

Add and Subtract to 10

Unit 2 Overview: 13 lessons

Students learn what adding and subtracting mean by putting groups together and taking some away, with pictures, ten frames, number bonds and number lines. Then they use what they see to learn facts within 10: the pairs that make 10, doubles, missing numbers and fact families. The unit ends with addition and subtraction facts until they are quick, story problems and number puzzles. Ten frames and number bonds come back in every unit after this one, so keep them out.

THE UNIT, DAY BY DAY

Day 1	Pre-Check	What students already know (page 1 of the test pack).
Day 2	2.1 Add with pictures and ten frames	I can put groups together to add.
Day 3	2.2 Take away with pictures and ten frames	I can take away to subtract.
Day 4	2.3 Number bonds to 10	I can use number bonds.
Day 5	2.4 Make 10	I can make 10.
Day 6	2.5 Add on a number line	I can add on a number line.
Day 7	2.6 Subtract on a number line	I can subtract on a number line.
Day 8	2.7 Doubles	I can add doubles.
Day 9	2.8 Missing numbers in equations	I can find the missing number.
Day 10	2.9 Fact families within 10	I can write a fact family.
Day 11	2.10 Addition facts to 10, fast	I can add facts to 10 fast.
Day 12	2.11 Subtraction facts to 10, fast	I can subtract facts to 10 fast.
Day 13	2.12 Story problems within 10	I can solve story problems.
Day 14	2.13 Puzzles within 10	I can solve number puzzles.
Day 15	Unit Review	The review pages, with a tip beside every question.
Day 16	Unit Test	Form A; Form B (other numbers) is for a retest.

GET READY FOR THE UNIT

- A ten frame and 10 counters in two colors for each student (cubes in two colors work too)
- A number line 0 to 10 for each student, in a sheet protector, and a big one on the floor or wall
- Dot cubes, dominoes, number cards 0 to 10 and small toys or pictures to count
- Whiteboards and dry erase markers

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

EXIT TICKET

1st Grade Add and Subtract Within 10 Exit Tickets: one for every lesson, four to a page

PRINTABLE

1st Grade Add and Subtract Within 10 Test: the Pre-Check, the Unit Review and the Unit Test (Forms A and B), with keys

Add and Subtract to 10

Lesson 2.1: Add with pictures and ten frames

GOAL Students put two groups together to find how many in all, with things, pictures and ten frames, and write it as an addition sentence such as $4 + 3 = 7$.
I can put groups together to add.

About 45 minutes

THE LESSON

- 1 Warm up** (5 min) Flash a ten frame with some dots for two seconds, then hide it. Students show on their fingers how many they saw. Use 5, 3, 8 and 10.
- 2 Teach** (10 min) Put 4 cars and 3 trucks on the table. Count each group, push them together and count all 7. Show the same in a ten frame: 4 counters of one color, then 3 of the other. Write $4 + 3 = 7$ under it and read it aloud.
| Say: "4 and 3 more make 7 in all. We write 4 plus 3 equals 7."
- 3 Try it together** (10 min) Partners take turns: one puts counters of one color in the ten frame, the other adds some of the other color. Both say and write the sentence. Include $6 + 4$, which fills the frame, and $5 + 0$.
- 4 Practice** (15 min) Students do sheets 1 to 3 of Ten Frame Addition to 10, then count and add the pictures on sheets 1 to 3 of Halloween Add & Subtract. Early finishers draw two groups and write the sentence.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.1** and circle a face beside the "I can" line. On the ten frame, look for $5 + 3 = 8$ with each part in its own box, not 8 written alone.

Ready for more? Show 7 in a ten frame in two colors as many ways as they can ($6 + 1$, $5 + 2$, $4 + 3$) and write each sentence.

GET READY

- Ten frames and two-color counters
- Small toys in two kinds (cars and trucks)
- Whiteboards and markers

WORDS TO USE

add: put groups together and count them all

plus: the + sign; it means and

equals: the = sign; it means is the same as

ASK

- How many in each group? How many in all?
- Does it matter which group you count first?

WATCH FOR

Writes the first group as the answer. Push the groups together and count again.

Counts one thing twice. Move each one into a ten frame box as it is counted.

Writes 4 3 7 with no signs. Read it together, pointing to + and = as you say them.

Need help? Use real objects and sums to 5 first, with a ten frame on the desk to place each one.

ON ANIMAL MATH

PRINTABLE Ten Frame Addition to 10: sheets 1-3

PRINTABLE Halloween Add & Subtract: sheets 1-3

MAKER Picture Addition: Mode Standard, Image Type Pictures, Number Range Within 10

MAKER Ten Frame Addition: Problem Type Count and Solve, Operations +, Number Range Within 10

TOOL Ten Frames: orange counters for one group, blue for the other

QUIZ Addition Quiz

EXIT TICKET 1st Grade Add and Subtract Within 10 Exit Tickets: Exit Ticket 2.1

Add and Subtract to 10

Lesson 2.2: Take away with pictures and ten frames

GOAL Students take some away from a group by moving or crossing them out, count how many are left, and write it as a subtraction sentence such as $7 - 3 = 4$.

