Adding to 20

Unit 4 Overview: 12 lessons

Students move from counting to thinking strategies for adding within 20: they count on from the bigger number, turn facts around, add zero, and learn doubles, near doubles and how to make a ten. Then they put the strategies to work: number bonds to 20, adding three numbers, ways to make 20, and facts to 20 practiced until they come quickly, ending with puzzles and games. Each strategy leans on the one before, so teach the lessons in order and keep ten frames on the desks all unit.

THE UNIT, DAY BY DAY

Day 1	**Pre-Check**	What students already know, before the first lesson.
Day 2	**4.1** Count on from the bigger number	I can count on from the bigger number.
Day 3	**4.2** Turn-around facts	I can use turn-around facts.
Day 4	**4.3** Adding zero; is it true?	I can add zero and tell if a sentence is true.
Day 5	**4.4** Doubles to 20	I can add doubles to 20.
Day 6	**4.5** Near doubles	I can use a double to add a near double.
Day 7	**4.6** Make a ten to add	I can make a ten to add.
Day 8	**4.7** Number bonds to 20	I can find the missing number in a number bond.
Day 9	**4.8** Add three numbers	I can add three numbers.
Day 10	**4.9** Ways to make 20	I can find ways to make 20.
Day 11	**4.10** Addition facts to 20, fast	I can add facts to 20 quickly.
Day 12	**4.11** Adding the same number again	I can add the same number to many numbers.
Day 13	**4.12** Puzzles and games	I can solve number puzzles.
Day 14	**Unit Review**	The review, to go over together.
Day 15	**Unit Test**	Form A; Form B (other numbers) is for a retest.

GET READY FOR THE UNIT

- A double ten frame (two ten frames, one above the other) for each student, in a sheet protector, and 20 counters in two colors
- Connecting cubes in two colors, dice, and number cards 0 to 20
- A number line 0 to 20 on the wall, and one for each pair
- Whiteboards and dry erase markers; the game pages of Addition Games to 20, copied and cut out, for lesson 4.12

HOW EACH LESSON GOES

1. Warm up (5 min)
2. Teach (10 min)
3. Try it together (10 min)
4. Practice (15 min)
5. Exit ticket (5 min): a quick check on the lesson.

Each lesson page ends with the Animal Math sheets, makers, tools and quizzes for it. "Sheet 3" is the third worksheet of a pack; a color pack prints each sheet again in black and white.

CHECKING AS YOU GO

PRINTABLE **Pre-Check**: Day 1, with a key

PRINTABLE **Unit Review**: the day before the test

EXIT TICKET **Exit Tickets**: one a lesson, four to a page

PRINTABLE **Unit Test**: Forms A and B, with keys

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Lesson 4.1: Count on from the bigger number

GOAL Students add by starting at the bigger number and counting on the smaller one (2 + 7: 7, then 8, 9), and see that starting at the bigger number leaves fewer numbers to count.

I can count on from the bigger number.

About 45 minutes

THE LESSON

1. **Warm up** (5 min) Hold up a number card, say 8. The class says it, then counts on three with you, raising a finger for each: 9, 10, 11. Do the same with 6 and 13.
2. **Teach** (10 min) Write 2 + 7. Count all with cubes, 1 to 9, then show the fast way: tap the 7, say it, and count on 2: 8, 9. Ask which was faster. Then write 2 + 15: circle the 15 and count on 16, 17 on the number line.

   Say: "I start with the bigger number and count on the smaller one."
3. **Try it together** (10 min) Partners roll a die and pull a number card, circle the bigger number, say it, then count on with fingers. Include some with the small number first (1 + 8, 3 + 6) and teen cards (2 + 16, 3 + 12).
4. **Practice** (15 min) Students circle the bigger number and count on the dots on sheet 1 of Counting On and Counting Back, then hop on the number line on sheet 2. Early finishers do the + problems on sheet 5.
5. **Exit ticket** (5 min) Students do **Exit Ticket 4.1** and circle a face beside the "I can" line. In 2 + 9 the boxes should say 10 and 11; a student who writes 3 and 4 started at the 2.

Need help? Count on within 10 on a number line on the desk, touching a cube for each number counted on.

Ready for more? Add 3 + 15 and 2 + 17, then explain to a partner why counting on is faster than counting all.

GET READY

- A number line 0 to 20 for each pair
- A die and number cards 5 to 16 for each pair
- Ten connecting cubes for each student

WORDS TO USE

count on: start at a number and keep counting

bigger number: the number that is more; the one to start from

sum: the answer when you add

ASK

- Which number do you start with? Why that one?
- How do you know when to stop counting?
- Why is it faster to start at 15 than at 2?

