	• Selecting language resources	**ELD.PI.2.12**

Spanish Cognates

English	*difference*	*expression*	*sum*
Español	*diferencia*	*expresión*	*suma*

Materials

In Activity 2, Launch, you provided access to connecting cubes or counters. Students also need access to these additional materials.

In this Resource:

- *Around the Block* PDF, one per pair

Activity 2, Monitor

Distribute the *Around the Block* PDF. Choose one value between 1 and 10 and invite students to write addition and subtraction expressions for that value. Encourage them to use manipulatives to help them create their expressions.

Sample responses shown.

Emerging

Say, "Now, you will compare your expressions with your partner's."

Invite students to circle their expressions that are the same as their partner's.

Ask, "What strategies did you use to write your expressions?" ***Students may point at the expression starting with 5, and then gesture to their expressions and/or manipulatives.***

Consider using a think-aloud and visuals to model how to describe a strategy and model using a sentence frame.

Invite students to share strategies in their primary languages first. Then encourage them to use gestures, the sentence frames, word bank, and/or manipulatives to describe and share their thinking with their partner.

Expanding

Ask:

- "How are your expressions similar to your partner's?" **Same sum.**
- "How are your expressions different from your partner's?" **I added _____ and _____ and they added _____ and _____.**
- "What strategies did you use to write your expressions?" **I started by adding 1 plus something. Then I did 2 plus something.**

Read aloud, or ask a student to read aloud, the discussion prompts on the *Around the Block* PDF.

Encourage students to use the sentence frames and/or the word bank to share their strategies with their partner.

Invite students to use manipulatives as they share.

Bridging

Ask:

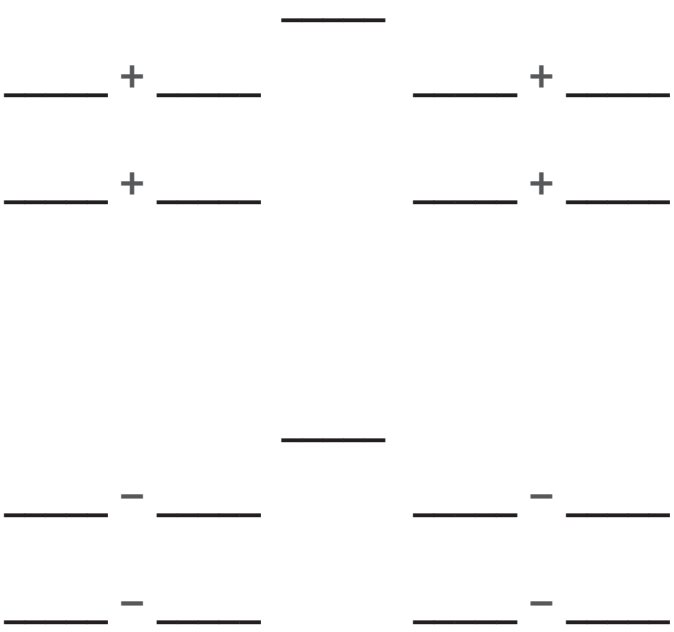
- "How are your expressions similar?" **We both did some addition and some subtraction. Our sum was 8.**
- "How are they different?" **We used different addends.**
- "What strategies did you use to write your expressions?" **I used a pattern. I added 8 + 0, then 7 + 1, then 6 + 2 . . .**

Read aloud, or ask a student to read aloud, the discussion prompts on the *Around the Block* PDF.

Encourage students to help clarify each other's thinking by asking and answering questions that incorporate vocabulary from the unit.

Name _____ Date _____

Around the Block



Word bank (Banco de palabras)	
English	**Español**
add	sumar
different	diferente
expression	expresión
pattern	patron
same	mismo
subtract	restar

Our strategies are similar because we both . . .

Our strategies are different because I . . ., while you . . .