About 45 minutes

I can take away to subtract.

THE LESSON

- 1 Warm up** (5 min) Show 5 fingers and put 2 down: how many are still up? Then 8 take away 3, and 10 take away 1.
- 2 Teach** (10 min) Put 7 toy frogs on the table and tell a story: 3 hop away. Move 3 off and count the 4 left. Put 7 counters in a ten frame, cross out 3 from the end and count what is left: $7 - 3 = 4$.
| Say: "I start with 7. I take away 3. 4 are left. 7 minus 3 equals 4."
- 3 Try it together** (10 min) Partners fill a ten frame with some counters, then take turns telling a take away story and removing that many. Both write the sentence. Include taking away 0 ($6 - 0$) and taking away all ($5 - 5$).
- 4 Practice** (15 min) Students cross out and subtract on sheets 4 to 6 of Halloween Add & Subtract, then do sheet 2 of Picture Word Problems Within 10. Early finishers draw 9 circles, cross out some and write the sentence.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.2** and circle a face beside the "I can" line. On the ten frame, look for $6 - 2 = 4$: a student who writes $4 - 2$ started with the dots left, not all the dots.

Need help? Take away from 5 or fewer real objects, moving each one off the table while counting.

Ready for more? Start with 10 and take away 1, then 2, then 3, up to 10. Write each sentence and look for the pattern.

GET READY

- A ten frame and counters for each student
- Small toys or picture cards to take away
- Whiteboards and markers

WORDS TO USE

take away: move some out of the group

minus: the $-$ sign; it means take away

left: how many are still there

ASK

- How many did you start with? How many did you take away?
- Why is the number left smaller than the start?
- What happens when you take away 0?

WATCH FOR

Counts the crossed out ones as left. Cover the crossed out ones with a hand and count only what you can see.

Writes 3 – 7 for 7 take away 3. Ask "How many did you start with?" and write that number first.

Adds instead of taking away. Act it out: the ones that go away leave the table, so there are fewer.

ON ANIMAL MATH

PRINTABLE Halloween Add & Subtract: sheets 4-6

PRINTABLE Picture Word Problems Within 10: sheet 2

MAKER Ten Frame Addition: Problem Type Count and Solve, Operations $-$, Number Range Within 10

TOOL Ten Frames: click a counter to take it away

QUIZ Subtraction Quiz

EXIT TICKET 1st Grade Add and Subtract Within 10 Exit Tickets: Exit Ticket 2.2



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Add and Subtract to 10

Lesson 2.3: Number bonds to 10

GOAL Students show a number as two parts and a whole in a number bond, find a missing part, and see that 7 can be 5 and 2, 4 and 3 or 6 and 1.

About 45 minutes

I can use number bonds.

THE LESSON

- 1 Warm up** (5 min) Show 6 on fingers in different ways: 5 and 1, 3 and 3, 4 and 2. Students show another way.
- 2 Teach** (10 min) Put 7 counters in the whole circle of a mat. Move 5 into one part and 2 into the other, and write the bond. Slide them back and break 7 apart as 4 and 3. Then cover one part: the whole is 7 and one part is 4, so the other part is 3.
Say: "The two parts make the whole. If I know the whole and one part, I can find the other part."
- 3 Try it together** (10 min) Partners roll the dot cube twice (again if the total is over 10), put that many counters in each part and write the bond, whole on top. Then write bonds with a part missing on the board (whole 10, part 6) for pairs to solve with counters.
- 4 Practice** (15 min) Students fill in the missing part or whole on sheets 1 to 3 of Number Bonds to 10, then find three ways to make 8 and 10 on sheet 4 of Part-Part-Whole Word Problems.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.3** and circle a face beside the "I can" line. In the bond with 10 on top and 4 below, an answer of 14 means the student added instead of finding the other part.

Need help? Use wholes to 5 with counters on the mat, then 6 and 7.

Ready for more? Write every bond for 10 in order (10 and 0, 9 and 1, 8 and 2, ...) and tell the pattern.

GET READY

- A number bond mat and 10 counters for each pair
- A dot cube for each pair
- Whiteboards and markers

WORDS TO USE

part: one of the groups that make the whole

whole: all of it; both parts together

number bond: two parts and the whole they make

break apart: split a number into two parts

ASK

- What are the parts? What is the whole?
- Can you break 8 apart another way?
- Which number in a bond is biggest? Why?

