



Topic G:

Use Place Value Understanding to Find 1, 10, and 100 More or Less than a Number

2.NBT.2, 2.NBT.8, 2.OA.1

Focus Standard:	2.NBT.2	Count within 1000; skip-count by 5s, 10s, and 100s.
Instructional Days:	3	
Coherence -Links from:	G1–M6	Place Value, Comparison, Addition, and Subtraction of Numbers to 100
-Links to:	G2–M4	Addition and Subtraction of Numbers to 1000

The module closes with questions such as, “What number is 10 less than 402?” “What number is 100 more than 98?” As students have been counting up and down throughout the module, these three lessons should flow nicely out of their work thus far and provide a valuable transition to the addition and subtraction of the coming module where “more” and “less” will be re-interpreted as addition and subtraction of one, ten and a hundred. (2.NBT.8). The language component of this segment is essential, too. Students need to be encouraged to use their words to make statements such as, “452 is 10 less than 462 and 100 less than 562.” This allows for greater understanding of comparison word problems (2.OA.1) wherein the language of “more” and “less” is a constant presence.

CONCEPT CHART

A Teaching Sequence Towards Mastery of Finding 1, 10, or 100 More or Less than a Number

Concept 1: Model and Use Language to Tell About 1 More/Less, 10 More/Less, 100 More/Less (Lesson 19)

Concept 2: Model 1 More/Less, 10 More/Less, 100 More/Less Involving Numbers such as 399, 900, etc. (Lesson 20)

Concept 3: Complete a Pattern Counting Up and Down (Lesson 21)

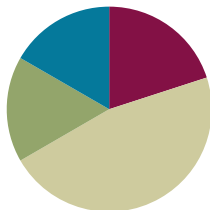
Mathematical Practices Brought to Life

Mathematical Practice 8, “Look for and express regularity in repeated reasoning” is exemplified as students find 1 more, 1 less, 10 more, 10 less, 100 more, and 100 less than a number and see the useful pattern of the regular change in the base number.

Lesson 19: Model and Use Language to Tell About 1 More/1 Less, 10 More/10 Less, 100 More/More Less

Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Concept Development	(28 minutes)
■ Application Problems	(10 minutes)
■ Student Debrief	(10 minutes)
Total Time	(60 minutes)



Fluency Practice (12 minutes)

- Sprint **2.OA.2** (12 minutes)

Sprint (12 minutes)

Materials: (S) Differences Sprint

- T: Yesterday was our third day of practice on sums. Time to move on to differences.
- T: $5 - 3$ is?
- S: 2.
- T: $15 - 3$ is?
- S: 12.
- T: $7 - 1$ is?
- S: 6.
- T: $17 - 1$ is?
- S: 16.
- T: Discuss what you see happening. How do the simple problems relate to the subtraction from the teens?
- S: (Share.)
- T: That is a clue to help you with today's sprint. Take your mark, get set, THINK!

As you close this fluency activity, remind students that the same sprint will be given tomorrow.

Concept Development (28 minutes)

Concrete (10 minutes)

Materials: (T) Plenty of board space, sentence frames for ‘1 more than ___ is ___.’ ‘10 more than ___ is ___.’ ‘100 more than ___ is ___.’ (With an analogous “less than” set.)
(S) Place value mats; number disks (hundreds, tens and ones)

T: Show 110 on your mat.

S: (Students show.)

T: Use ten-disks to count by tens up to 150. (Write 150 on the board.)

S: 120, 130, 140, 150.

T: Add another ten-disk.

S: (Students add.)

T: 10 more than 150 is?

S: 160!

T: (Write 160 on the board directly below 150.) Good.

T: (Post sentence frame ‘10 more than ___ is ___.’) 10 more than 150 is 160. Your turn.

S: 10 more than 150 is 160.

T: Add another ten-disk. How many now?

S: 170!

T: (Write 170 on the board under 160.) Use the frame to say a complete sentence.

S: 10 more than 160 is 170.

T: Look at the numbers we’ve counted (point to the list of 150, 160, 170). Turn and tell your partner what’s the same and different about them.

S: “They all have 3 digits.” → “The hundreds and ones places are the same.” → “The tens are changing. Every time we add a ten-disk the ten gets bigger. 5, 6, 7.”

T: I heard someone say that every time we add a ten-disk the number in the tens place grows. Use our list to predict 10 more than 170.

S: 180!

T: Using our sentence frame?

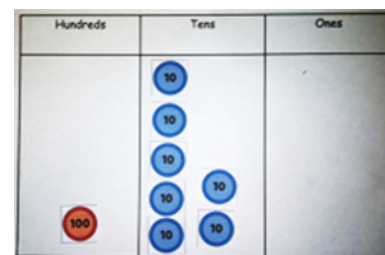
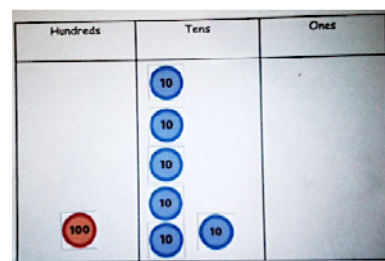
S: 10 more than 170 is 180.

T: Good. Add the ten-disk to show 180.

S: (Students show 180.)

T: (Write 180 under 170.) Now, count by ones to show 186. (Start another list on the board to the right of the tens with 186 at the top.)

S: 181, 182, 183, 184, 185, 186.



MP.8

MP.8

- T: (Post sentence frame ‘1 more than ____ is ____.’) Add another one-disk. How many now?
- S: 187.
- T: Use our sentence frame to describe what you know. (Point to the ‘1 more than’ frame.)
- S: 1 more than 186 is 187.
- T: (Write 187 on the board under 186.) Add another one-disk.
- S: 188.
- T: Using our sentence frame?
- S: 1 more than 187 is 188.
- T: (Write 188 on the board under 187.) Look at our new list of numbers. What do you notice?
- S: “The ones are changing.” → “They’re counting up by one each time we add a disk.”
- T: I’ll label this list (150, 160, 170, 180) ‘10 more’ since we counted by tens, and this list (186, 187, 188) ‘1 more’ because we counted by ones.
- T: Talk to your partner about how our ‘1 more’ and ‘10 more’ lists are the same and different.
- S: “The hundreds are all the same.” → “In both lists only 1 number changes.” → “When we count by tens the tens place changes, same for the ones.” → “The numbers in both lists grow by 1 each time.” → “They look like they’re growing by 1 in the tens list, but they’re really growing by 10!”
- T: (Label a ‘100 more’ list to the left of ‘10 more’.) Let’s count by hundreds. What place will change?
- S: The hundreds place!
- T: We have 188 now (write 188 at the top of the ‘100 more’ list). Add a hundred-disk.
- S: (Students show.)
- T: How many now?
- S: 288!
- T: So... (prompt students by posting the frame ‘100 more than ____ is ____.’)
- S: 100 more than 188 is 288!
- T: (Write 288 under 188 on the ‘100 more’ list.) Were we right? Which place is changing?
- S: The hundreds place!
- T: Use the pattern to finish my sentence. 100 more than 288 is?
- S: 388!
- T: (Write 388 under 288.) Good. Place another hundred-disk to check and see.