WATCH FOR

Counts the start number: says 7, 8 for 2 + 7 and gets 8. Tap the 7 and say it quietly, then lift a finger with each number said out loud.

Always starts at the first number. Circle the bigger number before adding, and ask which way is less to count.

Loses track of how many to count on. Hold up that many fingers first and fold one down for each number said.

ON ANIMAL MATH

PRINTABLE **Counting On and Counting Back**: sheets 1-2, and the + problems on sheet 5

PRINTABLE **Number Line Addition to 10**: any sheet, to count on within 10

MAKER **Number Line**: Mode Addition on Number Line, Number Range 1-10, Show Jumps

TOOL **Number Line**: Start 0, End 20, Mode Jump

EXIT TICKET **1st Grade Addition Strategies Exit Tickets**: Exit Ticket 4.1

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Lesson 4.2: Turn-around facts

GOAL Students see that changing the order of two numbers does not change the sum (7 + 4 = 4 + 7 = 11), and use a fact they know to write its turn-around fact.

I can use turn-around facts.

About 45 minutes

THE LESSON

1. **Warm up** (5 min) Show 3 + 12 and 2 + 17 on cards. Students write the sums on whiteboards and say which number they started from.
2. **Teach** (10 min) Build a train of 7 red and 4 blue cubes and write 7 + 4 = 11. Turn the train around: now it is 4 blue and 7 red. Ask if any cubes came or went, and write 4 + 7 = 11 under it. Do the same with 5 + 8 and 8 + 5.

   Say: "I turned it around. Same cubes, same sum."
3. **Try it together** (10 min) Partners build a train, write its fact, then turn it around and write the turn-around fact. Then call out a fact (8 + 6 = 14) and have them write its turn-around without counting. Ask what happens when a double (7 + 7) turns around.
4. **Practice** (15 min) Students write a fact for each cube train and its turned train on sheet 1 of Properties of Addition, then write turn-around facts on sheet 2. Early finishers do the turn-around rows of sheet 5.
5. **Exit ticket** (5 min) Students do **Exit Ticket 4.2** and circle a face beside the "I can" line. For 6 + 9, students who circle 6 + 6 or 9 + 3 matched one number, not both.

Need help? Use a cube train for every fact, with sums up to 10 at first, and turn each one around before writing.

Ready for more? Write turn-around facts with teen numbers (12 + 5), or find all the facts that make 11 and pair each with its turn-around.

GET READY

- Connecting cubes in two colors for each pair
- Whiteboards and markers
- Addition fact cards to 20

WORDS TO USE

turn-around fact: the same two numbers added in the other order, like 7 + 4 and 4 + 7

order: which number comes first and which comes next

ASK

- How do you know 4 + 7 is 11 without counting?
- Are 5 + 8 and 8 + 5 the same? How can you show it?
- Which order is easier to count on from? Why?

WATCH FOR

Counts 4 + 7 all over again after 7 + 4. Turn the cube train around in front of them and ask what changed.

Moves the sum: writes 11 + 4 = 7. Point to the train: only the two parts swap places; the whole, 11, stays after the equal sign.

Thinks take away turns around too (7 – 4 and 4 – 7). Show 7 cubes and take 4, then try to take 7 from 4: there are not enough. Turning around works for adding.

ON ANIMAL MATH

PRINTABLE **Properties of Addition**: sheets 1-2, and the turn-around rows of sheet 5

EXIT TICKET **1st Grade Addition Strategies Exit Tickets**: Exit Ticket 4.2

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Lesson 4.3: Adding zero; is it true?

GOAL Students learn that adding zero leaves a number the same (15 + 0 = 15), and tell whether a number sentence is true by finding the amount on each side of the equal sign, even when the sum comes first (10 = 0 + 10).

I can add zero and tell if a sentence is true.

About 45 minutes

THE LESSON

1. **Warm up** (5 min) Turn-around flash: say a fact (7 + 9 = 16) and the class answers with its turn-around (9 + 7 = 16).
2. **Teach** (10 min) Put 15 counters in one cup and none in the other. Pour them together: still 15, so 15 + 0 = 15. Then write 10 = 0 + 10 and 15 + 0 = 16. For each, find the amount on each side of the equal sign and compare. Show that the sum can come first.

   > **Say:** "The equal sign means "is the same as". If both sides are the same, it is true."

3. **Try it together** (10 min) Show sentences one at a time; students hold up True or False and one student proves it. Include zero first and last (0 + 20 = 20, 9 = 9 + 0), false ones (8 + 0 = 0, 6 + 0 = 7) and a turn-around (6 + 3 = 3 + 6).
4. **Practice** (15 min) Students add zero, then circle True or False, on sheet 3 of Properties of Addition. Early finishers do the adding zero rows of sheet 5, then write one true and one false sentence for a partner.
5. **Exit ticket** (5 min) Students do **Exit Ticket 4.3** and circle a face beside the "I can" line. A student who marks 14 = 0 + 14 false thinks the sum always comes last.