WATCH FOR

Adds the whole and the part to fill a part. Put the whole on the mat in counters, move the part you know out, and count what is left.

Writes the whole in a part circle. Point to the top circle: the whole goes there, and it is the biggest number.

Finds only one way to break a number apart. Move one counter from one part to the other and write the new bond.

ON ANIMAL MATH

PRINTABLE

Number Bonds to 10: sheets 1-3

PRINTABLE

Part-Part-Whole Word Problems: sheet 4

MAKER

Number Bonds: Missing Value Random Mix, Style Diagram + Equation, Target Number Within 10

TOOL

Ten Frames: one counter color for each part

EXIT TICKET

1st Grade Add and Subtract Within 10 Exit Tickets: Exit Ticket 2.3



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Add and Subtract to 10

Lesson 2.4: Make 10

GOAL Students find the number that goes with another to make 10, seeing it as the empty boxes of a ten frame, and learn the pairs: 1 and 9, 2 and 8, 3 and 7, 4 and 6, 5 and 5.
I can make 10.

About 45 minutes

THE LESSON

- 1 Warm up** (5 min) Hold up some fingers: how many more fingers make 10? Try 8, 5 and 3, then let a student lead.
- 2 Teach** (10 min) Put 7 counters in a ten frame and count the empty boxes: 3. Fill them with the other color and write $7 + 3 = 10$. Do it for 6 and 9. Then list the pairs in order on the board (10 and 0, 9 and 1, down to 0 and 10) and talk about the pattern.
Say: "The empty boxes tell me how many more I need. 7 and 3 make 10."
- 3 Try it together** (10 min) Pairs play Make 10: one shows a number card, the other finds the card that makes 10, and they build both in a ten frame to check. Make sure 5 and 5, and 10 and 0, come up.
- 4 Practice** (15 min) Students count the empty boxes on sheets 1, 2 and 4 of Making Tens with Ten Frames, then fill in the blanks on sheet 5. Early finishers play Make Ten Cards (sheet 6 of Addition Games to 20) as Memory.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.4** and circle a face beside the "I can" line. Only 1 and 9 make 10 in the circle question; ask anyone who circled another pair to show it on a ten frame.

Need help? Make 5 first with one hand or a five frame, then make 10 with two hands.

Ready for more? Find the partner with no ten frame, then subtract from 10 ($10 - 3$, $10 - 6$) on Ten Frame Subtraction to 10.

GET READY

- Ten frames and two-color counters
- Number cards 0 to 10 for each pair
- Whiteboards and markers

WORDS TO USE

make 10: find two numbers that together are 10

partners of 10: two numbers that make 10, like 7 and 3

empty: no counter in the box

ASK

- How do the empty boxes help you?
- You have 4. How many more make 10? How do you know?
- Which pair uses the same number twice?

WATCH FOR

Counts the dots instead of the empty boxes.

Have them put a finger in each empty box while counting.

Says 3 and 6 make 10. Build it in a ten frame: one box is still empty, so 3 and 6 make 9.

Counts from 1 to find the partner. Count on from the number they have: 7, then 8, 9, 10 is 3 more.

ON ANIMAL MATH

PRINTABLE Making Tens with Ten Frames: sheets 1, 2, 4 and 5

PRINTABLE Addition Games to 20: sheet 6, Make Ten Cards

PRINTABLE Ten Frame Subtraction to 10: any sheet, for subtracting from 10

MAKER Making 10: Ten Frames: Mode Addition, Target Number Make 10

TOOL Ten Frames

EXIT TICKET 1st Grade Add and Subtract Within 10 Exit Tickets: Exit Ticket 2.4



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Add and Subtract to 10

Lesson 2.5: Add on a number line

GOAL Students add on a number line by starting at the first number and hopping once for each number added ($3 + 4$: start at 3, hop 4, land on 7).

About 45 minutes

I can add on a number line.

THE LESSON

- 1 Warm up** (5 min) Students take turns on the floor number line: "Start on 2. Hop 3. Where did you land?" The class counts the hops aloud.
- 2 Teach** (10 min) Draw a number line 0 to 10. For $5 + 3$, put a counter on 5, draw three hops, counting 1, 2, 3 over them, and land on 8. Show that you count the hops, not the start. Then do $2 + 6$ and $6 + 2$: the same answer, but fewer hops from 6.
| Say: "I start on 5. I hop 3 times: 1, 2, 3. I land on 8, so $5 + 3 = 8$."
- 3 Try it together** (10 min) Partners take turns: one says a fact, the other hops a counter along the number line while the first counts the hops. Include adding 0 ($7 + 0$) and one that lands on 10 ($6 + 4$).
- 4 Practice** (15 min) Students do sheets 1 to 3 of Number Line Addition to 10 and draw every hop. Point out that its lines start at 1, not 0. Early finishers draw hops for a fact and have a partner name it.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.5** and circle a face beside the "I can" line. On $3 + 4$, an answer of 6 means the student counted the 3 as the first hop.

