## Whole Numbers to 1000

## Quick Review

You can show the number 1453 in different ways:


- Use Base Ten Blocks.


1 thousand


4 hundreds

- Use a place-value chart.


5 tens 3 ones

| Thousands | Hundreds | Tens | Ones |
| :---: | :---: | :---: | :---: |
| 1 | 4 | 5 | 3 |

Use expanded form. $1453=1000+400+50+3$

- Use words. 1453 = one thousand four hundred fifty-three

The number 1453 is written in standard form. Every digit has a place value, depending on its position.

## Try These

1. Write each number in standard form.
a) two thousand six hundred thirteen $\qquad$
b) $8000+600+40+1$ $\qquad$
2. Write each number in expanded form.
a) 7125 $\qquad$ b) 2307 $\qquad$
3. Write each number in words.
a) 1620 $\qquad$
b) 3408 $\qquad$
4. Complete the chart.

|  | Standard Form | Expanded Form |
| :---: | :---: | :---: |
|  |  |  |
|  |  |  |
|  |  |  |

2. Write each number in words.
a) 3602 $\qquad$
b) 5045 $\qquad$
3. Use each of these digits once to make each 4-digit number: 4, 2, 7, 5
a) the greatest possible number $\qquad$
b) the least possible number $\qquad$
c) the greatest number with 5 tens $\qquad$
d) the least number with 5 ones $\qquad$

## Stretch Your Thinking

Use $5,3,1$, and 7 once in each number you make.
Make as many 4-digit numbers as you can.

## Rounding Numbers

## Quick Review

- Round 3482 to the nearest thousand.
 482 is closer to 0 than to 1000 .
So, 3482 rounds to 3000 .

- Round 3482 to the nearest hundred.

Since 82 is closer to 100 than to 0 , add 1 hundred. So, 3482 rounds to 3500 .


- Round 3482 to the nearest ten. 2 is closer to 0 than to 10 .
So, 3482 rounds to 3480 .



## Try These

Use a number line when it helps.

1. Round to the nearest thousand.
a) 1489
b) 6973
c) 4215
$\qquad$
2. Round to the nearest hundred.
a) 5867
b) 8214 $\qquad$ c) 7098
$\qquad$
3. Round to the nearest ten.
a) 6281 $\qquad$ b) 5389
c) 2302 $\qquad$

## Practice

Use this table for questions 1 and 2.
Attendence at a Baseball Game

| Day | Number of People |
| :--- | :---: |
| Friday | 3741 |
| Saturday | 4352 |
| Sunday | 4837 |

1. Round each number to the nearest thousand.

On which day did about 5000 people attend the baseball game?
$\qquad$
2. Round each number to the nearest hundred. $\qquad$
On which day did about 4400 people attend the baseball game?
$\qquad$
3. Write three numbers that round to 2540 when rounded to the nearest ten.
4. Write three numbers that round to 3600 when rounded to the nearest hundred. $\qquad$
5. Write three numbers that round to 8000 when rounded to the nearest thousand. $\qquad$
6. A number is rounded to the nearest ten, nearest hundred, and nearest thousand. All the rounded numbers are 8000 . What was the number before it was rounded? $\qquad$

## Stretch Your Thinking

How many numbers less than 1000 would round to 1000 when rounded to the nearest hundred? Explain.

## Comparing and Orderin Numbers

## Quick Review

Here are some ways to order the numbers 3261, 3621, and 2163 from least to greatest.

- Use a place-value chart.


From least to greatest: 2163, 3261, 3621

## Try These

1. Compare each pair of numbers. Write $>,<$, or $=$.
a) $627 \square 485$
b) 2641 $\square$ 4824
c) 2683 $\square$ 2683
2. Write the numbers in order from least to greatest. 758, 709, 741 $\qquad$
3. Write the numbers in order from greatest to least. 7148, 6271, 7285 $\qquad$

## Practice

1. Play this game with a partner.

The object of the game is to make the greater number.
You will need a paper bag containing 10 cards with the digits 0 to 9 .
$>$ Draw a card from the bag.
Record the digit in any space in the first row of your game board.
Return the card to the bag.

