Thirteen

13

Seventy-five

75

Name: _____

Foundational Numeracy

Module 1: Understanding Whole Numbers

Facilitator Guide

V 1.20 - July 2020

Developed for Alberta's Community Adult Learning Program

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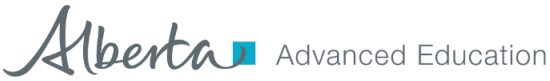


NorQuest College
10215 108 Street NW,
Edmonton AB, T5J 1L6
Attn: Curriculum Development

Contents

Introduction to the Module

In this module, you will work on basic math related to counting, odd and even numbers, reading and writing whole numbers. Numeracy is important and is part of our complex world. Whether it is calculating a budget or paying bills, arithmetic skills are critical. Enjoy this module!

Important

When you see an object like the one below, you can either use the camera on your phone or tablet, or you can click on the link to play the video of the math example.

Want to watch a video of this lesson?

https://youtu.be/QtwiGWi5a7E

Note: The facilitator guide mirrors the Learner Guide with a couple of key differences.

- Facilitator notes throughout the module in boxes like this. Include teaching strategies and common errors
- Student Practice doesn't have this bubble. Instructor led
  The instructor can teach the concept or the learner can watch the video.

Specific Learning Outcomes

The table below displays the skills and knowledge that you will explore in this module. This is your opportunity to evaluate your own skills to see if you can do these things. At the end of this module, you will be invited to re-evaluate your skills to measure the progress you have made.

In this module I will learn how to …	I can't do this	I can do this with help	I can do this!
1. Understand what digits are			
2. Count			
3. Understand even and odd numbers			
4. Write numbers in words			
5. Write words in numbers			
6. Write numbers in expanded form			
7. Understand place value			
8. Compare whole numbers			
9. Round Whole numbers			

Essential Skills

The essential skills used in this module are the following:

Reading: Understanding materials written in sentences or paragraphs

Numeracy: Using and understanding numbers

Writing: Writing on paper or typing on a computer

Vocabulary: Gaining related vocabulary

Math Anxiety

Many people suffer from math anxiety. Negative self talk will hinder learning math.

Examples of negative self talk:

- I can't do math
- I will never be good at math
- I hate math.

The following is a list of some things you can do to be more successful in math.

1. Be calm and relaxed when you start a math problem.
2. Read the questions and problems carefully.
3. Always check your work for little mistakes.
4. Review basic addition facts until you know them by heart.
5. Review basic multiplication facts until you know them by heart.
6. Practice by completing exercises.
7. Review previous concepts regularly.

Unit 1: Counting

Keywords

Counting	Identifying how many things are present
Digit	Numbers from 0 to 9 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
Even Numbers	Any number that ends in 0, 2, 4, 6, 8.
Inclusive	Including
Multiples	A number added to itself
Odd Numbers	Any number that ends in 1, 3, 5, 7, 9.
Whole Numbers	Numbers we use for counting

Learning Objectives

- Understand the digits that make up our number system
- Write numbers in words to 1000
- Write word in numbers to 100
- Understand odd and even numbers
- Count by multiples

Lesson 1.1: Digits and Counting to Nine

Teaching Strategy

Focus on the term digits. Our digits that our number system is made up of is from 0 to 9. When counting learners can use marks so they don't count an object more than once. Learner will see Intro Video as shown below.

Introductory Video:

SCAN ME

Want to watch a video of this lesson?
https://youtu.be/T5Qf0qSSJFI

Watch Video to 1:50

Digits

Each digit has a name and we use the name every time we say a number. Our number system is made up of 10 digits.

Digit	Name
0	zero
1	one
2	two
3	three
4	four
5	five
6	six
7	seven
8	eight
9	nine

Counting

Counting is one of the first math skills people learn.

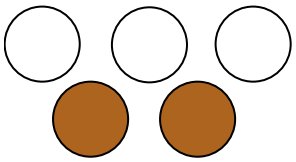
We can learn to count by ones, two, fives, tens, hundreds, and so one.

Example: In the example below we can count the number of blocks, we can count the number of coloured squares and the number of white squares. Write the digit and the name for each.

Number of Blocks	Digit	Name
Total blocks	7	seven
Coloured bocks	3	three
White blocks	4	four

Exercise 1.1

For each question write the digit and the name for each part.