**NOTES ON
SUPPORTING ELLS and
STUDENTS BELOW
GRADE LEVEL:**

ELLs may have a challenging time articulating how the ‘1 more’ and ‘10 more’ lists are the same and different. Encourage them to use their place value disks to help them explain their thinking if needed. Additionally, refer them to the sentence frames on the board to support their responses to one another.

Continue, but switch so that students practice counting down by hundreds, tens, and ones.

Pictorial (8 minutes)

- T: With 1 more and 1 less, which place is changing?
 S: The ones!
 T: (Draw and write 427.) What number am I showing?
 S: 427.
 T: (Draw a one-disk.) Use our frame to describe what happened. (Point to the '1 more' frame.)
 S: 1 more than 427 is 428.
 T: (Write 428 under 427.) 1 more than 428 is?
 S: 429.
 T: So 1 less than 429 is?
 S: 428.
 T: We can say '1 less than 429 is 428.' Your turn.
 S: 1 less than 429 is 428.
 T: (Draw a ten-disk.) What place changed?
 S: The tens!
 T: Now what's my number?
 S: 439.
 T: I'll add another ten (draw a ten-disk). What's my number now?
 S: 449.
 T: So 10 less than 449 is?
 S: 439.
 T: We can say '10 less than 449 is 439.' Your turn.
 S: 10 less than 449 is 439.
 T: (Draw a hundred-disk.) What's my number?
 S: 549.
 T: (Write 649 in standard form next to the drawing.) What unit should I put in order to have 649?
 S: 1 hundred.
 T: We can say '100 more than 549 is 649.' Your turn.
 S: 100 more than 549 is 649.
 T: (Write 650 next to 649.) What is the difference between 649 and 650?
 S: A ten!
 T: Let's think about that. Join in and count with me. 646, 647, 648, 649, 650.
 S: (Students chorally count.)
 T: So what is the difference between 649 and 650?
 S: 1!
 T: Yes. We can say '1 less than 650 is 649.' Your turn.



**NOTES ON
SUPPORTING ELLS and
STUDENTS BELOW
GRADE LEVEL:**

If students have a hard time identifying which place value is changing, instruct them to circle, underline, or highlight the number(s) that is changing. This will allow them to explicitly see the movement in the numbers of becoming 'more' or 'less' in their specific place values.

S: 1 less than 650 is 649.

Continue, alternating practice between 'more' and 'less.'

Pictorial/Abstract Worksheet (10 minutes)

Instruct students to model each problem on the place value chart, complete the chart, and whisper the complete sentence.

Application Problem (10 minutes)

Mr. Palmer's second grade class is collecting cans for recycling. Adrian collected 362 cans, Jade collected 392 cans, and Isaiah collected 562 cans.

- How many more cans did Isaiah collect than Adrian?
- How many less cans did Adrian collect than Jade?

T: Use your RDW process. (Lead students as necessary through the sequence of questions we want them to internalize.)

- What do you see?
- Can you draw something?
- What can you draw?
- What conclusions can you make from your drawing?

T: Talk with your partner about different ways you can solve this problem using what you've learned.

S: "I put 362 in my head and skip-counted by 100s: 462, 562."

T: So how many more cans did Isaiah collect than Adrian? Give me a complete sentence.

S: "Isaiah collected 200 more cans than Adrian."

T: How can you show that your answer is correct?

S: "I could draw bundles to show the numbers."

T: Would you please come up and show us, Stella?

T: Can someone show another way of proving that 562 is 200 more than 362?

S: "I would draw a place value chart."

T: Please show us, Jesse.

T: Thank you both. Would anyone else like to share their thinking?

S: "I counted on and wrote 362, 462, 562 and I circled how many groups of 100 I had to jump, and it was 2 groups, so 200."

S: "I wrote it in expanded form and it was easy to see the tens and ones were the same but 500 is 200 more than 300."

Stella's Way

100 200 300 310 320 330 340 350 360 361 362 462 562

Jesse's Way

$362 + 200 = 562$

Ben's Way

362 (462) (562) 200 more

Latrice's Way

$300 + 60 + 2$ $500 + 60 + 2$

$300 + 200 = 500$
 so 500 is 200 more than 300

- T: I so appreciate your many ways of seeing and solving this problem! And we all agree on the same answer, which is?
- S: Isaiah collected 200 more cans than Adrian.
- T: Yes! Please complete your drawings and add that statement to your paper.

Repeat this process with part (b) of the question.

Student Debrief (10 minutes)

Name: Freddy Date: _____

Model each change on your place value chart. Then fill in the chart.
Whisper the complete sentence. "_____ more/less than _____ is _____."

	than 242 is	153	312	465	571	683
100 more	342	253	412	565	671	783
100 less	142	53	212	365	471	583
10 more	252	163	322	475	581	693
10 less	232	143	302	445	561	673
1 more	243	154	313	466	572	684
1 less	241	152	311	464	570	682

Fill in the blanks. Whisper the complete sentence.

a) 1 more than 314 is 315. f) 1 less than 199 is 198.

b) 10 more than 428 is 438. g) 1 more than 404 is 405.

c) 100 less than 635 is 535. h) 10 less than 382 is 372.

d) 100 more than 243 is 343. i) 100 less than 839 is 739.

e) 10 less than 578 is 568. j) 10 more than 936 is 946.

Whisper the numbers as you count:

a) Count by 1s from 367 to 375.
367 368 369 370 371 372 373 374 375

b) Skip-count by 10s from 422 to 492.
422 432 442 452 462 472 482 492

c) Skip-count by 100s from 156 to 856.
156 256 356 456 556 656 756 856

d) Count by 1s from 269 to 261.
269 268 267 266 265 264 263 262

e) Skip-count by 10s from 581 to 511.
581 571 561 551 541 531 521 511

f) Skip-count by 100s from 914 to 314.
914 814 714 614 514 414 314

I found letter a to be challenging, because I went the wrong way.