- Take turns until each player fills all four spaces in a row.
- Compare your numbers.

Write > or < in the box between the numbers.
The player with the greater number wins a point.

- Play two more rounds.

The player with the most points at the end of the game wins.

2. a) Put your numbers from the game in order from least to greatest.
b) Put your partner's numbers in order from greatest to least.

## Stretch Your Thinking

Make up three 4-digit numbers.
Order the numbers from greatest to least.

## UNIT 2

4

## Estimating Sums

LESSON

## Quick Review

When a question asks "about how many," you can estimate.
Here are some ways to estimate the sum of $294+351$.
> Use rounding.
Round each number to
the nearest 100 and add.
$300+400=700$
So, $294+351$ is about 700 .
Use clustering.
Both 294 and 351
are about 300 .
$300+300=600$
So, $294+351$ is about 600 .
> Use front-end estimation.
Add the first digits of the numbers.
$200+300=500$
So, $294+351$ is about 500 .

For a better estimate:
Think about 94 and 51.
This is about $100+50=150$.
So, $294+351$ is about $500+150=650$.

## Try These

1. Estimate each sum.
a) $198+389$
Estimate: $\qquad$
b) $119+408$
Estimate: $\qquad$
c) $640+192$
d) $79+272$
Estimate: $\qquad$
e) $516+482$
Estimate: $\qquad$
Estimate: $\qquad$
f) $291+291$
Estimate: $\qquad$
2. William estimated $246+585$ as 700 . Is his estimate high or low? Explain.

149 jumbobeads

285 large beads

399
mediumbeads

640 small beads
3. About how many beads would you have if you bought these sizes:
a) small and large? $\qquad$ b) medium and jumbo? $\qquad$
c) medium and large? $\qquad$ d) jumbo and small? $\qquad$
4. The toy shop sold 117 wind-up cars and 289 battery-operated cars in one week. About how many cars did it sell? $\qquad$
5. Yolanda has a desktop publishing business. She wants to print 1000 items today. She actually prints 352 brochures and 581 flyers today.
a) About how many items did she print? $\qquad$
b) Did Yolanda make her goal? Explain.
6. Last summer, 227 children signed up for T-ball and 139 signed up for baseball. About how many children signed up altogether? $\qquad$

## Stretch Your Thinking

The estimated sum of two numbers is 1000 . What might the numbers be? Give three different answers.

## UNIT 2



## Using Mental Math to Add

LESSON

## Quick Review

- Use mental math to add: $267+197$

Use the strategy of "make a friendly number."
197 is 200-3.
Add 200, then take away 3.
$267+200=467$
$467-3=464$
So, $267+197=464$
> Use mental math to add: $271+580$ Make a "friendly" number.
$580+20=600$
$271-20=251$
So, $271+580=600+251=851$
> Use mental math to add: $415+342$ Use the strategy of "adding on."


Add on hundreds, then tens, and then ones.
Think: $415+300+40+2$
Count on 3 hundreds: 415, 515, 615, 715
Count on 4 tens: $715,725,735,745,755$
Then add 2: $755+2=757$
So, $415+342=757$

## Try These

1. Use mental math to add.
a) $262+345=$ $\qquad$
b) $497+222=$ $\qquad$ c) $370+163=$ $\qquad$
d) $399+544=$ $\qquad$
e) $262+290=$ $\qquad$
f) $196+341=$ $\qquad$
2. Becky gathered 316 clams and Charlie gathered 286.

How many clams did they gather in all? Use mental math to find out. $\qquad$

## Practice

Use mental math.

1. Add.
a) $690+284=$ $\qquad$ b) $131+468=$ $\qquad$
c) $352+213=$ $\qquad$ d) $229+493=$ $\qquad$

For which problems did you make a "friendly" number? $\qquad$
2. Look at these containers.