Ways to Make 10

Finding Different Ways to Make 10 Using Addition

EL **Multilingual/English Learners** Use these scaffolds and supports during the **Activity 1, Connect** step to provide more support for your students as they:

- Work toward the language goal in this lesson.
- Interpret **(Reading and Listening)** and communicate **(Speaking)** using the language from this activity, such as *equation, difference, pair, sum.*
- Interact in these meaningful ways:

Collaborative	• Offering / supporting opinions • Negotiating with others	**ELD.PI.2.3** **ELD.PI.2.3**
Interpretive	• Listening actively • Reading closely	**ELD.PI.2.5** **ELD.PI.2.6**

Spanish Cognates

English	*equation*	*difference*	*pair*	*sum*
Español	*ecuación*	*diferencia*	*par*	*suma*

Materials

In Activity 1, Launch, you distributed the Activity 1 PDF, connecting cubes (as needed), and displayed the Patterns to 10 slide. Students also need access to these additional materials.

In this Resource:

- *All the Ways to Make 10* PDF, one per student

Activity 1, Connect

Distribute the *All the Ways to Make 10* PDF. Read aloud the discussion prompt. Ask students to cover one set of pairs of 10. **Sample responses shown.**

Emerging

Consider pairing students with partners who speak the same primary language. Invite them to share and receive feedback in their primary language before trying in English.

Ask:

- "What is one pair that makes a 10?" **4 and 6. *Students may point to 4 and 6.***
- "How do you know that pair makes 10?" ***Students may point to the 10 at the top, then to the 4 and 6, indicating that they are the same length, or hold up their fingers to show 4 and 6 more.***
- "What do you notice about how the pairs are organized?" ***Students may point to numbers getting bigger on the left.***

Model how to use the sentence frames by rewording students' responses to help expand students' vocabulary and understanding of language structures.

Model how to use the sentence frames.

Expanding

Ask:

- "What do you notice about how the pairs are organized?" **The numbers on one side are getting bigger.**
- "Is there another way the pairs could be organized?" **All the same number pairs together.**
- "Are all the ways to make 10 shown? How do you know?" **Yes, the numbers are in order.**

Model how to use the sentence frames by rewording students' responses to support them in crafting short sentences.

Listen for and amplify language, such as "The numbers on the left are going up by 1, while the numbers on the right are going down by 1".

Repeat for the second set of pairs of 10.

Bridging

Ask:

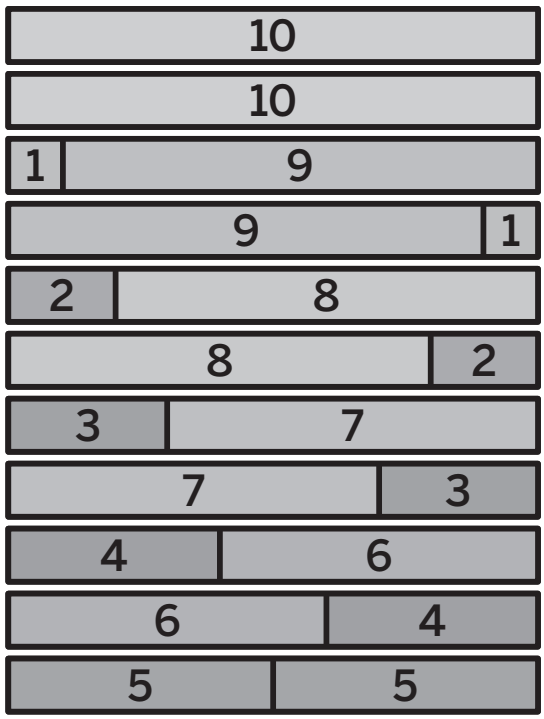
- "What do you notice about how the pairs are organized?" **The numbers on one side are going up. The numbers on the other side are going down.**
- "Is there another way the pairs could be organized?" **All the same number pairs could be next to each other.**
- "Are all the ways to make 10 shown? How do you know?" **Yes, I see the numbers go up in order without skipping any.**