Need help? Act each fact out on the floor number line, with the class counting each step.

Ready for more? Write the fact that a drawing of hops shows, or add on a number line to 20.

GET READY

- A number line 0 to 10 for each student, in a sheet protector
- A floor number line 0 to 10
- A counter for each student to use as a marker

WORDS TO USE

hop: a jump of one space on the number line

start: the number where your counter goes first

land: the number where the last hop ends

ASK

- Where do you start? Why there?
- How many hops did you draw? Why?
- Is it faster to start on the bigger number? Try $2 + 6$.

WATCH FOR

Counts the start as a hop ($3 + 4 = 6$). Put the counter on the start and say "zero"; count only the jumps.

Counts the marks instead of the spaces. Have them draw each hop as an arc first, then count the arcs.

Starts at 0 every time. Point to the first number in the fact and put the counter there.

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PRINTABLE

Number Line Addition to 10: sheets 1-3

MAKER

Number Line: Mode Addition on Number Line, Number Range 1-10, Start With Zero

TOOL

Number Line: Mode Jump, Start 0, End 10

QUIZ

Addition Quiz

EXIT TICKET

1st Grade Add and Subtract Within 10 Exit Tickets: Exit Ticket 2.5



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Add and Subtract to 10

Lesson 2.6: Subtract on a number line

GOAL Students subtract on a number line by starting at the first number and hopping back once for each number taken away ($9 - 4$: start at 9, hop back 4, land on 5).

About 45 minutes

I can subtract on a number line.

THE LESSON

- 1 Warm up** (5 min) Count back from 10 to 0 together. Then on the floor number line: "Stand on 8. Hop back 2. Where are you?"
- 2 Teach** (10 min) Draw a number line 0 to 10. For $9 - 4$, put a counter on 9, draw four hops to the left, counting 1, 2, 3, 4, and land on 5. Compare: adding hops right, taking away hops left. Then do $10 - 3$ and $6 - 6$.
| Say: "I start on 9. I hop back 4. I land on 5, so $9 - 4 = 5$."
- 3 Try it together** (10 min) Partners tell take away stories and hop them back on the number line: "8 birds, 3 fly away." Include taking away 1 ($7 - 1$), taking away all ($5 - 5$) and starting at 10.
- 4 Practice** (15 min) Students do sheets 1 to 3 of Number Line Subtraction to 10 and draw every hop back. Early finishers check three of their answers by hopping forward again.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.6** and circle a face beside the "I can" line. On $8 - 5$, an answer of 4 means the student counted the 8 as the first hop.

Need help? Count back from 5 or less with a counter, saying each number aloud.

Ready for more? Find the hops: start on 9 and land on 4. How many hops back? Write the fact.

GET READY

- A number line 0 to 10 for each student, in a sheet protector
- The floor number line
- A counter for each student to use as a marker

WORDS TO USE

hop back: jump one space toward 0, to the smaller numbers

count back: say the numbers going down, one less each time

ASK

- Which way do you hop when you take away? Why?
- How is this like adding on the number line? How is it different?

WATCH FOR

Hops to the right, as in adding. Draw an arrow pointing left over the line and say "take away goes back".

Counts the start as a hop ($8 - 5 = 4$). Keep the counter on the start and say "one" only on the first jump.

Starts at the second number. Circle the first number in the fact; that is where the counter goes.

ON ANIMAL MATH

PRINTABLE

Number Line Subtraction to 10: sheets 1-3

MAKER

Number Line: Mode Subtraction on Number Line, Number Range 1-10, Start With Zero

TOOL

Number Line: Mode Jump, Start 0, End 10

QUIZ

Subtraction Quiz

EXIT TICKET

1st Grade Add and Subtract Within 10 Exit Tickets: Exit Ticket 2.6



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Add and Subtract to 10

Lesson 2.7: Doubles

GOAL Students learn the doubles to 10 ($1 + 1$ to $5 + 5$) by seeing the same number twice, on dominoes, dot cubes, hands and the two rows of a ten frame, and say them without counting.

About 45 minutes

I can add doubles.