Need help? Use counters in two cups for every zero fact, and true or false sentences within 10.

Ready for more? Write the same true sentence with zero three ways (12 + 0 = 12, 12 = 0 + 12, 12 + 0 = 0 + 12), or fix the false ones.

GET READY

- Two cups and counters for each pair
- True and False cards for each student
- Whiteboards and markers

WORDS TO USE

zero: none, nothing at all

equal sign: "is the same as": both sides have the same amount

true: both sides are the same

false: the two sides are not the same

ASK

- What happens when you add zero? Why?
- How can you tell if a number sentence is true?
- Can the sum come first? Show me.

WATCH FOR

Writes 15 + 0 = 16, adding one more. Act it out with the cups: 15 counters and an empty cup. Pour them together and count.

Writes 8 + 0 = 0. Zero is nothing added, so the 8 counters are all still there.

Marks 10 = 0 + 10 false because the sum comes first. Read the equal sign as "is the same as": 10 is the same as 0 + 10.

ON ANIMAL MATH

PRINTABLE **Properties of Addition**: sheet 3, and the adding zero rows of sheet 5

MAKER **Equal Sign and True or False**: Problem Type True or False, Number Range Within 20, Operations Addition Only

QUIZ **Equal Sign Quiz**: the True or False level

EXIT TICKET **1st Grade Addition Strategies Exit Tickets**: Exit Ticket 4.3

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Lesson 4.4: Doubles to 20

GOAL Students learn the doubles from 1 + 1 to 10 + 10 by heart, seeing each one as two equal groups (8 + 8: two rows of 8 on a double ten frame), and find the double that makes a sum.

I can add doubles to 20.

About 45 minutes

THE LESSON

1. **Warm up** (5 min) Show doubles on fingers: 1 + 1, 2 + 2, up to 5 + 5, both hands showing the same number. Say each fact together.
2. **Teach** (10 min) Show the doubles pictures and say each fact. On a double ten frame put 8 counters in the top frame and 8 in the bottom: 10 and 6, so 16. Make a doubles chart from 1 + 1 to 10 + 10 and notice that the sums go up by 2.

   > **Say:** "A double is the same number two times. 8 and 8 make 16."
3. **Try it together** (10 min) Play Doubles Snap with the dot cards: turn two over, and when they match, the first to say the double keeps them. Then call a sum (14, 16, 18) and have students write the double that makes it.
4. **Practice** (15 min) Students do sheets 1 to 3 of Doubles to 10 (0 + 0 to 10 + 10). Early finishers draw a doubles picture of something real for 7 + 7 or 9 + 9.
5. **Exit ticket** (5 min) Students do **Exit Ticket 4.4** and circle a face beside the "I can" line. In "Write a double for each sum", check 20: 10 + 10 shows who knows the doubles past 5 + 5.

Need help? Learn the doubles to 5 + 5 on fingers first, then build the bigger ones on a double ten frame.

Ready for more? Find which sums from 2 to 20 are doubles and which are not, or write a doubles story for 9 + 9.

GET READY

- A double ten frame and 20 counters for each pair
- Doubles pictures: a spider (4 + 4 legs), two hands (5 + 5), an egg carton (6 + 6)
- Dot cards 1 to 10, two of each

WORDS TO USE

double: the same number added two times, like 8 + 8

equal groups: groups with the same number in each

ASK

- How do you know 7 + 7 is 14?
- Which double makes 18? How did you find it?
- What do you notice about the sums of doubles?

WATCH FOR

Counts all from 1 to find 8 + 8. Build it on the double ten frame: 5 and 3 in each frame, so 10 and 6.

Mixes up the big doubles: 7 + 7 = 16. Say the doubles chart in order (12, 14, 16, 18, 20) and find 7 + 7 by its place.

Writes 9 + 1 for a double that makes 10. Split 10 counters into two equal piles and write what is in each pile.

ON ANIMAL MATH

PRINTABLE **Doubles to 10**: sheets 1-3

MAKER **Doubles & Near Doubles**: Mode Doubles Only, Number Range Within 10 (up to 10 + 10), Show Visual Dots

TOOL **Ten Frames**: two frames with + 10-Frame

EXIT TICKET **1st Grade Addition Strategies Exit Tickets**: Exit Ticket 4.4

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Lesson 4.5: Near doubles

GOAL Students add two numbers that are next to each other (7 + 8) by using the double of the smaller number and adding one more: 7 + 7 = 14, so 7 + 8 = 15.

I can use a double to add a near double.