My starting number is 217.
I skip-count up by 100s seven times.
What is the last number I count?
Explain your thinking below:

217 317 417 517 617 717 817 917

- T: Bring your worksheet to our debrief.
- T: Take a couple of minutes to check over your answers with a partner.
- T: Which section slowed you down? Why?
- S: The fill in the blank section on the worksheet, especially g, h, i, and j. When it said '10 less' I knew I really had to look at the tens, and when it said '100 less' I really looked at the hundreds because those places would change.
- T: Turn and tell your partner Nadia's strategy for helping herself with the fill in the blank section.
- S: "Nadia paid attention to the places of numbers." → "Nadia used the '10 less' and '100 less' part of the question as a clue to help her know which numbers to look at and change."
- T: Let's look at Tyron and Heather's strategies for solving the last problem. (Project student work.)
- T: Tyron, tell us about your strategy for solving.

- S: I drew 7 lines in a row. Then I counted by hundreds and wrote each number on a line until I filled up all the lines.
- T: Thumbs up if you used the same strategy.
- S: (Some students show thumbs up.)
- T: Now look at Heather's strategy. Heather, can you tell us about yours?
- S: I knew only the hundreds would change because we were counting by hundreds. I noticed counting by hundreds 7 times is the same as 700. I added those to the 200 in 217. I wrote $200 + 700 = 900$. Then I put 900 back together with 17 ones and got 917.
- T: Good. How are these strategies the same and different?
- S: "They're the same because they both got the right answer." → "They both only changed hundreds." → "In Tyron's you can see the pattern of growing by 100." → "Heather used a basic fact."
- T: Pick a strategy that is different from the one you used and try it on your paper now.
- S: (Students work.)
- T: Good. Head back to your seats to complete your exit ticket.

Exit Ticket

After the Student Debrief, instruct students to complete the Exit Ticket. A quick review of their work will help you assess the students' understanding of the concepts that were presented in the lesson today. Students have two minutes to complete the Exit Ticket. You may read the questions aloud to the students.

A

Correct _____

Subtract.

1	$3 - 1 =$		23	$7 - 4 =$	
2	$13 - 1 =$		24	$17 - 4 =$	
3	$5 - 1 =$		25	$7 - 5 =$	
4	$15 - 1 =$		26	$17 - 5 =$	
5	$7 - 1 =$		27	$9 - 5 =$	
6	$17 - 1 =$		28	$19 - 5 =$	
7	$4 - 2 =$		29	$7 - 6 =$	
8	$14 - 2 =$		30	$17 - 6 =$	
9	$6 - 2 =$		31	$9 - 6 =$	
10	$16 - 2 =$		32	$19 - 6 =$	
11	$8 - 2 =$		33	$8 - 7 =$	
12	$18 - 2 =$		34	$18 - 7 =$	
13	$4 - 3 =$		35	$9 - 8 =$	
14	$14 - 3 =$		36	$19 - 8 =$	
15	$6 - 3 =$		37	$7 - 3 =$	
16	$16 - 3 =$		38	$17 - 3 =$	
17	$8 - 3 =$		39	$5 - 4 =$	
18	$18 - 3 =$		40	$15 - 4 =$	
19	$6 - 4 =$		41	$8 - 5 =$	
20	$16 - 4 =$		42	$18 - 5 =$	
21	$8 - 4 =$		43	$8 - 6 =$	
22	$18 - 4 =$		44	$18 - 6 =$	

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B

Improvement _____

Correct _____

Subtract.

1	$2 - 1 =$		23	$9 - 4 =$	
2	$12 - 1 =$		24	$19 - 4 =$	
3	$4 - 1 =$		25	$6 - 5 =$	
4	$14 - 1 =$		26	$16 - 5 =$	
5	$6 - 1 =$		27	$8 - 5 =$	
6	$16 - 1 =$		28	$18 - 5 =$	
7	$3 - 2 =$		29	$8 - 6 =$	
8	$13 - 2 =$		30	$18 - 6 =$	
9	$5 - 2 =$		31	$9 - 6 =$	
10	$15 - 2 =$		32	$19 - 6 =$	
11	$7 - 2 =$		33	$9 - 7 =$	
12	$17 - 2 =$		34	$19 - 7 =$	
13	$5 - 3 =$		35	$9 - 8 =$	
14	$15 - 3 =$		36	$19 - 8 =$	
15	$7 - 3 =$		37	$8 - 3 =$	
16	$17 - 3 =$		38	$18 - 3 =$	
17	$9 - 3 =$		39	$6 - 4 =$	
18	$19 - 3 =$		40	$16 - 4 =$	
19	$5 - 4 =$		41	$9 - 5 =$	
20	$15 - 4 =$		42	$19 - 5 =$	
21	$7 - 4 =$		43	$7 - 6 =$	
22	$17 - 4 =$		44	$17 - 6 =$	

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Name _____

Date _____

1) Model each change on your place value chart. Then fill in the chart.

Whisper the complete sentence. "_____ more/less than _____ is _____."

	than 242 is	153	312	465	571	683
100 more						
100 less						
10 more						
10 less						
1 more						
1 less						

2) Fill in the blanks. Whisper the complete sentence.

a) 1 more than 314 is _____.

f) _____ less than 199 is 198.

b) 10 more than 428 is _____.

g) 1 more than _____ is 405.

c) 100 less than 635 is _____.

h) 10 less than _____ is 372.

d) _____ more than 243 is 343.

i) 100 less than _____ is 739.

e) _____ less than 578 is 568.

j) 10 more than _____ is 946

3) Whisper the numbers as you count:

- a) Count by 1s from 367 to 375.
- b) Skip-count by 10s from 422 to 492.
- c) Skip-count by 100s from 156 to 856.
- d) Count by 1s from 269 to 261.
- e) Skip-count by 10s from 581 to 511.
- f) Skip-count by 100s from 914 to 314.

I found letter _____ to be challenging, because _____

My starting number is 217.

I skip-count up by 100s seven times.

What is the last number I count?

