

Adding or Subtracting Ten

Teacher Guide

Duration: 30–45 minutes

Standards for Mathematics

MA.1.5.C

Use relationships to determine the number that is 10 more and 10 less than a given number up to 120.

Focus Strategies

Shoulder Partner: Students lean and talk quietly with the person sitting next to them. Shoulder Partner can be used literally to just talk to the people sitting on either side, or for slightly larger groups of 3-4 with everyone's shoulders "touching" (this promotes the ability to speak softly—in sort of a huddle).

Thumbs Up: Teacher can quickly check for understanding using this strategy. Students hold Thumbs Up for agreement and thumbs down for disagreement to a question asked by the teacher. Thumbs Up can also be used as a way for students to signal to a teacher that they are ready for an instruction.

Learning Outcomes

- Apply the mental math strategy of adding or subtracting 10.
- Solve addition and subtraction problems

Key Vocabulary

- Column
- Difference
- Mental math
- Pattern
- Row
- Strategy

Materials

- Large 120 chart (for the teacher)
- Mental Math Strategies poster
- Student Math Booklet

Activity Preparation

- Display large 120 chart.

Procedure

Note to the Teacher: For the activity today, you will help students recognize and use patterns in the 120 Chart. There are three parts to today's activity (identifying patterns in the 120 Chart, adding Tens, and subtracting Tens). You may find that some students will need more time with one part, so slow the pace if needed or extend the activity to the next day.

TEACHER SAY: *We have been using different mental math strategies. These strategies will help us when we get to more difficult math. Today we will be using our 120 Chart to learn two new mental math strategies—Adding 10 and Subtracting 10. The 120 Chart can help us see patterns in the 120 Chart. Those patterns can help us solve math problems. Let’s look at the 120 Chart together. What do you notice as you look across each row and down each column? Turn and Talk to your Shoulder Partner about what you notice.*

STUDENTS DO: Turn to Shoulder Partner and share what they notice in the rows and columns of the 120 Chart.

TEACHER DO: Listen as students talk. Particularly listen for students who notice that in each row, all boxes count by 1 (1, 2, 3, 4, 5...) and in each column, the digit in the Ones place stays the same and the digit in the Tens place increases by 1 (3, 13, 23, 33, 43...). Students may not use place value language but listen for the concepts. After a few minutes, use an Attention Getting Signal to bring the class back together. Then call on a few students to share what they noticed. If no one noticed the column pattern, point it out.

TEACHER SAY: *You are all so observant. There are so many patterns in the 120 Chart. We can use the patterns we noticed in the columns to help us Add 10 and Subtract 10, the mental math strategies we will practice today. Let me show you what this looks like.*

TEACHER DO: Write on the board $4 + 10 = \underline{\hspace{2cm}}$.

TEACHER SAY: *I am going to use the 120 Chart to solve this problem. I will start at the 4.*

TEACHER DO: Model using the 120 Chart to add on 10 from 4, landing on 14.

TEACHER SAY: *Look, I added 10 and am directly under the 4 square where I started. I wonder if that happens every time I add 10. Let’s try another one.*

TEACHER DO: Write $8 + 10$ on the board. Start at 8 and add on 10 to land on 18.

TEACHER SAY: *It happened again. How can I use that pattern to help me solve problems where I am adding 10? Share your thinking with your Shoulder Partner. Give me a Thumbs Up when you are ready to share your thinking with the class.*

STUDENTS DO: Share thinking with Shoulder Partner. Give a Thumbs Up when ready. Selected students share their thinking.

TEACHER DO: Confirm or correct students’ thinking by explaining that when we add 10 to any number, the digit in the Ones place stays the same and the digit in the Tens place increases by 1, so we can move down one row on the 120 Chart to add 10.

TEACHER SAY: *Let's try some together.*

TEACHER DO: Allow students to practice the strategy Add 10. Write + 10 problems on the board and have students use the 120 Chart to solve them. Have students answer chorally or use Calling Sticks to call on individual students.

STUDENTS DO: Solve each problem. Selected students share their answers.

TEACHER SAY: *You are doing a great job using this strategy. Let's use the same strategy to solve some subtraction problems. When we add 10, we move down one row on the 120 Chart. What do you think will happen if we subtract 10? Turn and Talk to your Shoulder Partner for 1 minute. Give me a Thumbs Up when you are ready to share your thinking.*

STUDENTS DO: Turn and Talk to a Shoulder Partner. Give a Thumbs Up when ready to share. Selected students share their thinking.

TEACHER SAY: *What great mathematicians you are! Let's check your thinking to see if you are correct.*

TEACHER DO: Write on the board: $15 - 10 = \underline{\quad}$. Model how to use the 120 Chart to move back 10 spaces, landing on 5.

TEACHER SAY: *Was your thinking correct? When we subtract 10, we know that the digit in the Ones column stays the same, and the digit in the Tens column decreases by 1, so $15 - 10 = 5$. We can move back one row on the 120 Chart to show that we are taking away a Ten.*

TEACHER DO: Allow students to practice the strategy Subtract 10. Write $- 10$ problems on the board and have students use the 120 Chart to solve them. Have students answer chorally or use Calling Sticks to call on individual students.

STUDENTS DO: Solve each problem. Selected students share their answers.

TEACHER SAY: *Now you are ready to try some on your own. Please get out your math booklet and turn to the activity Adding or Subtracting Ten. There is a number chart on the page. Solve problems 1 to 4 on your own using the Add 10 and Subtract 10 strategies. If you finish early, do the Challenge problem.*

TEACHER DO: Read the math booklet directions aloud to students.

STUDENTS DO: Work independently to solve the first set of problems in the math booklet, and if time permits, complete the Challenge section.

TEACHER DO: As students work, walk around to notice who needs more help. As students finish, they can work on the Challenge section if they successfully mastered the first part.

TEACHER SAY: *Today we practiced using the mental math strategies of Add 10 and Subtract 10 using the 120 Chart. Share your answers with your Shoulder Partner and compare them to see if you both came up with the same answer. Talk to each other about how you used the Adding 10 and Subtracting 10 strategies on the 120 Chart to solve the problems. You have 2 minutes.*

STUDENTS DO: Share and compare answers with their Shoulder Partners. Discuss how they used the strategies Add 10 and Subtract 10 on the 120 Chart to solve the problems.

TEACHER DO: Walk around the room to check answers and listen to explanations made by students. Take note of students who may need additional instruction.

TEACHER SAY: *Great work today, class. Let's put the Add 10 and Subtract 10 strategies to our Mental Math Strategies poster.*

TEACHER DO: Add the strategies to the class poster.

TEACHER SAY: *Let's finish the math activity by giving yourself a pat on the back!*

120 Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120