If you bought the following groups of animals, how many toy animals would you have?

a) farm animals and zoo animals $\qquad$
b) sea creatures and jungle animals $\qquad$
c) zoo animals and jungle animals $\qquad$
3. Ridgetown has a population of 317 people.

Mayberry has a population of 291.
How many people live in the two towns? $\qquad$
4. The cafeteria sold 123 cartons of chocolate milk and 204 cartons of white milk. How many cartons of milk were sold? $\qquad$

## Stretch Your Thinking

Use mental math to add: $453+197+205=$ $\qquad$
Describe the strategy you used. $\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$

## Adding 3-Digit Numbers

## LESSON

## Quick Review

Geraldo has 276 hockey cards and 397 baseball cards.
To find how many cards Geraldo has in all, add: $276+397$
Here are some ways to add:

- Use expanded form.
$\begin{array}{rl}276 & \longrightarrow 200+70+6 \\ +\underline{397} & 300+90+7 \\ 500+160+13\end{array}=660+13=673$
> Use place value.
Add the ones: 13 ones Add the tens: 17 tens Add the hundreds:
Regroup 13 ones as Regroup 17 tens as 6 hundreds 1 ten and 3 ones. 1 hundred and 7 tens.

| 1 | 11 | 11 |
| ---: | ---: | ---: |
| 276 | 276 | 276 |
| $+\quad 397$ | +397 | +397 |
| 3 | 673 |  |

Geraldo has 673 cards in all.

## Try These

1. Add.
a) $\quad 295$
b) 327
$+415$
c) 299
$+463$
d) 508
$+419$
e) 285
$+\quad 79$
2. There were 139 more people at the soccer game on Saturday than on Friday. On Friday there were 472 people at the game.
How many people were at the game on Saturday? $\qquad$

## Practice

1. Estimate first.

Circle the letters next to the examples for which the sum will be less than 900 .
Then, add to find all the sums.
a) $\begin{array}{r}738 \\ +191 \\ \hline\end{array}$
b) 637
c) $\quad 109$
d) 718
e) 367
$+439$
$+488$
$+237$
$+662$
f) 482
g) 234 $+519$
$+410$
h) 689
$+130$
i) 651
$+259$
j) 318
$+491$
2. Estimate first.

Circle the letters next to the examples for which the sum will be greater than 700 .
Then, add to find all the sums.
a) 418
b) 526
c) 381
$+231$
$+437$
$+294$
d) $\begin{array}{r}108 \\ +\quad 592 \\ \hline\end{array}$
e) 397 $+231$

h) 435
$+428$
i) 339
j) 282
$\begin{array}{r}+382 \\ \hline\end{array}$
$+531$
3. Use expanded form to add. Show your work.
a) 352
b) 453
$+539$
$\begin{array}{r}+372 \\ \hline\end{array}$
4. What is the greatest number you can add to 457 without having to regroup in any place? $\qquad$

## Stretch Your Thinking

The sum of two numbers is 853 . What might the numbers be?
Find two pairs of numbers. $\qquad$

## UNIT 2

## 7 <br> CESSON

## Adding 4-Digit Numbers

## Quick Review

Add: $1756+2469$
> Use expanded form to add.

> Use place value to add.
Add the ones. Add the tens. Add the hundreds. Add the thousands.
Regroup.

| 1 |
| ---: |
| 1756 |
| $+\quad 2469$ |
| 5 |

Regroup.

| 11 |
| ---: |
| 1756 |
| +2469 |
| 25 |

Regroup.

| 111 |  |
| ---: | ---: |
| 1756 | 111 |
| +2469 | 1756 |
| 225 | +2469 |
| 4225 |  |

111
1756
+2469
+4225

Estimate to check that the sum is reasonable.

1756 rounds to 2000.
2469 rounds to 2000.
$2000+2000=4000$

4225 rounds to 4000 .
So, the sum is reasonable.