Explain your thinking below:

Name _____

Date _____

Fill in the blanks.

a) 10 more than 239 is _____.

b) 100 less than 524 is _____.

c) _____ more than 352 is 362.

d) _____ more than 467 is 567.

e) 1 more than _____ is 601.

f) 10 less than _____ is 241.

g) 100 less than _____ is 878.

h) 10 more than _____ is 734

Name _____

Date _____

1) Fill in the chart.

Whisper the complete sentence.

	than 146 is	235	357	481	672	814
100 more						
100 less						
10 more						
10 less						
1 more						
1 less						

2) Fill in the blanks. Whisper the complete sentence.

a) 1 more than 103 is _____.

g) 1 more than _____ is 619.

b) 10 more than 378 is _____.

h) 10 less than _____ is 546.

c) 100 less than 545 is _____.

i) 100 less than _____ is 818.

d) _____ more than 123 is 223.

j) 10 more than _____ is 974.

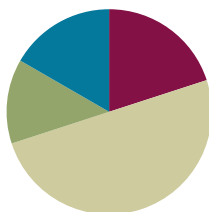
e) _____ less than 987 is 977.

f) _____ less than 422 is 421.

Lesson 20: Model 1 More/Less, 10 More/Less, and 100 More/Less, Involving Numbers such as 399, 900, etc.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problems	(8 minutes)
Concept Development	(30 minutes)
Student Debrief	(10 minutes)
Total Time	(60 minutes)



Fluency Practice (12 minutes)

- Sprint **2.OA.2** (12 minutes)

Sprint (12 minutes)

Materials: (S) Differences Sprint

T: Today is going to be a repeat of yesterday's sprint. Let's do some related facts practice.
If I say $6 - 2$, you say $16 - 2 = 14$.

T: $5 - 4$.

S: $15 - 4 = 11$.

T: $8 - 4$.

S: $18 - 4 = 14$

T: $6 - 3$.

S: $16 - 3 = 13$.

T: Turn and test your partner for 30 seconds. (Pause.) Switch. (Pause.)

T: Ok. How many of you studied last night? Are you prepared to succeed?

S: Yes!!!

T: Take your mark, get set, THINK!

Once again, as you close this fluency activity, inform the students that the same sprint will be given tomorrow.

Application Problem (8 minutes)

399 jars of baby food are sitting on the shelf at the market. Some jars fall off and break. 389 jars are still on the shelf. How many jars broke?

T: Use your RDW process. (Lead students as necessary through the sequence of questions we want them to internalize.)

- What do you see?
- Can you draw something?
- What can you draw?
- What conclusions can you make from your drawing?

T: Talk with your partner about different ways you can solve this problem, using what you've learned.

S: I notice the hundreds are the same and the ones are the same but the tens changed, so it's 10 less.

T: Can you draw something that will help everyone understand your thinking?

S: "I can draw a place value chart and number disks."

T: Please show us.

T: Thank you, Tegan. Can someone state what Tegan said in another way?

S: "389 is 10 less than 399."

T: And another way?

S: "399 is 10 more than 389."

T: Any other thoughts?

S: "I counted on from 389 by 10s: 389, 399, and my partner counted back to check: 399, 389."

T: So what is the answer to the question? How many jars broke?

S: 10 jars broke.

T: Please add that statement to your paper.

100's	10's	1's
○	○	○
○	○ ○	○ ○
○	○ ○	○ ○
	○ ○	○ ○
	○ ○	○ ○

$300 + 90 + 9 = 399$
 $300 + 80 + 9 = 389$
 389 is 10 less than 399, so 10 jars broke.

389, 399

I counted on 10 more to get to 399,
so 10 jars broke.

Concept Development (30 minutes)

Materials: (S) Place value mats, number disks (hundreds, tens, ones)

Concrete (10 minutes)

T: Show 50 on your place value mat.

S: (Students show.)

T: Use number disks to count by ones from 50 to 59.

S: 51, 52, 53, 54, 55, 56, 57, 58, 59.

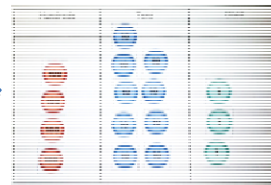
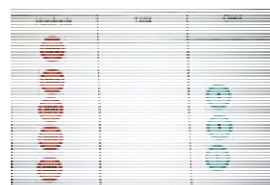
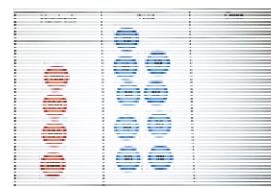
- T: Using a complete sentence, say the number that is 1 more than 59.
- S: 1 more than 59 is 60. 60 is 1 more than 59.
- T: Good. Add your disk to check. Can you make a new unit?
- S: (Students add a disk.) Yes, a ten!
- T: Trade your ones for a ten.
- S: (Students trade to show 6 ten-disks.)
- T: Use number disks to skip-count by tens from 60 to 90.
- S: 70, 80, 90.
- T: Using a complete sentence, say the number that is 10 more than 90.
- S: 100 is 10 more than 90. 10 more than 90 is 100.
- T: Add a disk to check. Can you make a new unit?
- S: (Students add a disk.) Yes, a hundred.
- T: Make the trade.
- S: (Students trade to show one hundred-disk on their mats.)
- T: Use number disks to skip-count by hundreds from 100 to 600.
- S: 200, 300, 400, 500, 600.
- T: Using a complete sentence, say the number that is 100 less than 600.
- S: 500 is 100 less than 600. 100 less than 600 is 500.
- T: Use your number disks to confirm.
- S: (Students confirm.)
- T: How can you show me ten less than 500 with your disks?
- S: Trade 1 hundred for 10 tens.
- T: Perfect. (Pause.) Now can you find ten less?
- S: Yes! It's 490
- T: Show me 500 again. (Pause.) Show me 503. (Pause.)
- T: How can you show me 10 less than 503?
- S: The same way. Change 1 hundred for 10 tens.
- T: Do you need to change the 3 ones?
- S: No! Don't touch them. (Pause.)
- T: What is 10 less than 503?
- S: 493.
- T: Give me a complete sentence.
- S: 10 less than 503 is 493.
- T: 10 less than 500 is?



NOTES ON SUPPORTING ELLS and STUDENTS BELOW GRADE LEVEL:

The complexity of moving 10 less and changing the hundreds place can be a big jump for some students. Therefore, use the language of the tens.

For example in the problem, "What is 10 less than 508?" You can start with the question, "How many tens are in 508?" "50 tens." "What is one ten less than 50 tens?" "49 tens." "Yes, that is why 10 less than 508 is 498."