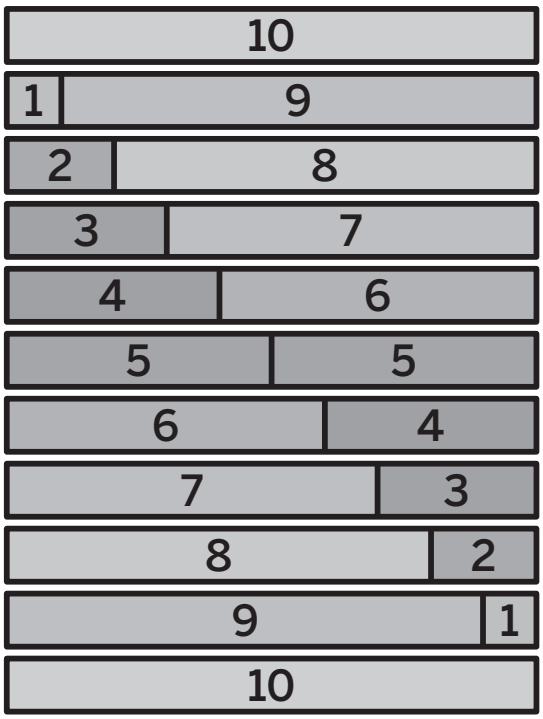
Invite students to share their responses in complete sentences, using the sentence frames as needed.

Listen for and amplify language, such as "The numbers on the left are going up by 1 while the numbers on the right are going down by 1".

Name _____ Date _____

All the Ways to Make 10





I notice that . . .

The numbers on the left are _____, while the numbers on the right are _____.

These two numbers . . .

Word bank (Banco de palabras)	
English	**Español**
add	sumar
decrease	cubitos
increase	grupos
pattern	signo más
same	mismo
sum	suma

A Tower of 10

Relating Tape Diagrams, Equations, and Addition and Subtraction Within 10

EL **Multilingual/English Learners** Use these scaffolds and supports during the **Activity 2, Launch** step to provide more support for your students as they:

- Work toward the language goal in this lesson.
- Interpret **(Reading and Listening)** and communicate **(Speaking)** using the language from this activity, such as **tape diagram**, *addend, difference, equation, sum, total.*
- Interact in these meaningful ways:

Collaborative	• Offering / supporting opinions	**ELD.PI.2.1**
Interpretive	• Reading closely	**ELD.PI.2.6**
Productive	• Supporting / evaluating opinions	**ELD.PI.2.11**

Spanish Cognates

English	*difference*	*equation*	*representations*	*similar*	*sum*	*total*
Español	*diferencia*	*expresión*	*representaciones*	*similar*	*suma*	*total*

Materials

In Activity 2, Launch, you distributed 10-frames, connecting cubes, and counters (as needed), and displayed the Activity 2 PDF. Students also need access to this additional material.

In this Resource:

- *Connecting Representations* PDF, one per student

Activity 2, Launch

Distribute the *Connecting Representations* PDF. **Sample responses shown.**

Emerging

Read aloud the term *tape diagram* and invite students to say it aloud with you.

Ask, "Where do you see 8 in the tower? In the tape diagram? In the equation?" **8 yellow blocks, yellow space is 8, add 8. *Students may point to the places on the PDF where 8 shows up.***

Repeat for the numbers 2 and 10.

Ask:

- "How are these representations similar?" **2 blue, 8 yellow, 10 total.**
- "How are they different?" **Cubes, rectangles.**

Read aloud the sentence frames and encourage students to use the word bank and gestures as they share their responses.

Expanding

Ask:

- "How are these representations similar?" **2 in the blue part and 8 in the yellow. All three make 10.**
- "How are they different?" **The tape diagram has rectangles and the tower has cubes.**

Read aloud, or invite a student to read aloud, the sentence frames from the *Connecting Representations* PDF. Invite students to use the sentence frames as they work with their partner, using the word bank as needed.

Invite students to help clarify each other's ideas by asking and answering questions that incorporate vocabulary from the unit.

