Make Ten and Make a Book to 20

Teacher		**Class**	Grade 1
Subject	Math	**Topic**	Addition and subtraction within 20
Date		**Room**	
Lesson length	60 minutes	**Country**	United States

Students learn to add and subtract within 20 using count-on and make-ten steps. They make a tiny math book to show fast facts to 10 and sums to 20.

Curriculum links

- Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions [2].
- Add and subtract within 20, demonstrating fluency for addition and subtraction within 10 [2].
- Apply properties of operations as strategies to add and subtract [2].

Learning objectives

- Students will add within 20 using counting on and making ten strategies.
- Students will subtract within 20 by breaking back through ten.
- Students will recall addition and subtraction facts within 10 quickly.

Success criteria

- I can count on from the big number to add to 20.
- I can make ten first to add and take away within 20.
- I can answer facts to 10 fast without counting each one.

What students already know

Hold up 5 fingers, then 2 more. Ask: How many in all? How did you count? Listen for counting on from 5 instead of starting at 1.

Key words

add	put groups together to find how many in all [2]
subtract	take some away to find how many are left [2]
equal	the same amount on both sides of the sign [2]
count on	start at a big number and say the next numbers forward [2]
make ten	fill up to 10 first to help add or take away more easily [2]

Materials

- Slides 1–7 and 9–11 with projector and speakers
- Video clip 1 (0:00–3:08) and Video clip 4 (0:00–1:20)
- Folded mini-books, crayons, stickers, ten-frame outlines
- Linking cubes in two colors, two-color counters
- Worksheet page 2 activity copies

Before the lesson

- Print Worksheet page 2 activity copies and fold mini-books with 4 pages
- Test Slides 1–7 and 9–11, Video clip 1 (0:00–3:08) and Video clip 4 (0:00–1:20) for sound
- Set out crayons, stickers, ten-frame outlines, cubes and counters in pairs

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- Whiteboard and markers

Lesson outline

0–10 min **Starter** 10 min · Whole class

Activate fast facts within 10 and introduce the book goal.

YOU DO

1. Show Slide 1 title and read it, then show Slide 2 vote and ask which tool helps most.
2. Do quick oral facts within 10: show 5 fingers plus 2, 9 take away 1, and have class answer together.
3. Say the hook and hold up a finished sample mini-book with dots and numbers.
4. Explain that each book page will show blocks, a drawing, and numbers that match.

STUDENTS DO

1. Vote for tool choice and say why with a partner.
2. Answer facts within 10 with fingers and call out totals.
3. Look at sample book page and point to picture and matching numbers.

Say: Let's make a tiny math book. Each page will show blocks, a drawing, and numbers that match. Today we will add and take away fast, and answers stay at 20 or less.

Ask: What does add mean? (Put groups together to find how many in all.) · What does take away mean? (Take some away to find how many are left.) · 2 + 7 = ? How did you get it fast? (9; started at 7 and counted on 8, 9.)

Check understanding: Thumbs up if you can answer facts to 10 without starting at 1. Re-model with fingers and ten-frame if many are still counting all.

Support: Let students stay within 10 with only 1 or 2 to count on, using fingers to track each count [2]. **Stretch:** Ask students to start from a teen number and count on 4 or 5 without number cards.

Use: Slides 1–2

10–25 min **Teaching** 15 min · Whole class

Model counting on and making ten for addition within 20.

YOU DO

1. Show Slides 3–4 to review add means put together and take means take away.
2. Play Video clip 1 (0:00–3:08) on Slide 5 and pause to repeat counting on steps aloud.
3. Model 8 + 6 with ten-frames: fill to 10 with 2, then add 4 more, writing 8 + 2 + 4 = 10 + 4 = 14 [2].
4. Play Video clip 4 (0:00–1:20) on Slide 7, clap on ten, then guide Worksheet page 2 activity from 8.

STUDENTS DO

1. Watch, count aloud, and clap when ten is made.
2. Use counters on ten-frames to show 8 + 6 as 10 + 4.
3. Start Worksheet page 2 activity: start at 8 and count on to add.

Say: Start with the big number. Add just enough to make 10, then add what is left. For 8 + 6, 8 needs 2 to make 10, and 4 is left, so 10 + 4 = 14.

Worked example: 8 + 6 = ?: start at 8, add 2 to make 10, 4 of the 6 is left because 6 = 2 + 4. Then 10 + 4 = 14, so 8 + 6 = 14 [2].

Ask: For 8 + 3, where do we start and what do we say? (Start at 8, say 9, 10, 11, so answer is 11, relating counting to addition by counting on [2].) · Why did we split 6 into 2 and 4? (8 needs 2 to make 10, then 4 is left to add to 10.)

Check understanding: Show answers on fingers or mini-whiteboards for 8 + 3 and 8 + 6. Re-show ten-frame fill if splits are wrong.

Support: Use only pairs that make 10 first, like 9 + 1 and 8 + 2, with counters already placed [2]. **Stretch:** Write the two-step number sentence without counters, like 7 + 5 = 7 + 3 + 2.

