Unit 4 Goals:
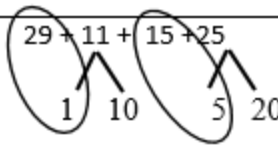
- Add up to four two-digit numbers.
- Mentally adds or subtracts 10 or 100 to a given number 100-900.
- Add and subtract within 1000, using concrete models or drawing and strategies.
- Explain why addition and subtraction strategies work.
- Solve word problems involving money.
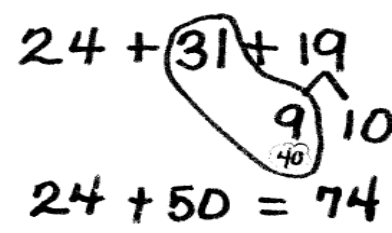- Organize, represent, and interpret data.

Maya bought an outfit for $29, a book bag for $15, a binder for $11, and a pair of shoes for $25. How much did Maya spend?

Student 1	Student 2
29 + 15 + 11 +25 29 +11 = 40 15 + 25 = 40 40 + 40 = 80	29 + 11 + 15 +25 1) 10 5) 20 30 + 20 =50 50 + 10 + 20 =80

Types of graphs:

Bar Graph

Line Plot

Picture Graph

Addition Strategies

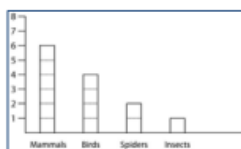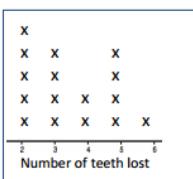| Breaking Apart by Place Value	Keeping One Number Whole
321 + 135= 300 + 100 = 400 20 + 30 = 50 1 + 5 = 6 400 + 50 + 6 = 456	321 + 135= 321 + 100 = 421 421 + 30 = 451 451 + 5 = 456

Make 10 Strategy

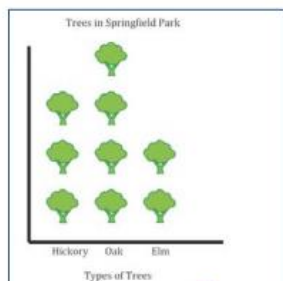$$24 + 31 + 19$$
$$9 \quad 10$$
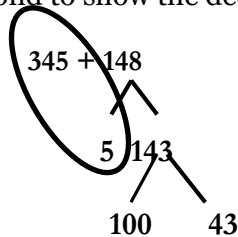$$40$$
$$24 + 50 = 74$$

Subtraction Strategies

Adding Up	Keeping One Number Whole
456 -234 = 234 + 200 = 434 434 + 20 = 454 454 + 2 = 456 200 + 20 + 2 =222	456 -234 = 456 - 200 = 256 256 – 30 = 226 226 – 4 = 222

Below are examples of some of the strategies and written methods students may use to solve 345 + 148.

Students may use the Make Ten Strategy to get started solving this problem.

One of the possible ways to show using the make ten strategy, is to show how one of the numbers should be decomposed in order to make a ten. Below a student has used a number bond to show the decomposition of 148.

345 + 148

5   143

100   43

The student combines 345 and 5 to make 350.
$345 + 5 = 350.$

Next, the student combines decompose the 143 so they can add 350 + 100 to make 450.
$350 + 100 = 450.$

Last the student adds 43 to 450 to make 493.

So 345 + 148 = 493

Student uses place value understanding to solve this problem.

They will start by keeping one of the addends whole. Decomposing the other addend into place value.

$345 + (100 + 40 + 8)$

$345 + \mathbf{100} = 445$ (adding hundreds to the number)
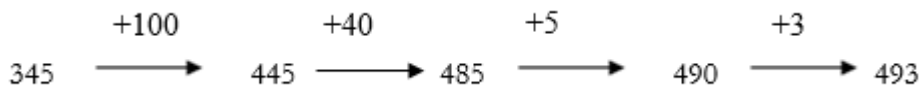
$445 + \mathbf{40} = 485$ (adding tens to the number)

$485 + \mathbf{8} = 493$ (adding ones to the number; using using mental math students may decompose the 8 into 5 and 3. Allowing them to add 5 to 485 to get 490 and then adding the remaining 3 ones.)

5   3

Think mentally $485 + 5 = 490$
$490 + 3 = 493$

So 345 + 148 = 493

Students may use the arrow method to show their thinking for this problem. Usually their thinking is "mental math". They use the arrow method to jot down their thinking to keep up with their mental computation.

$$345 \xrightarrow{+100} 445 \xrightarrow{+40} 485 \xrightarrow{+5} 490 \xrightarrow{+3} 493$$

So 345 + 148 = 493

Below are examples of some of the strategies and written methods students may use to solve 568 - 279.

Students may use the **Adding up Strategy** with the arrow method.

$$279 \xrightarrow{+1} 280 \xrightarrow{+20} 300 \xrightarrow{+200} 500 \xrightarrow{+68} 568$$

Next, they will mentally combine the numbers used to add up (1 +20+200+68). So 568 – 279 = 289

Students may use their **place value understanding** to solve this problem. They will start by keeping one number whole. Decomposing the other number into place value.
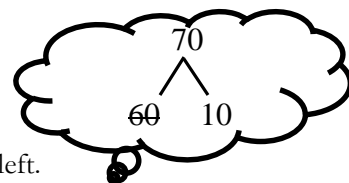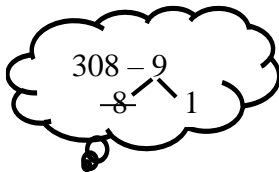
$$568 - (200 + 7 0 + 9)$$

308 – 9
–8   1

$568 - 200 = 368$ (subtracting hundreds)
$368 - 60 = 308$ (subtracting 6 tens). I still have 1 ten left
$308 - 8 = 300$ (subtracting 8 of the 9 ones to get to 300). I still have 1 one left.
$300 - 10 = 290$
$290 - 1 = 289$

70
60   10

So 568 -279 = 289