Bridging

Ask:

- "How are these representations similar?" **Both have 2 in the blue part and 8 in the yellow part. Both of them have a total of 10. All have 2 and 8 as addends and 10 is the sum.**
- "How are they different?" **The tower has cubes. The tape diagram has rectangles.**

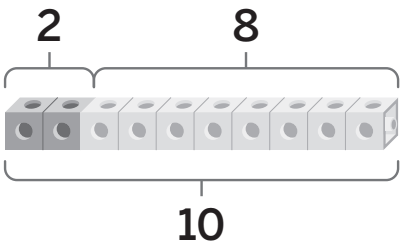
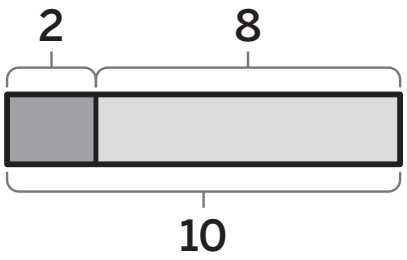
Read aloud, or invite students to read aloud, the sentence frames from the *Connecting Representations* PDF. Invite students to complete the sentence frames with a partner, using the word bank as needed.

Invite students to discuss what they notice about what each representation shows with their partner. Consider providing additional sentence frames to encourage dialogue such as:

- I agree/disagree because . . .
- That makes sense because . . .
- How do you know?

Name _____ Date _____

Connecting Representations

$2 + \underline{8} = 10$	
Tower Torre	
Tape diagram Diagrama de cintas	

The tower and the tape diagram are similar because . . .

The tower and the tape diagram are different because . . .

The tower shows _____ because . . .

The tape diagram shows _____ because . . .

Word bank (Banco de palabras)	
English	**Español**
add	sumar
addend	sumando
different	diferente
equation	ecuación
rectangle	rectángulo
similar	similar
subtract	restar
sum	suma
tape diagram	diagram de cinta
tower	torre
unit cubes	cubos unitarios

What's Missing?
Finding Missing Numbers in Equations Within 20

EL **Multilingual/English Learners** Use these scaffolds and supports during the **Activity 2, Monitor** step to provide more support for your students as they:

- Work toward the language goal in this lesson.
- Interpret **(Reading and Listening)** and communicate **(Speaking)** using the language from this activity, such as *addend, difference, equation, sum, part, tape diagram, whole.*
- Interact in these meaningful ways:

Collaborative	• Offering / supporting opinions	**ELD.PI.2.3**
Interpretive	• Listening actively	**ELD.PI.2.5**
Productive	• Writing to describe or explain	**ELD.PI.2.10**

Spanish Cognates

English	*difference*	*equation*	*similar*	*strategies*	*sum*	*tower*
Español	*diferencia*	*expresión*	*similar*	*estrategias*	*suma*	*torre*

Materials

In Activity 2, Launch, you distributed connecting cubes (optional) and double 10-frames. Students also need access to these additional materials.

In this Resource:

- *Making Equations True* PDF, one per student

Activity 2, Monitor

Invite students to work with a partner to find the missing number. Encourage each student to use different strategies. **Distribute** the *Making Equations True* PDF. Consider using this activity as students complete Problems 1–3, and to support them in participating in meaningful discussions of Problem 4 during the Connect. **Sample responses shown.**

Emerging

Ask:

- "What are you trying to find?" ***Students may point to the blank representing the missing number in the equation in Problem 4.***
- "Which representation do you want to use?" ***Students may point to a tape diagram, double 10-frame, or connecting cubes.***

Ask, "What was similar or different about the strategies you and your partner used?" ***Students may count the number of connecting cubes and two-color counters used, gesture to how they made a 10.***

Model how to use the sentence frames and word bank to expand students' understanding of vocabulary and language structures. Point to each word in the word bank or manipulative model in the PDF as you use it.