- S: 10 less than 500 is 490.
T: 10 less than 503 is?
S: 10 less than 503 is 493.
T: 10 more than 490 is?
S: 10 more than 490 is 500.
T: 10 more than 493 is?
S: 10 more than 493 is 503.

Repeat that process with a few other numbers. A suggested sequence might be: 10 less than 204, 10 less than 305, 10 less than 502, ten less than 307, etc. Be aware that you are setting a wonderful foundation for regrouping in subtraction and addition.

Pictorial (8 minutes)

Materials: (S) Place value mat, personal white boards, and markers

Begin with the place value mat inside each student's personal board.

- T: Draw 130.
S: (Students draw.)
T: Make it 140.
S: (Students draw.)
T: Make it 150.
S: (Students draw.)
T: Name my count. 1 more, 1 less, 10 more, 10 less, 100 more, or 100 less?
S: 10 more!
T: Good. Erase. Draw 715.
S: (Students draw.)
T: Make it 705.
S: (Students draw.)
T: Make it 695.
S: (Students draw.)
T: Name my count.
S: 10 less!

Students will catch on quickly. Complete another round or two and transition into having students play with a partner while you meet with a small group.

Pictorial/Abstract Worksheet (12 minutes)

Instruct students to model the problems on the place value chart, fill in the blanks, and circle all that apply. They should also whisper the complete sentence.

<p>Name: <u>Freddy</u> Date: <u>October 28</u></p> <p>Model each problem with a partner on your place value chart. Then fill in the blanks and circle all that apply. Whisper the complete sentence.</p> <p>a) 1 more than 39 is <u>40</u>. We made a <u>ten</u>.</p> <p>b) 10 more than 190 is <u>200</u>. We made a <u>hundred</u>.</p> <p>c) 10 more than 390 is <u>400</u>. We made a <u>hundred</u>.</p> <p>d) 1 more than 299 is <u>300</u>. We made a <u>hundred, or a ten</u>.</p> <p>e) 10 more than 790 is <u>800</u>. We made a <u>hundred</u>.</p> <p>Fill in the blanks. Whisper the complete sentence.</p> <p>a) 1 less than 120 is <u>119</u>. f) <u>100</u> less than 938 is 838.</p> <p>b) 10 more than 296 is <u>306</u>. g) 10 more than <u>296</u> is 306.</p> <p>c) 100 less than 229 is <u>129</u>. h) 100 less than <u>994</u> is 894.</p> <p>d) <u>10</u> more than 598 is 608. i) 10 less than <u>905</u> is 895.</p> <p>e) <u>1</u> more than 839 is 840. j) 1 more than <u>999</u> is 1000.</p>	<p>Whisper the numbers as you count:</p> <p>a) Count by 1s from 106 to 115. <u>107, 108, 109, 110, 111, 112, 113, 114, 115</u></p> <p>b) Count by 10s from 467 to 527. <u>477, 487, 497, 507, 517, 527</u></p> <p>c) Count by 100s from 342 to 942. <u>442, 542, 642, 742, 842, 942</u></p> <p>d) Count by 1s from 325 to 318. <u>326, 324, 323, 322, 321, 320, 319, 318</u></p> <p>e) Skip-count by 10s from 888 to 808. <u>878, 868, 858, 848, 838, 828, 818, 808</u></p> <p>f) Skip-count by 100s from 805 to 5. <u>705, 605, 505, 405, 305, 205, 105, 5</u></p> <p>Jenny loves jumping rope. Each time she jumps she skip-counts by 10s. She starts her first jump at 77, her favorite number. How many times does Jenny have to jump to get to 147?</p> <p>Explain your thinking below.</p> <p><u>77, 87, 97, 107, 117, 127, 137, 147</u></p> <p><u>Jenny has to do 8 jumps. I know becus I counted by 10s from 77 to 147 and it was 8 numbers.</u></p>
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Student Debrief (10 minutes)

- T: Bring your worksheet to the carpet. Skip-count down by hundreds as you transition, starting with 904.
- S: 904, 804, 704, 604, 504, 404...
- T: Take a couple of minutes to check your work with a partner.
- S: (Students compare answers.)
- T: I'm hearing several of you disagree about how many jumps Jenny has to do to count to 147. Some say 7 and some say 8. Jackie, will you share your thinking?

MP.3

- S: I did the difference between tens since she was counting by tens. In 77 there are 7 tens, and in 147 there are 14. I know 7 tens + 7 tens is 14 tens. That means 7 jumps.
- T: Freddy, I notice you got a different answer. Will you share your thinking?
- S: I wrote the number sequence starting at 77 and finishing at 147. Then I counted the numbers to see how many jumps. There were 8.
- T: Turn and talk to your partner. Why did Freddy and Jackie get different answers?
- S: “Jackie did a plus problem, and Freddy counted by tens.” → “Jackie’s right because $7 + 7$ is 14, but Freddy’s right too. There are 8 numbers in his sequence.” → “Freddy counted Jenny’s first jump! Jackie didn’t. She counted on from 7: 8, 9, 10, 11, 12, 13 14. That’s only 7!” → “Are they both right?” → “I think so. They just counted differently.” → “Jackie’s answer is how many more jumps, and Freddy’s answer is how many in all.”
- T: Many of you noticed that Freddy and Jackie both got the math right, even if they got different answers. Freddy counted how many jumps *in all* and Jackie counted how many from 77. Which solution matches the way we count on? 7 or 8?
- S: 7! We usually don’t count the number we start with.
- T: True. If you got a solution of 8, on your paper add the words “in all” to Jenny’s number of jumps.

Exit Ticket

After the Student Debrief, instruct students to complete the Exit Ticket. A quick review of their work will help you assess the students’ understanding of the concepts that were presented in the lesson today. Students have two minutes to complete the Exit Ticket. You may read the questions aloud to the students.

A

Correct _____

Subtract.