THE LESSON

- 1 Warm up** (5 min) Show doubles on fingers: 1 on each hand, then 2 and 2, up to 5 and 5. Students say the total each time.
- 2 Teach** (10 min) Hold up the double dominoes from 1 and 1 to 5 and 5 and write each fact: $1 + 1 = 2$, $2 + 2 = 4$, $3 + 3 = 6$, $4 + 4 = 8$, $5 + 5 = 10$. Build $4 + 4$ in a ten frame, 4 in each row. Point out that the answers count by 2s.
| Say: "A double has the same number twice. 4 and 4 make 8."
- 3 Try it together** (10 min) Pairs play Doubles: roll the dot cube (roll again on a 6) and the first to say the double (" $3 + 3 = 6$ ") scores a point. Then ask backward: which double makes 8? Which makes 10?
- 4 Practice** (15 min) Students do sheets 1 to 3 of Doubles to 5 (all the doubles up to $5 + 5$, and $0 + 0$). Early finishers draw a double they see at home and write its fact.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.7** and circle a face beside the "I can" line. For "use the same number twice" to make 8, look for $4 + 4$: $6 + 2$ or $5 + 3$ make 8 but are not doubles.

Need help? Build one double a day with counters in the two rows of a ten frame, starting with $1 + 1$ and $5 + 5$.

Ready for more? Learn the doubles past 10 ($6 + 6$ to $10 + 10$) on Doubles to 10.

GET READY

- Dominoes with doubles (1 and 1 to 5 and 5)
- A dot cube for each pair
- A ten frame and counters for each student

WORDS TO USE

double: a number added to itself, like $4 + 4$

the same: just as many in each group

ASK

- How do you know this is a double?
- What is $5 + 5$? How can your hands show it?
- What do you notice about the answers 2, 4, 6, 8, 10?

WATCH FOR

Counts every dot one by one. Build the double in a ten frame, ask for the total without counting, then check.

Calls $4 + 5$ a double. Put the numbers in the two rows of a ten frame: the rows are not the same.

Says $4 + 4 = 7$ (counts 4, 5, 6, 7). Say the 4, then count on from the next number: 5, 6, 7, 8.

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PRINTABLE **Doubles to 5:** sheets 1-3

PRINTABLE **Doubles to 10:** for students ready for more (sums to 20)

MAKER **Doubles & Near Doubles:** Mode Doubles Only, Number Range Within 5, Show Visual Dots

TOOL **Ten Frames**

QUIZ **Addition Quiz**

EXIT TICKET **1st Grade Add and Subtract Within 10 Exit Tickets:** Exit Ticket 2.7



Add and Subtract to 10

Lesson 2.8: Missing numbers in equations

GOAL Students find a missing number anywhere in a sentence ($4 + ? = 9$, $? - 2 = 5$, $8 - ? = 6$) and check it by reading the sentence with it.

About 45 minutes

I can find the missing number.

THE LESSON

- 1 Warm up** (5 min) Play Hide It: show 7 counters, hide some under a cup and show the rest (4). How many are hiding? Then 10 with 6 showing.
- 2 Teach** (10 min) Write $4 + ? = 9$. Put out 4 counters and add one at a time, counting on 5, 6, 7, 8, 9. Five were added, so the box is 5: read the sentence again to check. Then do $8 - ? = 6$: take counters away from 8 until 6 are left.
Say: "The box is a number we don't know yet. I find it, then I read the sentence to check it is true."
- 3 Try it together** (10 min) Pairs make Hide It puzzles and write each one as a sentence with a box ($6 + ? = 10$). Include a box in each place: first ($? + 2 = 7$), second ($5 + ? = 8$) and in subtraction ($9 - ? = 4$).
- 4 Practice** (15 min) Students do sheets 1 and 2 of Fill in the Blank, Equations to 10 (there the blank is always the first number), then sheets 1 and 2 of Fact Families Within 10, Missing Numbers, which put the blank in every place.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.8** and circle a face beside the "I can" line. On $? + 4 = 6$, an answer of 10 means the student added the two numbers they could see.

Need help? Play Hide It with real counters for every problem, with numbers to 6.

Ready for more? Write a missing number puzzle for a partner, with the box in each of the three places.

GET READY

- A ten frame and 10 counters for each student
- A paper cup for each pair
- Whiteboards and markers

WORDS TO USE

missing number: the one we do not know yet
equal sign: it means both sides are the same amount

check: read it with your number: is it true?

ASK

- What number makes this true? How do you know?
- How can you check your answer?

WATCH FOR

Writes 10 for $? + 4 = 6$. They added the numbers they saw. Read it as "what and 4 make 6?" and build it.

Writes 13 for $9 - ? = 4$. Start with 9 counters and take away until 4 are left; count how many came off.

Never checks. Have them read the sentence with their number in it and say true or false.

ON ANIMAL MATH

PRINTABLE

Fill in the Blank - Equations to 10: sheets 1-2

PRINTABLE

Fact Families Within 10 - Missing Numbers: sheets 1-2

MAKER

Fill in the Blank Equations: Operations + and -, Range Within 10, Position Mixed

QUIZ

Addition and Subtraction Quiz: the Within 10 level

EXIT TICKET

1st Grade Add and Subtract Within 10 Exit Tickets: Exit Ticket 2.8



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Add and Subtract to 10

Lesson 2.9: Fact families within 10

GOAL Students write all four facts of a fact family and use an addition fact they know to subtract. For 2, 5 and 7: $2 + 5 = 7$, $5 + 2 = 7$, $7 - 2 = 5$, $7 - 5 = 2$.