Expanding

Ask:

- "What are you trying to find?" **The missing number.**
- "Which representation do you want to use?" **The connecting cubes.**

Ask:

- "What was *similar or different* about the strategies you and your partner used?" **I counted back. My partner added. We both got 8.**
- "Is there another strategy you could have used?" **Make a ten. *Students may use manipulatives to demonstrate another strategy.***

Model how to use the sentence frames with a sample response to create a complete sentence. Consider asking students to use the sentence frames to craft their own complete sentences.

Bridging

Ask:

- "What are you trying to find?" **The missing difference. 17 – 9 = 8.**
- "Which representation(s) do you want to use?" **I want to use a tape diagram.**

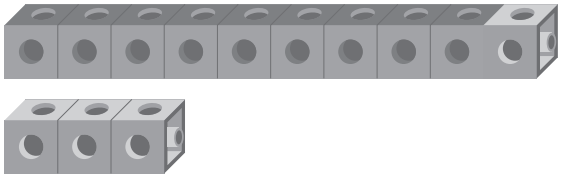
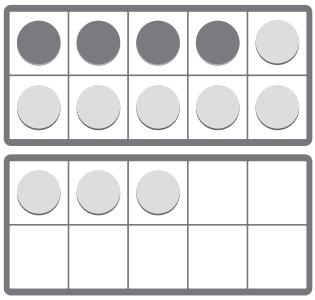
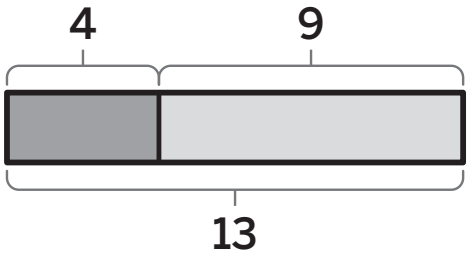
Ask:

- "What was similar or different about the strategies you and your partner used?" **I used the tape diagram and my partner made a ten using the connecting cubes.**
- "Is there another strategy you could have used?" **We could have counted back and used the ten-frame.**

Invite students to respond by creating their own complete sentences, using the sentence frames and word bank as needed for support.

Name _____ Date _____

Making Equations True

4 + 9 = 13	
Cubes Cubos	
Double 10-frame Cuadro Doble 10	
Tape diagram Diagrama de Cinta	

I used _____ to find the missing number.

I used this strategy because . . .

The strategies are similar because . . .

They both . . .

The strategies are different because . . .

This one . . ., while that one . . .

Word bank (Banco de palabras)	
English	**Español**
add	sumar
addend	sumando
different	diferente
equation	ecuación
similar	similar
subtract	restar
sum	suma
tape diagram	diagram de cinta
tower	torre

Have It Your Way
Strategies for Adding Within 20

EL **Multilingual/English Learners** Use these scaffolds and supports during the **Activity 2, Monitor** step to provide more support for your students as they:

- Work toward the language goal in this lesson.
- Interpret **(Reading and Listening)** and communicate **(Speaking)** using the language from this activity, such as *difference, equation, sum.*
- Interact in these meaningful ways:

Collaborative	• Offering / supporting opinions	ELD.PI.2.3
Interpretive	• Listening actively	ELD.PI.2.5
Productive	• Supporting / evaluating opinions • Selecting language resources	ELD.PI.2.11 ELD.PI.2.12

Spanish Cognates

English	*difference*	*equation*	*strategies*	*sum*
Español	*diferencia*	*expresión*	*estrategias*	*suma*

Materials

In Activity 2, Launch, you distributed connecting cubes, counters, and double 10-frames (as needed). Students also need access to these additional materials.

In this Resource:

- *Adding Within 20* PDF, one per student

Lesson Resources:

- Class chart of words and phrases, for display (from Activity 1)

Activity 2, Monitor

Distribute the *Adding Within 20* PDF. Encourage students to use the class display of words and phrases from Activity 1 to support them as they share their responses. **Sample responses shown.**

Emerging

Invite students to share their strategy for adding by pointing to the PDF.