About 45 minutes

THE LESSON

1. **Warm up** (5 min) Doubles quick fire: say a double (8 + 8) and students call out the sum. Then ask what is one more than 16.
2. **Teach** (10 min) Build 4 + 4 with two cube trains: 8. Add one cube to one train: now it is 4 + 5, so 9. Write 4 + 4 = 8, so 4 + 5 = 9. Do 7 + 8 the same way with longer trains. Show that you double the smaller number, then add one.

   > **Say:** "It is almost a double. I double the smaller number and add one more."

3. **Try it together** (10 min) Show near doubles one at a time (3 + 4, 6 + 7, 8 + 9). Students write the double they will use, then the sum. Mix in a double and a fact two apart (5 + 7) and ask if the trick works.
4. **Practice** (15 min) Students do sheets 1 and 2 of Near Doubles to 10, writing the double they used beside each fact. Early finishers do a maker sheet of doubles and near doubles mixed.
5. **Exit ticket** (5 min) Students do **Exit Ticket 4.5** and circle a face beside the "I can" line. For 9 + 10, look for 9 + 9 circled. A student who circles 5 + 5 or 8 + 8 is not yet matching the double to the numbers.

Need help? Build each near double with two cube trains and say the double before adding the extra cube.

Ready for more? Use the double of the bigger number and take one away (8 + 9 is 9 + 9 less 1), and explain why both ways work.

GET READY

- Cube trains of 5 to 10 in two colors
- A double ten frame and counters
- The doubles chart from lesson 4.4

WORDS TO USE

near double: two numbers next to each other, like 7 and 8: almost a double

one more: the next number; add 1

ASK

- Which double helps you with 6 + 7? Why that one?
- Why do you add one more?
- Is 5 + 7 a near double? How do you know?

WATCH FOR

Uses the double but forgets the one more: 6 + 7 = 12. Point to the extra cube on the longer train: the double, plus this one.

Doubles the bigger number and adds one: 7 + 8 = 17. Build both trains: 8 + 8 is already too many, so double the smaller one.

Uses the trick on numbers two apart: 5 + 7 = 11. Line up the trains: one is two cubes longer, so it is not a near double.

ON ANIMAL MATH

PRINTABLE	**Near Doubles to 10**: sheets 1-2
MAKER	**Doubles & Near Doubles**: Mode Near Doubles Only, Number Range Within 10 (up to 9 + 10), Show Visual Dots
MAKER	**Doubles & Near Doubles**: Mode Mixed, Number Range Within 10, for early finishers
TOOL	**Ten Frames**: two frames, two counter colors
EXIT TICKET	**1st Grade Addition Strategies Exit Tickets**: Exit Ticket 4.5

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Lesson 4.6: Make a ten to add

GOAL Students add two numbers whose sum is more than 10 by filling a ten first: they break apart the smaller number to make 10 with the bigger one (8 + 6 = 8 + 2 + 4 = 10 + 4 = 14).

I can make a ten to add.

About 45 minutes

THE LESSON

1. **Warm up** (5 min) Make 10 flash: hold up a number card (7) and students show on fingers how many more make 10 (3). Go fast through 1 to 9.
2. **Teach** (10 min) Put 8 red counters in the top ten frame and 6 yellow in the bottom. Move 2 yellow up to fill the ten: now 10 and 4, so 14. Write 8 + 6 = 10 + 4 = 14 and draw the 6 broken into 2 and 4. Do 9 + 5 the same way (9 + 1, then 10 + 4).

   Say: "I fill the ten first. Then ten and the rest is easy."
3. **Try it together** (10 min) Partners build facts on the double ten frame (7 + 6, 9 + 3, 8 + 7, 6 + 9), move counters to fill the top frame, and write the "10 plus" fact. For 6 + 9, ask which number to fill: the 9, so break apart the 6 into 1 and 5.
4. **Practice** (15 min) Students draw dots to fill the ten on sheet 1 of Make a Ten to Add and Subtract, then break apart the smaller number on sheet 2. Early finishers do sheet 2 of Three Sisters Garden Math.
5. **Exit ticket** (5 min) Students do **Exit Ticket 4.6** and circle a face beside the "I can" line. Check the bond under the 5 in 7 + 5: 3 and 2 shows the student knew 7 needs 3 more to make 10.

Need help? Start with facts with 9 (9 + 3, 9 + 5): move one counter to make 10, then count the rest.

Ready for more? Explain why 8 + 7 and 10 + 5 have the same sum, then write two more facts that equal 10 + 5.

GET READY

- A double ten frame and counters in two colors for each student
- Whiteboards and markers

WORDS TO USE

make a ten: fill a ten frame so you have 10

break apart: split a number into two parts, like 6 into 2 and 4

ten and some more: a teen number: 14 is ten and 4 more

ASK

- How many more does 8 need to make 10? Where do you get them?
- Why do we break apart the smaller number?
- After you make the ten, how many are left?