About 45 minutes

I can write a fact family.

THE LESSON

- 1 Warm up** (5 min) Show a number bond with 8 as the whole and parts 3 and 5. Students say an addition fact for it, then a take away fact.
- 2 Teach** (10 min) Make a train of 3 red cubes and 4 blue: $3 + 4 = 7$. Turn it around: $4 + 3 = 7$. Snap off the 3 red: $7 - 3 = 4$, and the 4 blue: $7 - 4 = 3$. Write 3, 4 and 7 in a triangle with the whole at the top. For $9 - 6$, think $6 + ? = 9$.
Say: "The same three numbers make four facts. In subtraction the whole comes first."
- 3 Try it together** (10 min) Pairs build a cube train within 10, write its triangle and all four facts, and swap with another pair to check. Include a double (4, 4 and 8): it has only two facts.
- 4 Practice** (15 min) Students write all four facts on sheets 1 and 2 of Fact Families Within 5, Write All, then sheets 1 to 3 of the pack within 10. Early finishers fill in sheet 3 of Fact Families Within 10, Missing Numbers.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.9** and circle a face beside the "I can" line. All four facts use only 2, 5 and 7; look for a fact that brings in a new number, such as $5 - 2 = 3$.

Need help? Keep the cube train on the desk and snap it apart for each fact, with wholes to 5 first.

Ready for more? Write the fact family for 8, 5 and 13, or find the third number when only two facts are given.

GET READY

- Cube trains of 7 in two colors (3 and 4)
- Paper fact family triangles
- Whiteboards and markers

WORDS TO USE

fact family: facts that use the same three numbers

turn around: add the same numbers the other way: $2 + 5$ and $5 + 2$

think addition: use an adding fact to subtract

ASK

- Which number is the whole? How do you know?
- If you know $3 + 4 = 7$, what is $7 - 4$?
- Why does 4, 4 and 8 have only two facts?

WATCH FOR

Writes $2 - 7 = 5$. Point to the top of the triangle: in subtraction, start with the whole.

Brings in another number ($5 - 2 = 3$). Circle the three numbers in the triangle; every fact uses only those.

Writes the same addition fact twice. Turn the cube train around and read it from the other end.

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- PRINTABLE** **Fact Families Within 5 - Write All:** sheets 1-2
- PRINTABLE** **Fact Families Within 10 - Write All:** sheets 1-3
- PRINTABLE** **Fact Families Within 10 - Missing Numbers:** sheets 3-5
- MAKER** **Fact Families:** Number Range Within 10, Difficulty Write All 4 Facts
- QUIZ** **Addition and Subtraction Quiz:** the Within 10 level
- EXIT TICKET** **1st Grade Add and Subtract Within 10 Exit Tickets:** Exit Ticket 2.9

Add and Subtract to 10

Lesson 2.10: Addition facts to 10, fast

GOAL Students answer addition facts within 10 quickly by using what they know (adding 0, counting on 1 or 2, the pairs that make 10, doubles) instead of counting all, and see their own speed grow.

About 45 minutes

I can add facts to 10 fast.

THE LESSON

- 1 Warm up** (5 min) Flash a fact card for three seconds; students whisper the answer, then say it together. Use + 0, + 1 and + 2 facts.
- 2 Teach** (10 min) Sort fact cards into groups on the board: plus 0, plus 1 or 2, pairs that make 10, doubles, and the rest. Count on for plus 1 or 2: for $7 + 2$, say 7, then 8, 9. Then show that $2 + 7$ and $7 + 2$ are the same, so start with the bigger number.
Say: "If I know $7 + 2$, I know $2 + 7$ too. I start with the bigger number."
- 3 Try it together** (10 min) Partners play Flash Card Pass: one shows a card, the other answers. Cards answered fast go in a "know it" pile; the rest go in a practice pile to work out together with counters.
- 4 Practice** (15 min) Students do sheet 1 of Addition Fact Drills to 10 as fast as they can (it has many + 0 facts), then sheets 1 to 3 of Column Addition to 10. Early finishers make cards for the facts in their practice pile.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.10** and circle a face beside the "I can" line. Look at $5 + 0$: an answer of 0 or 6 shows a student who needs the zero rule again.

Need help? Work on one group of facts at a time (plus 1, then plus 2) with a ten frame on the desk.

Ready for more? Beat their own time on a drill sheet, or play Race to the Top (sheet 2 of Addition Games to 20, sums to 12).