## Try These

1. Find each sum. Estimate to check.
a) 5558
1343

+ 

b) 3047
$\begin{array}{r}+2828 \\ \hline\end{array}$
c) 4189
$+3673$
d) 1847
$\begin{array}{r}+5684 \\ \hline\end{array}$
2. Estimate each sum.
a) $3276+4192$
Estimate: $\qquad$
b) $1258+3769$
Estimate: $\qquad$
c) $2672+3409$ Estimate: $\qquad$

1. Play this game with a partner.

You will need:
1 number cube
> Take turns rolling the number cube. On each roll, both players record the digit rolled in one of the boxes in their first addition grid.
> After 8 rolls, players add. The player with the greater sum wins.
> Repeat with the other addition grids.
Player A


## Stretch Your Thinking

The sum of two 4-digit numbers is 4589 .
What might the two numbers be?
Give two different answers.

## Estimating Differences

CESSON

## Quick Review

Here are some strategies for estimating differences.

- Estimate: 513-289

Round each number to the nearest 100 and subtract.
$500-300=200$
So, 513 - 289 is about 200.


## Try These

1. Use rounding to estimate each difference.
a) 749-263
b) 504-327
c) $988-214$
Estimate: $\qquad$ Estimate: $\qquad$ Estimate: $\qquad$
d) 580-235
Estimate: $\qquad$
e) 677-48
Estimate: $\qquad$ Estimate: $\qquad$
2. Natalie estimated $584-126$ as 400 . Is her estimate high or low? Explain.

## Practice

School Lunches Served

| Day | Number Served |
| :--- | :---: |
| Monday | 286 |
| Tuesday | 327 |
| Wednesday | 489 |
| Thursday | 417 |
| Friday | 648 |

1. Use the data in the chart to estimate each difference.
a) About how many more lunches were served on Friday
than on Monday? $\qquad$
b) About how many more lunches were served on Thursday than on Tuesday? $\qquad$
c) About how many more lunches were served on Wednesday than on Tuesday? $\qquad$
2. Laleh estimated the difference of 765 and 411 as 400 , and Sam estimated the difference as of 365 .
a) How might Laleh have estimated?
$\qquad$
$\qquad$
b) How might Sam have estimated?
$\qquad$
$\qquad$
c) Whose estimate is better? Explain.
$\qquad$
$\qquad$

## Stretch Your Thinking

Find a pair of 3-digit numbers that have an estimated difference of 520.

## Using Mental Math to Subtract

LESSON

## Quick Review

Here are some strategies for using mental math to subtract.
> Use the strategy of "make a friendly number."

Subtract: 719-398
Add 2 to 398 to make 400 .
Add 2 to 719 to make 721.
$721-400=321$
So, $719-398=321$

Subtract: 437-103
Subtract 100 instead of 103.
$437-100=337$
Then subtract 3 .
$337-3=334$
So, 437-103 = 334
> Use the strategy of "counting on."
Subtract: 441-230

$+100+100+10+1=211$
So, $441-230=211$

## Try These

1. Use mental math to subtract.
a) $427-299=$ $\qquad$ b) $625-495=$ $\qquad$ c) $586-397=$ $\qquad$
d) $256-101=$ $\qquad$
e) $748-403=$ $\qquad$
f) $462-202=$ $\qquad$
g) $272-150=$ $\qquad$
h) $758-547=$ $\qquad$
I) $894-673=$ $\qquad$
2. Laslo travelled 637 km on Saturday and 402 km on Sunday. How much further did he travel on Saturday than on Sunday?
Use mental math to find out. $\qquad$
3. The hot dog stand served 250 hot dogs on Friday and 481 on Saturday. How many more hot dogs were served on Saturday than on Friday? Use mental math to find out. $\qquad$

## Practice

1. Use mental math to find each difference.

Then use the letters next to the differences to solve the riddle.



## Stretch Your Thinking

Describe two ways to find 1000-894.

## Subtracting 3-Digit Numbers

## Quick Review

There are 300 seats in the theatre. One hundred eighty-four seats are on the main floor. The rest are in the balcony.
To find how many seats are in the balcony, subtract: 300-184

- You can use place value to subtract.

