(1) **Module 9**

Core Focus

- Addition: Identifying 1 or 10 greater or less
- Addition: Exploring patterns (hundred chart)
- Addition: Two-digit numbers and place value
- Addition: Solving word problems

Addition

- Throughout Grade 1, students have learned and practiced a range of mental strategies for addition. They now extend those strategies (count-on) to work with two-digit numbers.

| Step Up | 1. Write the totals. |

23 24 25 26 27 28 29 30 31 32 33

a. $24 + 1 =$ ___ b. $27 + 1 =$ ___ c. $31 + 1 =$ ___

In this lesson, students use a number track to help jump on 1, 2, or 3 from any two-digit number.

- The **hundred chart** allows students to study the patterns of tens and ones, which develops an understanding of place value, as well as mental strategies for adding and subtracting tens and ones.

9.3 **Addition: Exploring patterns (hundred chart)**

Step In   Look at these numbers.

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

What number is **1 more** than 37? How do you know?

What number is **2 more** than 25? How do you know?

What do you know about all the numbers that have 9 in the ones place?

In this lesson, students work with patterns on the hundred chart: horizontal (+1) and vertical (+10).

Ideas for Home

- To build confidence when applying mental strategies to two-digit numbers, use flash cards to reinforce basic fact strategies (e.g. count-on, doubles, make-ten).

- During car rides or while in a waiting room, practice counting on the decade. Cue with any multiple of 10 (e.g. 30, 40, 50), and ask your child to count to 100.

- Make a hundred chart with your child by drawing a 10 x 10 grid and numbering each square. Place a counter on one of the squares, and ask your child to say the number that is ten more.

- Draw a tic-tac-toe template and write a two-digit number in one of the squares. Take turns with your child to fill in each box, using the place-value patterns of the hundred chart. Explain why the number goes there (e.g. "12 − 1 is 11, 11 + 1 is 12").

Glossary

▸ A **hundred chart** helps students understand the base-10 system. They use this model to identify vertical patterns of +10 and −10, and horizontal patterns of +1 and −1.

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

Addition

- Students are now using **base-10** blocks to add two-digit numbers.

> (9.8) **Addition: Two-digit numbers**
>
> Step In   **Look at these scoreboards.**
>
> BLUE TEAM — YUMA 17 / RUBY 32
> RED TEAM — DAMON 23 / LAURA 25

In this lesson, students use base-10 blocks to add two two-digit numbers, e.g. 17 + 32.

- Research shows that it is important for younger students to have experiences with doing calculations mentally, and for all experiences to be grounded in hands-on resources and visual models, such as base-10 blocks and money.

How can you figure out the total number of points scored by the Blue Team?

Andrew used this chart.

17 + 32 =   →   17 + 32 = 49

What steps do you think he used?

This shows how base-10 blocks can be used to add two-digit numbers.

- Students continue to strengthen their mental computation strategies before learning a procedure (algorithm) for doing addition and subtraction in later grades. Using paper and pencil to do calculations comes later, after students have developed sufficient skill with, and understanding of, simple mental computations.

How would you use the chart to figure out the total for the Red Team?

How could you figure out the total in your head?

I would start with 23 then add the tens and ones of the other number.
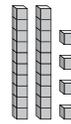23 + 25 **is the same value as** 23 + 20 + 5.

I would add the tens first, then the ones.
23 + 25 **is the same value as** 20 + 20 + 3 + 5.

Ideas for Home

- Using money situations to add pennies and dimes are helpful when modeling ones and tens.

Glossary

▸ These are **base-10 blocks**. They are used to build numbers showing tens and ones.

▸ **Base-10 place value** means the value of digits in a number is determined by their position. The numbers 43 and 34 both have the digit 4. In 43, the 4 represents 4 **tens**, while the 4 in 34 represents 4 **ones**.