Use: Slides 3–7, Video clip 1 (0:00–3:08), Video clip 4 (0:00–1:20), Worksheet page 2 activity

25–45 min **Main activity** 20 min · On their own

Draw and write addition and subtraction within 20 in mini-books.

YOU DO

1. Show Slide 9 steps and read each step for making ten and breaking back through 10.
2. Model page 1: build 9 + 5 with cubes, draw dots in ten-frames, write 9 + 5 = 14.
3. Model page 2: build 13 - 4 by taking 3 to land on 10, then 1 more, writing 13 - 3 - 1 = 10 - 1 = 9 [2].
4. Send students to make 4 pages: one count-on add, one make-ten add, one take-back subtract, one fast fact to 10.

STUDENTS DO

1. Build each fact with cubes, then draw dots and write the sum or difference in mini-book.
2. Use discrete objects to model put-together and take-from situations [1].
3. Read one page aloud to partner, pointing to picture and matching equation like 14 - 5 = 9.

Say: Build it with cubes first. Draw dots that match. Write the numbers that match. Say your total loud to your partner when a page is done.

Worked example: 13 - 4 = ?: build 13 cubes, take 3 to make 10, then take 1 more. 13 - 3 = 10, 10 - 1 = 9, so 13 - 4 = 9, using cubes connected to form lengths to model take-from [1][2].

Ask: How does your drawing show you made 10? (One ten-frame is full with 10 dots, then extra dots are in the second frame.) · How do you show 13 - 4 in two takes? (Take 3 to get to 10, then take 1 more to get 9.)

Check understanding: Walk around with checklist for correct picture-to-number match. Pause class to re-model breaking at 10 if towers are split wrong.

Support: Give a ten-frame outline and stickers to fill for facts within 10 first, to build quick recall [5]. **Stretch:** Add a missing-number page like 8 + ? = 11 for a friend to solve.

Use: Slide 9

45–60 min **Plenary** 15 min · Whole class

Connect addition to subtraction and check fluency to 10 and to 20.

YOU DO

1. Show Slide 10 question and model with 12 counters grouped as 8 and 4, then separated.
2. Ask pairs to explain how 8 + 4 = 12 helps with 12 - 8, treating subtraction as unknown-addend [2].
3. Show Slide 11 quiz one at a time: 2 + 7, 8 + 6, 10 - 4, 13 - 4, asking for strategy.
4. Close by linking back to book pages and success lines.

STUDENTS DO

1. Discuss with partner and share one addition fact and the subtraction it proves.
2. Answer quiz with thumbs and quick sketch or fingers to prove both sides match.
3. Hold up book page that shows a fast fact to 10.

Say: If we know 8 + 4 = 12, we already know 12 - 8 = 4. Addition can prove subtraction. Tell your partner which addition helps.

Worked example: 8 + 4 = 12, so 12 - 8 = 4 because 8 + 4 makes 12 when added together, showing the relationship between addition and subtraction [2].

Ask: 8 + 4 = 12. How does that help with 12 - 8? (12 - 8 = 4 because 8 + 4 = 12.) · Is 5 + 2 = 2 + 5 true or false? How do you know? (True; both sides are 7 and mean the same amount [2].) · 13 - 4 = ? What did you do first? (9; took 3 to make 10 first.)

Check understanding: Use Slide 11 quiz as hinge: if many miss 8 + 6 or 13 - 4, re-model make-ten steps tomorrow in small group.

Support: Show both facts with the same 12 counters grouped and then separated, so the link stays visible [1].
Stretch: Give the answer and one part, like 11 - ? = 7, and ask what addition would help find the missing number.

Use: Slides 10–11

Common mistakes

Mistake	How to spot it	How to fix it
Counting on including the starting number as first count, getting 15 + 3 = 17	Student says starting number then counts it as one, landing one short	Say the start, then count on with one finger per count: 15, then 16, 17, 18 for 3 counts [6].
Splitting the number wrongly when bridging, like 6 + 5 as 6 + 4 = 10 then + 5 = 15	Two jumps add to more than the second number	Show only 4 was used to reach 10, so 1 is left: 10 + 1 = 11 [6].
Thinking equal sign means write the answer, not same amount on both sides	Student says 5 + 2 = 2 + 5 is false because answer is not at end	Check each side by counting objects on both sides to compare totals before deciding [2].

Support

- Work within 10 first with ten-frames, stickers, and fingers before crossing 10.
- Keep adding-to and taking-from stories with result unknown and small counts.

Stretch

- Ask for near-doubles like 7 + 8 after 7 + 7 and explain the one-more pattern.
- Ask for missing numbers like 8 + ? = 11 and 5 = _ - 3 to solve with addition help.

For the LSE or teaching assistant

Stay with main activity table. Help place counters to fill ten first, prompt Say total loud, and check picture matches numbers page by page.

Check for understanding

Question	Answer
9 + 5 = ? Show how you made ten.	14; 9 + 1 = 10, 10 + 4 = 14.
14 - 5 = ? What did you take first to get to 10?	9; take 4 to get to 10, then 1 more.
10 - 4 = ? Say it fast.	6.

Homework

Finish your last book page and read all pages to someone at home.

Sources

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