You cannot take 4 ones from 0 ones. Subtract the ones.
There are no tens to regroup.
Regroup 1 hundred as 10 tens.
Regroup 1 ten as 10 ones.

| 9 | 9 |
| ---: | ---: |
| $2+010$ |  |
| 300 | 21010 |
| -184 | 300 |
|  | -184 |
| 116 |  |

- You can use mental math to subtract.

Count on from 184 to 300.


You can check by adding.
Add: $184+116=300$

## Try These

1. Subtract.
a) 465
b) 786
c) $\begin{array}{r}574 \\ -\quad 197 \\ \hline\end{array}$
d) 600
e) 238
$-213$
$-229$
$-211$
$-79$
2. Find the difference. Use mental math.
a) $400-174=$ $\qquad$ b) $500-189=$ $\qquad$
c) $347-215=$ $\qquad$
d) $701-500=$ $\qquad$ e) $428-299=$ $\qquad$ f) $152-107=$ $\qquad$

## Practice

1. Subtract. Check your answers.
a) 836 $-451$

b) $\begin{array}{r}726 \\ -538 \\ \hline\end{array}$

c) $\begin{array}{r}736 \\ -528 \\ \hline\end{array}$
Check:
2. Use mental math to find each difference.
a) $400-263=$ $\qquad$ b) $501-248=$ $\qquad$
c) $450-231=$ $\qquad$
3. Estimate first. Then subtract the numbers for which the difference will be less than 300.
a) 591
$-375$
b) 436
$-168$
c) 624
$-235$
d) 716
$-371$
e) 327
$-79$
4. Ms. Green's class collected 600 cans for recycling.

Mr. Hso's class coliected 427 cans.
How many more cans did Ms. Green's class collect? $\qquad$
5. Sanil's school had a book sale.

On Monday they sold 697 books.
On Tuesday they sold 842 books.
How many more books did they sell on Tuesday? $\qquad$

## Stretch Your Thinking

The difference of two numbers is 329 .
What might the numbers be? Find two pairs of numbers.


## Subtracting from a 4-Digit Number

## Quick Review

Subtract: 2053-997
Use place value.

Regroup 1 ten as
10 ones.
Subtract the ones.
Regroup 1 thousand as 10 hundreds.
Regroup 1 hundred as 10 tens.

Subtract the tens. Subtract the hundreds. Subtract the thousands.

914 110413 2053 $-\frac{997}{6}$

914
120.413

2053
$\begin{array}{r}-997 \\ \hline 1056\end{array}$

Check.
> By adding:

997
$\begin{array}{r}+1056 \\ \hline 2053\end{array}$
The sum should be the number you started with.

## Try These

1. Subtract.
a) 4532

| -121 |
| :--- |

b) 5726
$-248$
c) 7243
$-685$
d) 4029
$-388$
2. Subtract. Check your answer.
a) $\begin{array}{r}9354 \\ -\quad 287 \\ \hline\end{array}$
Check:
b) 7600
$-452$
Check:

## Practice

1. Estimate. Then subtract.
a) 3059
b) 5138
c) 8209
d) 5439
$-298$
$-479$
$-919$
$-216$

Estimate: $\qquad$ Estimate: $\qquad$ Estimate: $\qquad$ Estimate: $\qquad$
2. Manjit and Irene like to collect acorns.

Manjit collected 1286 acorns and Irene collected 898.
How many more acorns did Manjit collect than Irene? $\qquad$
3. Play this game with a partner.

You will need:
1 number cube
Paper
Pencils
Each player draws a subtraction grid like this:


- Take turns rolling the number cube. After each turn, both players record the digit rolled in any box in their grid.
- After 7 rolls, players subtract.

The player with the greater difference wins.
Play 5 or more games.

## Stretch Your Thinking

A 3-digit number is subtracted from a 4-digit number.
The difference is 426 . What could the two numbers be? Give two answers.