WATCH FOR

Breaks the number into the wrong parts: 8 + 6 as 8 + 4 + 2. Ask first: how many does 8 need to make 10? Fill those spaces, then count what is left.

Makes the ten, then stops: 8 + 6 = 10. Point to the bottom frame: 4 counters are still waiting. 10 and 4 more.

Writes 104 for 10 + 4. Say "ten and four is fourteen" and show a full frame and 4 counters.

ON ANIMAL MATH

- PRINTABLE **Make a Ten to Add and Subtract**: sheets 1-2
- PRINTABLE **Three Sisters Garden Math**: sheet 2, for early finishers
- MAKER **Ten Frame Addition**: Problem Type Make a Ten to Add
- TOOL **Ten Frames**: two frames with + 10-Frame, two counter colors
- EXIT TICKET **1st Grade Addition Strategies Exit Tickets**: Exit Ticket 4.6

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Lesson 4.7: Number bonds to 20

GOAL Students find the missing part or whole in a number bond to 20 (14 is 8 and 6), and write it as an addition sentence with a missing number (5 + ___ = 13).

I can find the missing number in a number bond.

About 45 minutes

THE LESSON

1. **Warm up** (5 min) Doubles and near doubles quick fire: 7 + 7, 7 + 8, 9 + 9, 9 + 10. Students write the sums on whiteboards.
2. **Teach** (10 min) Draw a bond with 14 at the top and 8 in one part. Put 14 counters on the mat and move 8 to one part: 6 are left for the other. Write 8 + 6 = 14 and 6 + 8 = 14. Then show 5 + ___ = 13: make a ten, 5 + 5 = 10, then 3 more, so 8.

   > **Say:** "The two parts make the whole. If I know one part, I can find the other."

3. **Try it together** (10 min) Partners take turns: one splits 11 to 20 counters into two cups and shows one cup; the other finds the missing part and writes the bond. Include a whole missing (13 and 5) and a part past 10 (14 and 3).
4. **Practice** (15 min) Students fill in the missing numbers on sheets 1 to 3 of Number Bonds to 20 (some wholes are small). Early finishers write an addition sentence for each bond with a whole past 10.
5. **Exit ticket** (5 min) Students do **Exit Ticket 4.7** and circle a face beside the "I can" line. In 6 + ___ = 15, a student who writes 21 added the numbers instead of finding the missing part.

Need help? Work with wholes to 12 using counters on the bond mat, then move to teen numbers.

Ready for more? Find every pair of parts for one whole, like 15, and explain how you know you have them all.

GET READY

- A number bond mat (one big circle, two small ones) and 20 counters for each pair
- A double ten frame
- Two cups for each pair

WORDS TO USE

whole: all of them together; the number in the big circle

part: one piece of the whole

missing: not there yet; the number we need to find

ASK

- What is the whole? What are the parts?
- How did you find the missing part: count on or make a ten?
- What addition sentence matches this bond?

WATCH FOR

Adds the whole and the part: writes 22 for a whole of 14 and a part of 8. Put the whole on the mat in counters: a part can never be more than the whole.

Writes the whole in a part circle. Touch the big circle and say "all of them", then each small circle, "a part".

Counts on from 8 to 14 and counts the 8 too, getting 7. Say the 8 quietly, then lift a finger for each number up to 14.

ON ANIMAL MATH

PRINTABLE **Number Bonds to 20**: sheets 1-3

MAKER **Number Bonds**: Missing Value Random Mix, Style Diagram + Equation, Target Number Within 20

TOOL **Ten Frames**: two frames, two counter colors

EXIT TICKET **1st Grade Addition Strategies Exit Tickets**: Exit Ticket 4.7

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Lesson 4.8: Add three numbers

GOAL Students add three numbers by finding two that make 10 or a double, adding those first, then adding the third (4 + 6 + 5: 10 + 5 = 15).

I can add three numbers.

About 45 minutes

THE LESSON

1. **Warm up** (5 min) Pairs to 10: say a number and students call out its partner (4, then 6; 8, then 2). Then a few doubles (6 + 6, 3 + 3).
2. **Teach** (10 min) Write 4 + 6 + 5. Ask if two numbers make 10: circle 4 and 6, write 10, then add 5: 15. Next write 2 + 7 + 2: no ten, but a double. Circle the 2s, write 4, then 4 + 7 = 11. Show with counters that another order gives the same sum.