Ask:

- "Did you use the same strategy as your partner? Which strategy did they use?" **No. *Students may point to a strategy on the PDF.***
- "Did you both get the same answer or a different answer?" **Yes, 15.**
- "What did you notice about the problem that made your strategy helpful?" ***Students may point to a strategy on the PDF.***

Invite students to respond with one word answers and gestures, such as pointing.

Model how to use the sentence frames with students' responses to help them expand their vocabulary of language structures.

Expanding

Invite students to point to their strategy on the PDF. Encourage students to share their strategy for adding by using the sentence frame on the PDF, "I used the _____strategy to add."

Ask:

- "Did you use the same strategy as your partner? Which strategy did they use?" **Different strategies. They counted on.**
- "Did they get the same answer or a different answer?" **We both got 15.**
- "What did you notice about the problem that made your strategy helpful?" **7 + 8 is almost a double.**

Invite students to respond with short phrases. Model how to use one of the sentence frames with a sample response to create a complete sentence. Consider asking students to use the sentence frame to craft their own complete sentence.

Bridging

Invite students to share their strategy for adding by using the sentence frame on the PDF, "I used the _____ strategy to add."

Ask:

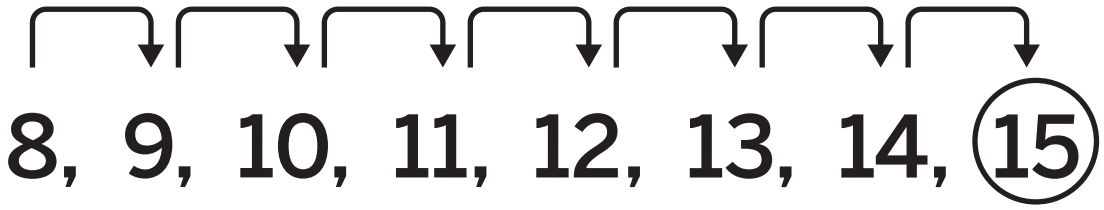
- "Did you use the same strategy as your partner? Which strategy did they use?" **We used different strategies. I used "make a known sum" and they used "count on."**
- "How were your strategies alike? How were they different?" **Both of us got the same answer. We both added numbers together. We added different numbers.**
- "Did they get the same answer or a different answer?" **We both got 15.**
- "Why do you think that is?" **We started with the same 2 numbers.**

Invite students to respond by creating their own complete sentences, using the sentence frames as needed for support.

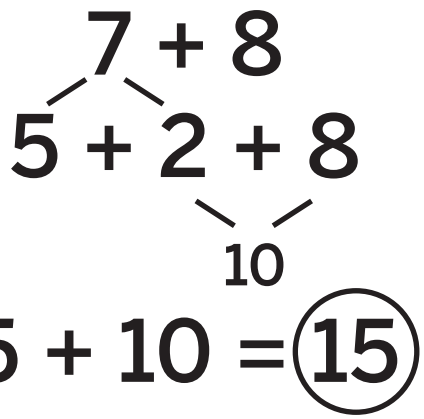
Name _____ Date _____

Adding Within 20

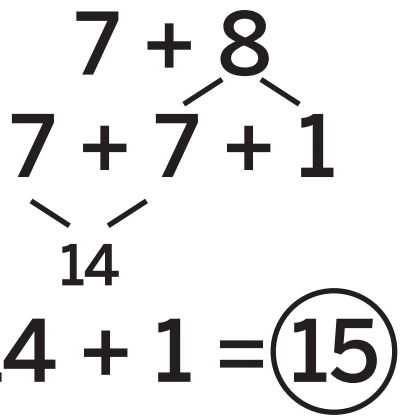
Count on.



Make a ten.



Make a known sum.



I used the _____ strategy to add.

Both of these strategies . . .

They are different because . . .

I noticed . . .

It helped me because . . .

Word bank (Banco de palabras)					
English	add	equation	more	left	sum
Español	sumar	ecuación	más	quedar	suma

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