GET READY

- Addition fact cards to 10 for each pair
- A one minute timer
- Counters for checking

WORDS TO USE

fact: a short number sentence, like $3 + 4 = 7$

count on: start at the bigger number and count up the smaller one

know it fast: say the answer right away, without counting

ASK

- Which facts do you know without counting?
- How can $7 + 2$ help you with $2 + 7$?
- What is a fast way to find $8 + 2$?

WATCH FOR

Counts all from 1 on fingers every time. Teach counting on for + 1 and + 2: say the big number, then count up.

Writes $5 + 0 = 0$ or 6. Show 5 counters and add none: the number stays the same.

Guesses to be fast. Fast means sure: have them check three answers with counters, then go on.

ON ANIMAL MATH

PRINTABLE Addition Fact Drills to 10: sheets 1-2

PRINTABLE Column Addition to 10: sheets 1-3

MAKER Math Fact Drills: Operations +, Fact Range Within 10

MAKER Column Math Equations: Operations +, Range Within 10

QUIZ Addition Quiz

EXIT TICKET 1st Grade Add and Subtract Within 10 Exit Tickets: Exit Ticket 2.10



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Add and Subtract to 10

Lesson 2.11: Subtraction facts to 10, fast

GOAL Students answer subtraction facts within 10 quickly by using what they know (take away 0 or all, count back 1 or 2, think addition) instead of crossing out every time.

About 45 minutes

I can subtract facts to 10 fast.

THE LESSON

- 1 Warm up** (5 min) Count back from 10 to 0 together, then answer quick ones aloud: $7 - 1$, $9 - 1$, $6 - 2$.
- 2 Teach** (10 min) Sort subtraction cards into groups: take away 0, take away 1 or 2 (count back), take away all, and the rest. Show $9 - 2$ by counting back: 9, then 8, 7. For the rest, think addition: for $8 - 5$, what goes with 5 to make 8? For $10 - 4$, use the pair 4 and 6.
| Say: "To find $8 - 5$, I think: 5 and what make 8? 3, so $8 - 5 = 3$."
- 3 Try it together** (10 min) Partners play Flash Card Pass with subtraction cards. For a card they do not know, they say the addition fact that helps, then answer. Include $7 - 0$, $5 - 5$ and $10 - 1$.
- 4 Practice** (15 min) Students do sheet 1 of Subtraction Fact Drills to 10 and mark how many they finish, then sheet 2 the next day to beat it. Early finishers write the helping addition fact beside three hard ones.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.11** and circle a face beside the "I can" line. Look at $7 - 0$ and $10 - 1$: answers of 0 or 11 show the rules for 0 and 1 are not set yet.

Need help? Start with take away 0, take away 1 and take away all, then take away 2, with counters to check.

Ready for more? Do a sheet that mixes addition and subtraction facts, or play Race to Zero (sheet 4 of Subtraction Games to 20).

GET READY

- Subtraction fact cards to 10 for each pair
- A one minute timer
- Counters for checking

WORDS TO USE

take away 0: take nothing away; the number stays the same

count back: say the numbers going down, one less each time

think addition: use an addition fact: for $8 - 5$, think $5 + 3 = 8$

ASK

- What addition fact helps you with $9 - 6$?
- What is $6 - 0$? What is $6 - 6$?
- Which facts are easiest for you? Why?

WATCH FOR

Writes 7 - 0 = 0. Show 7 counters and take none away: all 7 are still there.

Answers 8 for 9 - 2, counting the 9. Say 9 quietly, then count back two out loud: 8, 7.

Adds on a sheet that mixes + and -. Have them circle the sign in each problem before they start.

ON ANIMAL MATH

PRINTABLE

Subtraction Fact Drills to 10: sheets 1-2

PRINTABLE

Subtraction Games to 20: sheet 4, Race to Zero

MAKER

Math Fact Drills: Operations -, Fact Range Within 10

QUIZ

Subtraction Quiz

QUIZ

Addition and Subtraction Quiz: the Within 10 level

EXIT TICKET

1st Grade Add and Subtract Within 10 Exit Tickets: Exit Ticket 2.11



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Add and Subtract to 10

Lesson 2.12: Story problems within 10

GOAL Students listen to or read a story, act it out or draw it, decide whether things join or go away, and write a number sentence that matches (9 birds, 4 fly away: $9 - 4 = 5$).

About 45 minutes

I can solve story problems.