1. 

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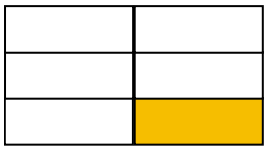
Total: Digit _____ Name _____

2. 

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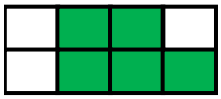
3. 

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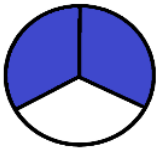
Total: Digit _____ Name _____

4. 

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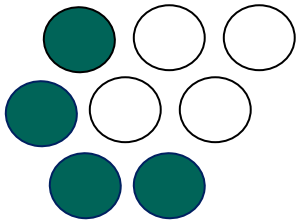
Shaded: Digit _____ Name _____

Unshaded: Digit _____ Name _____

Total: Digit _____ Name _____

6. 

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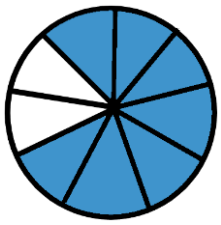
7. 

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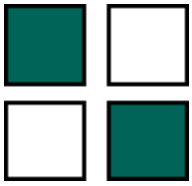
8. 

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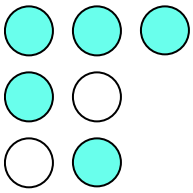
9. 

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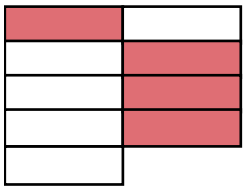
10. 

Shaded: Digit _____ Name _____

Unshaded: Digit _____ Name _____

Total: Digit _____ Name _____

Lesson 1.2: Reading and Writing Numbers to 1 000

In order to write larger numbers we combine digits. From twenty to ninety-nine, we use a hyphen and the one to nine digits.

Number	Name
10	ten
11	eleven
12	twelve
13	thirteen
14	fourteen
15	fifteen
16	sixteen
17	seventeen
18	eighteen
19	nineteen
20	twenty
21 to 29	twenty-one, twenty-two…
30	thirty
31 to 39	thirty-one, thirty-two…
40	forty
50	fifty
60	sixty
70	seventy
80	eighty
90	ninety
100	one hundred
200	two hundred
300	three hundred
400	four hundred
500	five hundred
600	six hundred
700	seven hundred
800	eight hundred
900	nine hundred
1 000	one thousand

Exercise 1.2

Write the number in words.

1. 19 _____
2. 14 _____
3. 16 _____
4. 13 _____
5. 18 _____
6. 12 _____
7. 15 _____
8. 11 _____
9. 27 _____
10. 36 _____
11. 78 _____
12. 43 _____
13. 89 _____
14. 96 _____
15. 514 _____
16. 972 _____
17. 623 _____
18. 435 _____
19. 264 _____
20. 318 _____

Write the word in numbers.

21. Seventeen _____
22. Fifteen _____
23. Twenty-three _____
24. Forty-eight _____
25. Sixty-five _____
26. Ninety-four _____
27. Thirty-one _____
28. Eighty-eight _____
29. Forty-six _____
30. Seventy-four _____
31. Two Hundred thirty-three _____
32. Six Hundred eighty-five _____
33. Three hundred ninety-one _____
34. Five hundred fifty-five _____
35. Nine hundred eleven _____
36. Four Hundred thirty _____
37. Seven hundred sixteen _____
38. One Hundred seventy-two _____
39. Six Hundred nineteen _____
40. Eight hundred sixty-eight _____

Lesson 1.3: Counting Numbers Larger Than Nine

Teaching Strategy

Focus on the term digits. Our digits that our number system is made up of is from 0 to 9.

When counting learners can use marks so they don't count an object more than once.

Learner will see Intro Video as shown below.

Introductory Video:

SCAN ME

Want to watch a video of this lesson?

https://youtu.be/T5Qf0qSSJFI

Watch Video from 1:50 to 5:20

Below is our number system to 100.