1	$3 - 1 =$		23	$7 - 4 =$	
2	$13 - 1 =$		24	$17 - 4 =$	
3	$5 - 1 =$		25	$7 - 5 =$	
4	$15 - 1 =$		26	$17 - 5 =$	
5	$7 - 1 =$		27	$9 - 5 =$	
6	$17 - 1 =$		28	$19 - 5 =$	
7	$4 - 2 =$		29	$7 - 6 =$	
8	$14 - 2 =$		30	$17 - 6 =$	
9	$6 - 2 =$		31	$9 - 6 =$	
10	$16 - 2 =$		32	$19 - 6 =$	
11	$8 - 2 =$		33	$8 - 7 =$	
12	$18 - 2 =$		34	$18 - 7 =$	
13	$4 - 3 =$		35	$9 - 8 =$	
14	$14 - 3 =$		36	$19 - 8 =$	
15	$6 - 3 =$		37	$7 - 3 =$	
16	$16 - 3 =$		38	$17 - 3 =$	
17	$8 - 3 =$		39	$5 - 4 =$	
18	$18 - 3 =$		40	$15 - 4 =$	
19	$6 - 4 =$		41	$8 - 5 =$	
20	$16 - 4 =$		42	$18 - 5 =$	
21	$8 - 4 =$		43	$8 - 6 =$	
22	$18 - 4 =$		44	$18 - 6 =$	

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B

Improvement _____

Correct _____

Subtract.

1	$2 - 1 =$		23	$9 - 4 =$	
2	$12 - 1 =$		24	$19 - 4 =$	
3	$4 - 1 =$		25	$6 - 5 =$	
4	$14 - 1 =$		26	$16 - 5 =$	
5	$6 - 1 =$		27	$8 - 5 =$	
6	$16 - 1 =$		28	$18 - 5 =$	
7	$3 - 2 =$		29	$8 - 6 =$	
8	$13 - 2 =$		30	$18 - 6 =$	
9	$5 - 2 =$		31	$9 - 6 =$	
10	$15 - 2 =$		32	$19 - 6 =$	
11	$7 - 2 =$		33	$9 - 7 =$	
12	$17 - 2 =$		34	$19 - 7 =$	
13	$5 - 3 =$		35	$9 - 8 =$	
14	$15 - 3 =$		36	$19 - 8 =$	
15	$7 - 3 =$		37	$8 - 3 =$	
16	$17 - 3 =$		38	$18 - 3 =$	
17	$9 - 3 =$		39	$6 - 4 =$	
18	$19 - 3 =$		40	$16 - 4 =$	
19	$5 - 4 =$		41	$9 - 5 =$	
20	$15 - 4 =$		42	$19 - 5 =$	
21	$7 - 4 =$		43	$7 - 6 =$	
22	$17 - 4 =$		44	$17 - 6 =$	

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Name _____

Date _____

1) Model each problem with a partner on your place value chart. Then fill in the blanks and circle all that apply. Whisper the complete sentence.

a) 1 more than 39 is _____.

We made a _____.

one
ten
hundred

b) 10 more than 190 is _____.

We made a _____.

one
ten
hundred

c) 10 more than 390 is _____.

We made a _____.

one
ten
hundred

d) 1 more than 299 is _____.

We made a _____.

one
ten
hundred

e) 10 more than 790 is _____.

We made a _____.

one
ten
hundred

2) Fill in the blanks. Whisper the complete sentence.

a) 1 less than 120 is _____.

f) _____ less than 938 is 838.

b) 10 more than 296 is _____.

g) 10 more than _____ is 306.

c) 100 less than 229 is _____.

h) 100 less than _____ is 894.

d) _____ more than 598 is 608.

i) 10 less than _____ is 895.

e) _____ more than 839 is 840.

j) 1 more than _____ is 1000.

3) Whisper the numbers as you count:

- a) Count by 1s from 106 to 115.
- b) Count by 10s from 467 to 527.
- c) Count by 100s from 342 to 942.
- d) Count by 1s from 325 to 318.
- e) Skip-count by 10s from 888 to 808.
- f) Skip-count by 100s from 805 to 5.

Jenny loves jumping rope.

Each time she jumps she skip-counts by 10s.

She starts her first jump at 77, her favorite number.

How many times does Jenny have to jump to get to 147?

Explain your thinking below.

Name _____

Date _____

Fill in the blanks and circle all that apply.

1 more than 209 is _____.

We made a _____.

one
ten
hundred

a) 1 less than 150 is _____.

b) 10 more than 394 is _____.

c) _____ less than 607 is 597.

d) 10 more than _____ is 716.

e) 100 less than _____ is 894.

f) 1 more than _____ is 900.

Name _____

Date _____

1) Fill in the blanks. Whisper the complete sentence.

a) 1 less than 160 is _____.

b) 10 more than 392 is _____.

c) 100 less than 425 is _____.

d) _____ more than 549 is 550.

e) _____ more than 691 is 601.

f) 10 more than _____ is 704.

g) 100 less than _____ is 986.

h) 10 less than _____ is 815.

2) Count the numbers aloud to a parent.

- a) Count by 1s from 204 to 212.
- b) Skip-count by 10s from 376 to 436.
- c) Skip-count by 10s from 582 to 632.
- d) Skip-count by 100s from 908 to 18.

Henry enjoys watching his pet frog hop.

Each time his frog hops Henry skip-counts backwards by 100s.

Henry starts his first count at 815.

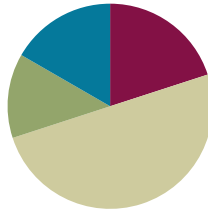
How many times does his frog have to jump to get to 15?

Explain your thinking below.

Lesson 21: Complete a Pattern Counting Up and Down

Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Application Problems	(8 minutes)
■ Concept Development	(30 minutes)
■ Student Debrief	(10 minutes)
Total Time	(60 minutes)



Fluency Practice (12 minutes)

- Sprint **2.OA.2** (12 minutes)

Sprint 2.OA.2 (12 minutes)

Materials: (S) Differences Sprint

Lesson 21's sprint is a review of the "take from ten" facts. This is in preparation for Module 4 in which students will work towards mastery of the sums **and** differences to 20. Run a few extra copies to give to students to take home; quite a few will want to. For students struggling for fluency with these basic facts, find time if possible in your instructional day to time their improvement, or allow them to time themselves.

Application Problem (8 minutes)

Rahim is reading a really exciting book! He's on page 98.
If he reads 10 pages every day, what page will he be on in 3 days?

- T: Use your RDW process. (Lead students as necessary through the sequence of questions we want them to internalize.)
- What do you see?
 - Can you draw something?
 - What can you draw?
 - What conclusions can you make from your drawing?
- T: Talk with your partner about different ways you can solve this problem using what you've learned.
- T: (Invite students to share their work and explain their

Bella's Way

Victoria's Way

Juliet's Way

thinking. Then encourage their classmates to ask them questions.)