   Say: "I look for a ten or a double first. Then I add the last number."
3. **Try it together** (10 min) Partners roll three dice, circle a ten or a double on a whiteboard, and add. Then work 8 + 5 + 2 together (8 + 2 = 10, then 15), and one where the pair is first and last (6 + 9 + 4).
4. **Practice** (15 min) Students circle the two that make 10 on sheets 1 and 2 of Adding Three Numbers, then the double on sheet 3. Early finishers do sheet 4 (ten or double?).
5. **Exit ticket** (5 min) Students do **Exit Ticket 4.8** and circle a face beside the "I can" line. In 3 + 6 + 3, look for 3 + 3 = 6 first, then 6 + 6 = 12; a sum of 9 means a number was left out.

Need help? Use counters in three colors on a double ten frame, with the ten in the first two numbers at first.

Ready for more? Find the missing number on sheet 5 of Adding Three Numbers, or solve story problems on sheets 1 and 2 of Three Addend Word Problems.

GET READY

- Three dice for each pair
- Counters in three colors
- Whiteboards and markers

WORDS TO USE

make ten: two numbers that add up to 10, like 4 and 6

any order: add any two first: the sum is the same

ASK

- Which two numbers did you add first? Why?
- Does it matter which two you add first? How do you know?
- Is there a ten here? A double?

WATCH FOR

Adds only two of the numbers. Have them check off each number as they use it.

Adds in order when the ten is apart (6 + 9 + 4). Ask "Where is the ten?" first, circle it and start there.

Circles two numbers that do not make 10 (5 and 6). Check on ten fingers: 5 and 6 is more than two hands.

ON ANIMAL MATH

- PRINTABLE **Adding Three Numbers**: sheets 1-4
- PRINTABLE **Properties of Addition**: sheet 4
- PRINTABLE **Addition Games to 20**: sheet 4, Bump! (three dice)
- PRINTABLE **Three Addend Word Problems**: sheets 1-2, for early finishers
- MAKER **Horizontal Math Equations**: Range Within 20, Three Numbers, Numbers With a Ten or a Double
- TOOL **Ten Frames**: two frames, two counter colors
- EXIT TICKET **1st Grade Addition Strategies Exit Tickets**: Exit Ticket 4.8

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Lesson 4.9: Ways to make 20

GOAL Students find pairs of numbers that make 20 (16 + 4, 11 + 9) by counting the empty spaces on two ten frames, and find the missing number in sentences like ___ + 6 = 20.

I can find ways to make 20.

About 45 minutes

THE LESSON

1. **Warm up** (5 min) Pairs to 10 with fingers, fast: 3 and 7, 6 and 4, 9 and 1. Then ask: if 6 and 4 make 10, what goes with 16 to make 20?
2. **Teach** (10 min) Show two ten frames with 16 counters: one full frame and 6 in the next. Count the empty spaces: 4, so 16 + 4 = 20. Do 11 (9 more) and 19 (1 more). Show the link: 6 + 4 = 10, so 16 + 4 = 20. Then write ___ + 6 = 20 and use the frames: 14.

   Say: "I count the empty spaces. That is how many more make 20."
3. **Try it together** (10 min) Partners pull a card from 11 to 19, fill the frames, count the empty spaces and write the pair that makes 20. Then make a class list in order (20 + 0, 19 + 1, 18 + 2 ...) and talk about the pattern.
4. **Practice** (15 min) Students find the missing numbers on sheets 1 and 2 of Ten Frame Add & Subtract to 20, using the frames on the page. About half take away from 20: count what is left. Early finishers play Make Ten Cards.
5. **Exit ticket** (5 min) Students do **Exit Ticket 4.9** and circle a face beside the "I can" line. In the circle question, look for 2 and 18; 13 and 5 make 18, a near miss to check on the ten frames.

Need help? Make 10 with one ten frame first, then set a full frame beside it and make 20 the same way.

Ready for more? Write all the ways to make 20 in order and explain how you know none are missing, or make 20 with three numbers (10 + 6 + 4).

GET READY

- Two ten frames and 20 counters for each pair
- Number cards 11 to 19
- Whiteboards and markers

WORDS TO USE

make 20: two numbers that add up to 20

missing number: the number that goes in the blank to make it true

ASK

- How many more does 13 need to make 20? How do you know?
- If 4 + 6 = 10, what is 14 + 6?
- What pattern do you see in the list of ways to make 20?

WATCH FOR

Writes 4 for ___ + 6 = 20, thinking of 10. Show both frames: the first ten is already full, so it is 14.

Writes 26 for ___ + 6 = 20, adding the two numbers. Read it as "what and 6 make 20?" and point to the 20: it is the whole.

Counts the empty spaces in one frame only. Touch each empty space on both frames as you count.