When we see the number 572 we can use the chart below to write the numbers

Hundreds	Tens	Ones
5	7	2

We can write in expanded form to understand the meaning of the numbers better

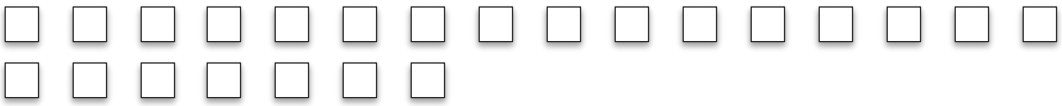
or

572 500 + 70 + 2

When counting numbers larger than 10 we change groups of one into groups of 10.

Student Example 1

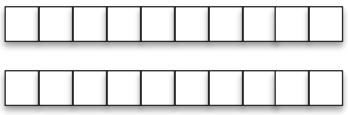
Count the number of blocks below.



The number of blocks are 23

The number 23 is made up of 23 ones however we can combine so that 10 ones are put into a group of 10. There are 2 groups of ten and 3 ones.

Groups of 10's ones remaining



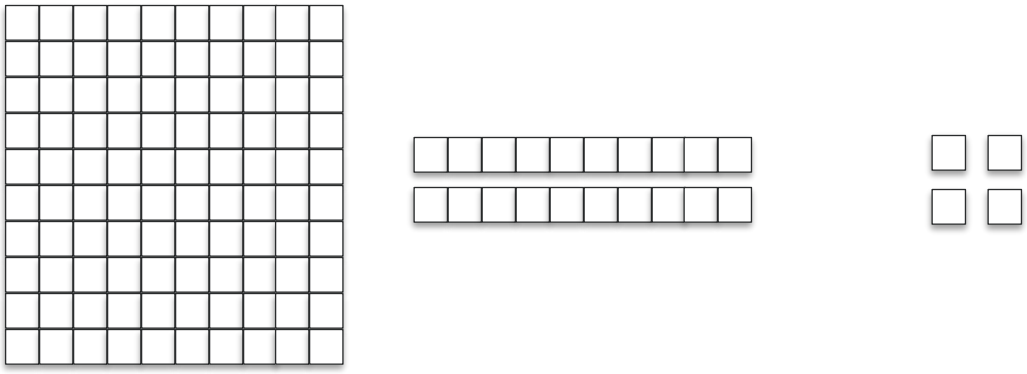
We can say we have 2 tens and 3 ones

We can say we have 20 + 3

We can say we have 23

Student Example 2

If we have numbers greater than 100 we can make groups of 100 from 10 groups of 10 and ones remaining.

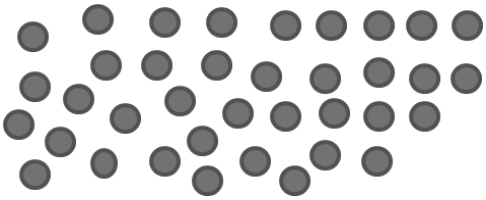


We can say we have 1 hundred, 2 tens, and 4 ones

or 100 + 20 + 4

or 124

Student Example 3



SCAN ME

Want to watch a video of this lesson?

https://youtu.be/wx2gI8iwMCA

Exercise 1.3

Write the number in expanded form. The first one is done for you.

1.	16	1 ten and 6 ones	10 + 6
2.	35		
3.	58		
4.	77		
5.	96		
6.	81		
7.	112		
8.	239		
9.	468		
10.	275		
11.	624		
12.	797		
13.	574		
14.	869		
15.	943		

Lesson 1.4: Odd and Even Numbers

Teaching Strategy

Even and odd numbers are important to understand. It will be an important thing for learners to understand is that all even numbers are divisible by 2. We often take it for granted without thinking much about them. When the learners get into understanding prime numbers, all prime numbers except 2 are odd.

Learner will see Intro Video as shown below.

Introductory Video:

Want to watch a video of this lesson?

https://youtu.be/SFRTTUtAjg4

Watch Video to 3:40

The ability to recognize odd and even numbers will be useful in dividing whole numbers and then, later then dealing with fractions. You will discover that if a number is even it can be divided by 2 exactly. If it is an odd number, it cannot be divided evenly by 2.

Even numbers are all number that end with a **0, 2, 4, 6**, or **8**. All other numbers are called **odd** numbers.