- S: “I drew bundles to show the number of pages he read, 98, and then I added 3 more bundles of 10 because he reads 10 pages every day.”
- S: “I wrote 98 and then I drew 3 circles to be the 3 days and I put 10 in each to show the pages he read every day. Then I skip-counted by 10.”
- S: “I drew a place value chart and number disks to show 98. Then I added a 10-disk for the first day, and then a 10-disk for the second day, and a 10-disk for the third day, because he reads 10 pages every day.”
- T: These are wonderfully clear drawings and I like the way you explained how each piece relates to the story problem.
- T: All three of these drawings help us see the pattern. Can someone explain how the numbers changed?
- S: “They got bigger by 10.”
- T: So, how were we counting?
- S: “We were skip-counting by 10.”
- T: What page will Rahim be on in 3 days?
- S: Rahim will be on page 128.
- T: Please add this statement to your paper.

Concept Development (30 minutes)

Materials: (S) Place value mats, number disks (hundreds, tens, ones)

Concrete (10 minutes)

Student Materials: (Per pair) Place value mat and number disks (hundreds, tens, and ones).

- T: Show 266 with number disks.
- S: (Students show.)
- T: Use number disks to count out loud by ones from 266 to 272.
- S: 267, 268, 269, 270, 271, 272.
- T: What unit can you make?
- S: A ten.
- T: Go ahead and trade ones for a ten.
- S: (Students trade.)
- T: Use number disks to skip-count out loud by hundreds from 272 to 772.
- S: 372, 472, 572, 672, 772.
- T: Say the next 2 numbers in our pattern.
- S: 872, 972!

- T: Good. Use number disks to complete another ten. Count out loud.
 S: 773, 774, 775, 776, 777, 778, 779, 780.
 T: Say the next 2 numbers in our pattern, counting up by 1s.
 S: 781, 782.
 T: Good. Trade your ones for a ten.
 S: (Students trade.)
 T: Use number disks to skip-count out loud by tens from 780 to 700.
 S: 770, 760, 750, 740, 730, 720, 710, 700.
 T: Say the next 2 numbers in our pattern.
 S: 690, 680.
 T: Good. Change your mat to show 1 more than 700.
 S: (Students show 701.)
 T: Use number disks to count down by tens out loud from 701 to 671.
 S: 691, 681, 671.
 T: (Write '____, ____, 641, 631' on the board.) Say the numbers missing from our pattern.
 S: 661 and 651!
 T: Yes. Use number disks to count down by hundreds out loud from 671 to 371.
 S: 571, 471, 371.
 T: (Write '____, ____, 71' on the board.) Say the numbers missing from our pattern.
 S: 271 and 171.
 T: Nice work. Use number disks to count out loud by ones from 371 to 375.
 S: 372, 373, 374, 375.
 T: (Write '____, 377, ____, ____, 380' on the board.) Say the pattern, filling in the blanks.
 S: 376, 377, 378, 379, 380.



**NOTES ON
SUPPORTING ELLS and
STUDENTS BELOW
GRADE LEVEL:**

When counting back by 100s, students may stumble when the numbers change from three-digit to two-digit numbers. (For example, 178 to 78). Have them “think, pair, share” beforehand on a similar problem to prepare them for the change.

Pictorial (10 minutes)

Materials: (T) Pocket chart (S) 4 large index cards per pair

Students work as partners. Each partnership belongs to group ‘more’ or group ‘less.’

- T: With your partner, make a number pattern. You choose if your pattern shows counting by ones, tens, or hundreds.
 T: Talk to your partner and decide now. Take 15 seconds.
 S: (Partners discuss and decide.)
 T: Your pattern must count down if you are in the ‘less’



**NOTES ON
SUPPORTING ELLS and
STUDENTS BELOW
GRADE LEVEL:**

Allow students who are challenged with the activity sheet charts to work together in partners or in small groups. Encourage them to verbalize what they notice about the pattern and movement of the numbers before coming to the debrief. This will give them the confidence to contribute during the discussion.

group and up if you are in the 'more' group.

T: Turn and confirm with your partner: 'We will count down by ____.' Or 'We will count up by ____.'

S: We will count down by tens. We will count up by hundreds. We will count down by ones. Etc.

T: Pick a number between 40 and 600. Partner A, write the number on a card and hold it up.

S: (Students pick a number, write it, and hold up the card.)

T: Start with that number. Use the other cards to write the rest of the numbers in your sequence.

S: (Students work together.)

T: On the blank side of each card, draw the number you wrote. Take two minutes.

S: (Students create their cards.)

T: Stack the cards in order with the drawings face up and bring them to the rug with your partner.
(Students are seated at the rug.)

T: Molly and Ken, share first. Bring your cards to the pocket chart.

T: Say each number, placing one drawing at a time in the pocket. Go slowly so your friends can figure out your pattern.

T: Class, count along with Molly and Ken when you've figured out their pattern.

S: (Molly and Ken count and place, others chime in.) 236... 336... (all) oh! 436, 536!

T: Name Molly and Ken's pattern.

S: 100 more!

T: Ken and Molly, can you confirm?

S: That's it!

Continue whole group or have groups share to each other and rotate. Show some patterns with numbers rather than drawings. For others, show alternating numbers and let the class "fill in" blanks.

Abstract Worksheet (10 minutes)

Instruct students to whisper the numbers as you count, find the pattern, fill in the blanks, and complete the chart.

Student Debrief (10 minutes)

T: Bring your worksheet to the carpet. Count up by tens from 456 as you transition.

S: 466, 476, 486, 496, 506, 516, 526...

T: Take a couple of minutes and check over your answers with your partner.

S: (Students check work.)

T: Turn and tell your partner your reaction to the moon section. What did you think?

S: "It was hard!" → "At first I didn't know you had to go up

Lesson 21 Activity Sheet: Complete a Pattern Counting Up and Down

Name: Freddy

Date: October 29

Whisper the numbers as you count:

a) Count by 1s from 326 to 334. 327, 328, 329, 330, 331, 332, 333, 334

b) Skip-count by 10s from 472 to 532. 482, 492, 502, 512, 522, 532.

c) Skip-count by 10s from 930 to 860. 920, 910, 900, 890, 880, 870, 860

d) Skip-count by 100s from 708 to 108. 608, 508, 408, 308, 208, 108

Find the pattern. Fill in the blanks.

a) 297, 298, 299, 300, 301, 302

b) 143, 133, 123, 113, 103, 93

c) 357, 457, 557, 657, 757, 857

d) 578, 588, 598, 608, 618, 628

Find the pattern. Fill in the blanks.

a) 132, 133, 134, 135, 136, 137

b) 409, 509, 609, 709, 809, 909

c) 210, 200, 190, 180, 170, 160, 150

d) 875, 775, 675, 575, 475, 375

and down over the white spaces to get the next number.” → “Yeah, the up and down ones were trickiest.” → “I had fun. It was like a puzzle. I used clues to fit the pieces of the puzzle together.”