ON ANIMAL MATH

- PRINTABLE **Ten Frame Add & Subtract to 20**: sheets 1-2
- PRINTABLE **Addition Games to 20**: sheet 6, Make Ten Cards, for early finishers
- MAKER **Making 10: Ten Frames**: Mode Addition, Target Number Make 20
- TOOL **Ten Frames**: two frames with + 10-Frame
- EXIT TICKET **1st Grade Addition Strategies Exit Tickets**: Exit Ticket 4.9

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Lesson 4.10: Addition facts to 20, fast

GOAL Students choose a quick strategy for each fact to 20 (count on, a double, a near double, make a ten) and practice until the facts come quickly and right.

I can add facts to 20 quickly.

About 45 minutes

THE LESSON

1. **Warm up** (5 min) Strategy sort: show a fact (8 + 2, 6 + 6, 6 + 7, 9 + 5). Students hold up 1 finger for count on, 2 for a double, 3 for a near double, 4 for make a ten.
2. **Teach** (10 min) Pull fact cards and think aloud: 8 + 3, count on 3; 7 + 8, a near double, 7 + 7 = 14, so 15; 9 + 5, make a ten, 10 + 4 = 14; 14 + 5, think 4 + 5 = 9, so 19. Sort the cards on the strategy chart, and show that a fact can have more than one good strategy.

   Say: "I look at the numbers first. Then I pick my fastest way."
3. **Try it together** (10 min) Partners flash fact cards: one says the sum and the strategy, the other checks. Then play Bigger Sum Wins. Make sure the hard facts come up: 7 + 8, 8 + 9, 6 + 9, 7 + 5.
4. **Practice** (15 min) Students do sheet 1 of Addition Drills Within 20, timing themselves, then try to beat their time on sheet 2. Students who need more time do half a sheet. Early finishers take the Addition Quiz, Up to 20.
5. **Exit ticket** (5 min) Students do **Exit Ticket 4.10** and circle a face beside the "I can" line. The facts past 10 in the second question (6 + 8, 9 + 4, 5 + 8, 3 + 9) show who still counts all; note them for practice.

Need help? Practice one group of facts at a time (doubles, then + 9) with ten frames on the desk, and shorter timed sets.

Ready for more? Make flash cards of the facts they find hardest and sort them by strategy, or play Race to the Top and record which sum wins.

GET READY

- Addition fact cards to 20 in a bag
- A strategy chart: count on, doubles, near doubles, make a ten
- A timer
- Whiteboards and markers

WORDS TO USE

strategy: a smart way to work out the answer, like making a ten

quickly: fast, without counting every one

ASK

- Which strategy did you use for 7 + 8? Why?
- Which facts are still slow for you?
- Can you find 9 + 6 two ways?

WATCH FOR

Counts all on fingers for every fact. Practice one strategy a day (today doubles and near doubles), with the chart on the desk.

Gets faster but careless: 7 + 5 = 13. Count only right answers in the timed sheet, and check a wrong one on a ten frame.

Lines up 14 + 5 wrong in a column. Write the ones under the ones: the 5 goes under the 4.

ON ANIMAL MATH

- PRINTABLE **Addition Drills Within 20**: sheets 1-2
- PRINTABLE **Halloween Addition Drills**: sheets 1-2
- PRINTABLE **Addition Games to 20**: sheets 1, 3 and 5 (board, spinners, cards)
- MAKER **Addition Fact Drills**: Fact Range Within 20
- QUIZ **Addition Quiz**
- EXIT TICKET **1st Grade Addition Strategies Exit Tickets**: Exit Ticket 4.10

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Adding to 20

Lesson 4.11: Adding the same number again

GOAL Students add one number, like 6 or 8, to many numbers, pick a quick way for each (2 + 8 makes a ten, 8 + 8 is a double), and see that when the first number grows by one, the sum grows by one.

I can add the same number to many numbers.

About 45 minutes

THE LESSON

1. **Warm up** (5 min) Count on by ones from 10 to 20 together, then a quick round of near doubles: 6 + 7, 8 + 9, 5 + 6.
2. **Teach** (10 min) Make an add 7 table: 1 + 7 down to 10 + 7. Fill it with the class, naming a strategy as you go: 3 + 7 makes a ten, 5 + 7 is 7 + 3 + 2 = 12, 7 + 7 is a double, 8 + 7 a near double. Then read the sums down: 8, 9, 10, 11, each one more.

   > **Say:** "When the first number goes up by one, the sum goes up by one too."

3. **Try it together** (10 min) Play Add 6 Machine: you say a number going in (5, 7, 11, 13), students write the number coming out (11, 13, 17, 19) on whiteboards. Then switch to add 8 (3, 6, 9, 12).
4. **Practice** (15 min) Students do the + facts on sheet 5 (adding 6) and sheet 6 (adding 8) of Addition Drills Within 20. The fact families at the bottom also take away: do them together or skip them. Early finishers do sheet 5 (adding 7) of Halloween Addition Drills.
5. **Exit ticket** (5 min) Students do **Exit Ticket 4.11** and circle a face beside the "I can" line. In the add 6 row, 8 + 6 = 14 and 9 + 6 = 15 sit side by side: students who see the pattern get one from the other.