THE LESSON

- 1 Warm up** (5 min) Tell a quick story with students as the actors: "4 children are at the door. 2 more come. How many now?" The class says the sentence.
- 2 Teach** (10 min) Read a story twice: "Mia has 5 apples. She gets 3 more. How many now?" Act it out with counters and draw it, then write the sentence and the answer, 8 apples. Do a take away story (9 birds, 4 fly away) and a two group story (3 red and 4 blue balloons).
Say: "I read it, I show it, then I write it. Do the things go together, or do some go away?"
- 3 Try it together** (10 min) Partners take turns telling a story to 10 about things in the room while the other acts it out with counters and writes the sentence. Mix stories where more come, some go away and two groups join.
- 4 Practice** (15 min) Students do sheets 1 to 3 of Picture Word Problems Within 10 (add, cross out, two groups), then sheet 4 (draw to solve) and sheet 5 (choose + or -). Early finishers write their own story for $7 - 2$.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.12** and circle a face beside the "I can" line. Check the sign: + for the bees that come, - for the grapes Sam eats. $9 + 4 = 13$ means the student added the numbers they saw.

Need help? Read the story aloud, act it out with real objects, and use stories to 5 first.

Ready for more? Solve a story with the start missing: "Some birds sat on a wire. 3 more came. Now there are 7."

GET READY

- Counters or small toys to act out stories
- Story cards with numbers to 10
- Whiteboards and markers

WORDS TO USE

story problem: a short story with a math question at the end

in all: how many together; often means add

left: how many are still there; often means take away

ASK

- What is happening in the story? Do things come or go?
- How does your drawing show the story?
- Does your answer make sense? Why?

WATCH FOR

Adds in every story. Act it out with counters first: do things join, or go away?

Writes the sentence but no answer word. Ask "8 what?" and have them write 8 apples.

Writes 4 - 9 for a take away story. Ask how many there were at the start and write that first.

ON ANIMAL MATH

PRINTABLE

Picture Word Problems Within 10: sheets 1-5

PRINTABLE

Addition Word Problems to 5: for students who need help

MAKER

Word Problems: Problem Type Add To, Take From or Put Together / Take Apart, Number Range 1-10

QUIZ

Word Problems Quiz: the Within 10 level

EXIT TICKET

1st Grade Add and Subtract Within 10 Exit Tickets: Exit Ticket 2.12



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Add and Subtract to 10

Lesson 2.13: Puzzles within 10

GOAL Students use facts to 10 to solve cross sums, number crosswords and arrow chains, where each answer must fit more than one sentence, and check every box both ways.
I can solve number puzzles.

About 45 minutes

THE LESSON

- 1 Warm up** (5 min) Say a number to 10; students show two numbers that make it on their fingers (8: 5 and 3). Collect different ways.
- 2 Teach** (10 min) Draw a cross sum with 4 in the top left and 5 in the bottom right; the rows add to 7 and 6, the columns to 5 and 8. Top right: 4 and what make 7? 3. Check down the column: $3 + 5 = 8$. Bottom left: what and 5 make 6? 1, and $4 + 1 = 5$.
Say: "Each box is in a row and a column. I find it with one and check it with the other."
- 3 Try it together** (10 min) Pairs solve a cross sum, then make one: fill all four boxes, add the rows and columns, then erase two boxes on a diagonal and swap. Then try an arrow chain: 2, add 6, take away 5 (8, then 3).
- 4 Practice** (15 min) Students do sheets 1 and 2 of Math Puzzle, Addition to 10, then sheet 1 of Addition Crossword to 10 (it starts with a worked example). Early finishers try the 3 by 3 puzzles of Number Puzzle to 10.
- 5 Exit ticket** (5 min) Students do **Exit Ticket 2.13** and circle a face beside the "I can" line. In the arrow chain, the second step starts from 8, the first answer, not from 3.

Need help? Put counters in the boxes, and give one row already filled in.

Ready for more? Solve the 3 by 3 puzzles of Number Puzzle to 10, or make a number crossword for a partner.

GET READY

- A 2 by 2 cross sum drawn on the board
- Counters for checking
- Whiteboards and markers

WORDS TO USE

row: boxes going across

column: boxes going up and down

clue: a number that helps you find another

ASK

- Which box can you find first? Why that one?
- How do you know your number is right?
- Can you make a puzzle with only one answer?

WATCH FOR

Fills a box so the row works but not the column. Have them check each box both ways, pointing to its row sum and its column sum.

Adds the sum and the number given (4 and 7 make 11). Read it as a missing number: 4 and what make 7?

Starts the next step of a chain from the first number. Draw an arrow from the answer box to the next step: that answer is the new start.

ON ANIMAL MATH

PRINTABLE Math Puzzle - Addition to 10: sheets 1-2

PRINTABLE Addition Crossword to 10: sheets 1-2

PRINTABLE Number Puzzle to 10: for students ready for more (3 by 3)

MAKER Sum & Difference Box Puzzles: Operator +, Number Range Within 10, Grid Size 2x2

MAKER Number & Math Crosswords: Mode Math Crossword, Operation Addition, Number Range 1 to 10

EXIT TICKET 1st Grade Add and Subtract Within 10 Exit Tickets: Exit Ticket 2.13