- T: Tim, say more about what you mean about a pattern being like a puzzle.
- S: Well you have to put it together in order. You have to find clues to help you figure it out.
- T: What kinds of clues?
- S: Like noticing if the counting is going by 1 more, 1 less, or 10 more or less, or 100 more or less. It makes a pattern. Once you know the pattern, it’s a clue that makes things easy. The pattern just repeats and you know the next number fast.
- T: Retell Tim’s idea about patterns to your partner.
- S: “Tim said you have to look for clues about the counting.” → “He said you try and see if the pattern is going by ones, tens or hundreds.” → “Tim said once you know the count by, it’s a clue that makes it easy to know what comes next. You just follow the pattern.”
- T: So to complete number sequences like these, we look for...
- S: The pattern!
- T: One way that Tim did that was by noticing...
- S: What the numbers are counting by!

MP.8

Fill in the chart.

a)

72	73	74	75	76	
		84	85		
92	93	94	95	96	97
		104	105	106	
			115	116	117

b)

		345	346	347	348
353	354				
	364	365	366	367	
			376	377	378
383	384	385			
		395	396	397	

Exit Ticket

After the Student Debrief, instruct students to complete the Exit Ticket. A quick review of their work will help you assess the students’ understanding of the concepts that were presented in the lesson today. Students have two minutes to complete the Exit Ticket. You may read the questions aloud to the students.

A

Correct _____

Subtract.

1	$10 - 5 =$		23	$11 - 3 =$	
2	$10 - 0 =$		24	$10 - 9 =$	
3	$10 - 1 =$		25	$11 - 9 =$	
4	$10 - 9 =$		26	$10 - 5 =$	
5	$10 - 8 =$		27	$11 - 5 =$	
6	$10 - 2 =$		28	$10 - 7 =$	
7	$10 - 3 =$		29	$11 - 7 =$	
8	$10 - 7 =$		30	$10 - 8 =$	
9	$10 - 6 =$		31	$11 - 8 =$	
10	$10 - 4 =$		32	$10 - 6 =$	
11	$10 - 8 =$		33	$11 - 6 =$	
12	$10 - 3 =$		34	$10 - 4 =$	
13	$10 - 6 =$		35	$11 - 4 =$	
14	$10 - 9 =$		36	$10 - 9 =$	
15	$10 - 0 =$		37	$12 - 9 =$	
16	$10 - 5 =$		38	$10 - 5 =$	
17	$10 - 7 =$		39	$12 - 5 =$	
18	$10 - 2 =$		40	$10 - 7 =$	
19	$10 - 4 =$		41	$12 - 7 =$	
20	$10 - 1 =$		42	$10 - 8 =$	
21	$11 - 1 =$		43	$12 - 8 =$	
22	$11 - 2 =$		44	$15 - 9 =$	

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B

Improvement _____

Correct _____

Subtract.

1	$10 - 0 =$		23	$11 - 3 =$	
2	$10 - 5 =$		24	$10 - 5 =$	
3	$10 - 9 =$		25	$11 - 5 =$	
4	$10 - 1 =$		26	$10 - 9 =$	
5	$10 - 2 =$		27	$11 - 9 =$	
6	$10 - 8 =$		28	$10 - 8 =$	
7	$10 - 7 =$		29	$11 - 8 =$	
8	$10 - 3 =$		30	$10 - 7 =$	
9	$10 - 4 =$		31	$11 - 7 =$	
10	$10 - 6 =$		32	$10 - 4 =$	
11	$10 - 2 =$		33	$11 - 4 =$	
12	$10 - 7 =$		34	$10 - 6 =$	
13	$10 - 4 =$		35	$11 - 6 =$	
14	$10 - 1 =$		36	$10 - 5 =$	
15	$10 - 0 =$		37	$12 - 5 =$	
16	$10 - 5 =$		38	$10 - 9 =$	
17	$10 - 3 =$		39	$12 - 9 =$	
18	$10 - 8 =$		40	$10 - 8 =$	
19	$10 - 6 =$		41	$12 - 8 =$	
20	$10 - 9 =$		42	$10 - 7 =$	
21	$11 - 1 =$		43	$12 - 7 =$	
22	$11 - 2 =$		44	$14 - 9 =$	

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Name _____

Date _____

1) Whisper the numbers as you count:

- a) Count by 1s from 326 to 334.
- b) Skip-count by 10s from 472 to 532.
- c) Skip-count by 10s from 930 to 860.
- d) Skip-count by 100s from 708 to 108.

2) Find the pattern. Fill in the blanks.

- a) 297, 298, _____, _____, _____, _____
- b) 143, 133, _____, _____, _____, _____
- c) 357, 457, _____, _____, _____, _____
- d) 578, 588, _____, _____, _____, _____

3) Find the pattern. Fill in the blanks.

- a) 132, _____, 134, _____, _____, 137
- b) 409, _____, _____, 709, 809, _____
- c) 210, _____, 190, _____, _____, 160, 150

Fill in the chart.

a)

72	73			76	
			85		
		94			97
				106	
			115		

b)

		345	346		
	354				
			366		
				377	
		385			

Name _____

Date _____

Find the pattern. Fill in the blanks.

a) 109, _____, 111, _____, _____, 114

b) 710, _____, 690, _____, _____, 660, 650

c) 342, _____, _____, 642, 742, _____

d) 902, _____, _____, 872, _____, 852

Name _____

Date _____

1) Find the pattern. Fill in the blanks.

a) 396, 397, _____, _____, _____, _____

b) 251, 351, _____, _____, _____, _____

c) 476, 486, _____, _____, _____, _____

d) 630, 620, _____, _____, _____, _____

2) Find the pattern. Fill in the blanks.

a) 208, 209, _____, _____, _____, 213

b) 316, _____, _____, 616, 716, _____

c) 547, _____, 527, _____, 507, _____

d) 672, _____, 692, _____, _____

3) Fill in the chart.

		206				
				218		
						230
			237			