Need help? Fill in an add 6 table in order, with ten frames on the desk, so each fact is one more than the last.

Ready for more? Make an add 9 table, find its pattern, and explain how 9 + 6 helps with 9 + 7.

GET READY

- A double ten frame and counters
- A number line 0 to 20
- Whiteboards and markers

WORDS TO USE

add 7: put 7 more with the number

pattern: a rule that keeps going: one more in, one more out

ASK

- You know 9 + 8 = 17. What is 10 + 8? How do you know?
- Which add 8 facts make a ten? Which is a double?
- What pattern do you see in the sums?

WATCH FOR

Starts at the small number and counts on 8, losing count. Turn it around: start at 8 and count on, or make a ten with the 8.

Works out each fact from the start. Point to the fact above: this number is one more, so the sum is one more.

ON ANIMAL MATH

PRINTABLE **Addition Drills Within 20**: sheets 5-6 (adding 6, adding 8)

PRINTABLE **Halloween Addition Drills**: sheets 5-6 (adding 7, adding 9)

MAKER **Horizontal Math Equations**: Range Within 20, Regrouping / Borrowing on (Mix Random), Number Overrides: Second Number Min 8 and Max 8

TOOL **Number Line**: Start 0, End 20, Mode Jump

EXIT TICKET **1st Grade Addition Strategies Exit Tickets**: Exit Ticket 4.11

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Adding to 20

Lesson 4.12: Puzzles and games

GOAL Students use the unit's facts and strategies to solve number puzzles (cross sums, riddles) and play addition games, checking each other's sums.

I can solve number puzzles.

About 45 minutes

THE LESSON

1. **Warm up** (5 min) Riddle round: "I am 4 more than 8. What am I?" Students write the answer on whiteboards and say how they found it. Do two more (6 more than 7, 3 more than 9).
2. **Teach** (10 min) Draw a 2 by 2 cross sum: 7 top right, 5 bottom left, row sums 15 and 14, column sums 13 and 16. Think aloud: the top row makes 15 and has 7, so 7 and what make 15? 8. The bottom row makes 14 with 5: 9. Check the columns: 8 + 5 = 13, 7 + 9 = 16.

   Say: "I find a row with one empty box. Then I check the other way."
3. **Try it together** (10 min) Play I Have, Who Has? with the 20 addition cards as a class: every student reads a card and listens for their sum. Then partners try one game from Addition Games to 20, Spin and Add or Bump!
4. **Practice** (15 min) Students choose: the cross sums on sheet 4 of Cross Sums Within 10 and 20, or a game with a partner, checking sums on the game's answer sheet. Early finishers do sheet 1 of Animal Riddle Math.
5. **Exit ticket** (5 min) Students do **Exit Ticket 4.12** and circle a face beside the "I can" line. In the cross sum, see whether the student checked the columns: 6 + 8 = 14 and 9 + 4 = 13 both have to work.

Need help? Start with the cross sums within 10 (sheets 1 to 3 of the same pack), and play games with one die and a number card.

Ready for more? Solve 3 by 3 cross sums (Number Puzzle to 20), or make a cross sum for a partner and check it has only one answer.

GET READY

- Dice, counters, paper clips (for spinners)
- The game pages, copied and cut out
- I Have, Who Has? addition cards, cut apart

WORDS TO USE

row: boxes going across

column: boxes going up and down

check: make sure it is right another way

ASK

- Which box did you fill first? Why that one?
- How can you check your puzzle?
- Which strategy helped you most in the game?

WATCH FOR

Fills a row but not its column. Have them check every row and column before saying "done".

Adds the clue and the number shown: writes 22 for 7 and 15. Read the row as "7 and what make 15?" and count on from 7.

Says a wrong sum in a game. Make the partner the checker, with the answer sheet; swap each turn.

ON ANIMAL MATH

- PRINTABLE **Cross Sums Within 10 and 20**: sheets 4-6 (within 20)
- PRINTABLE **Addition Games to 20**: sheets 1-6
- PRINTABLE **I Have, Who Has? Addition and Subtraction to 20**: sheets 1-2 (addition)
- PRINTABLE **Animal Riddle Math**: sheet 1, for early finishers
- PRINTABLE **Number Puzzle to 20**: any sheet (3 by 3), for students ready for more
- MAKER **Sum & Difference Box Puzzles**: Operator +, Number Range Within 20, Grid Size 2×2
- EXIT TICKET **1st Grade Addition Strategies Exit Tickets**: Exit Ticket 4.12

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