Example 1	Is this number 1 258, even or odd?
Solution 1	1 258 is an even number because it ends with an 8. **Note:** It doesn't matter what the other digits are. If the last digit is even, the number is even.
Example 2	Is this number, 6 049, even or odd?
Solution 2	6 049 is an odd number. • This number does not end with 0, 2, 4, 6, or 8

Exercise 1.4

1. Circle all the even numbers

   5 9 6 8 10 44 71 15 24 126 667

2. Circle all the odd numbers

   35 48 34 76 257 98 52 69 88 457 360

3. Write the next greater even number

   a. 6 _____ b. 2 _____ c. 38 _____ d. 220 _____

   e. 56 _____ f. 90 _____ g. 84 _____ h. 364 _____

4. Write the next lower odd number

   a. 9 _____ b. 15 _____ c. 43 _____ d. 451 _____

   e. 83 _____ f. 27 _____ g. 111 _____ h. 905 _____

5. Fill in the blanks

   a. 6, _____, _____, _____, _____, 16, 18, 20

   b. 13, _____, _____, _____, _____, 23, 25, 27

   c. 22, _____, 26, _____, 30, _____, _____

6. Write all of the odd numbers from 21 to 35 inclusive.

   _____

7. Write all of the even numbers from 86 to 102 inclusive.

   _____

8. In this number, 9 016 320, underline the even digits.

Lesson 1.5: Counting by Multiples

Teaching Strategy

We can count by multiples of virtually any number. This is essentially the start of learning the multiplication table. Common multiples are up to 10. However, Bill Gates might prefer to count his money by millions as counting by 10's would take for ever.

Learner will see Intro Video as shown below.

Introductory Video:

Want to watch a video of this lesson?

https://youtu.be/giniDutK-4I

Counting by numbers larger than one can speed up counting greatly. When counting by other numbers we are using the multiples of that number.

Example: 2, 4, 6… starting with 2 and adding 2 each time

Sometimes when we are counting groups of things we can count by other numbers. For example, if we are counting total number of shoes we could count by twos. We can count the value of our nickels by counting by 5's, dimes by 10's and quarters by 25's.

We can count by any number we want.

Exercise 1.5

1. Count by two's to 20. ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
2. Count by three's to 30. ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
3. Count by four's to 40. ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
4. Count by five's to 50. ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
5. Count by six's to 60. ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
6. Count by seven's to 70. ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
7. Count by eight's to 80. ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
8. Count by nine's to 90. ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

9. Count by ten's to 100. ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

10. Count by five's from 45. _____ _____ _____ _____ _____ _____

11. Count by hundreds from 300. _____ _____ _____ _____ _____ _____

12. Finish the following patterns by filling in the blanks:

    a. 5, 10, 15, _____, _____, _____

    b. 12, _____, 20, _____, _____, _____, 36

    c. 9, 12, _____, 18, _____, _____

    d. 6, 8, _____, _____, 14, _____

    e. 36, _____, 48, _____, 60, _____, _____

    f. 27, _____, 21, _____, _____, 12 ,_____

    g. 200, _____, _____, 275, _____, _____

    h. 900, _____, 800, _____, _____, 650, _____

    i. 28, _____, 20, _____, _____, _____, 4

Unit 2: Working with Larger Numbers

Learning Objectives

- Identify the place value of a digit
- Identify periods
- Write a number in words or digits
- Write numbers in expanded form
- Comparing Numbers
- Ordering Numbers

Keywords

Approximation	Not exact; a number that is close to the exact value
Ascending ↑	Going up; increasing to a higher level, value, or degree
Column	 A line of numbers or words written under each other that goes down a page
Descending ↓	Going down; decreasing to a lower level, value, or degree
Digit	Any numeral from 0 to 9. For example, 2 and 8 are digits. The number 256 has three digits. The number 10 000 has five digits.
Front-end rounding	Rounding to the farthest left digit. For example, 187 rounds to 200
Period	A group name of up to three digits in a number. For example, the number 1 503 764 has 1 in the millions period, 503 in the thousands period, and 764 in the ones (or units) period.
Place value	The value of a place shows what it is worth. In the number 2 819, the place values are 2 000, 800, 10, and 9.
Rounding	Changing a number so that it is more convenient for calculations. For example, rounding 123 to 120
Symbol >	Greater than
Symbol <	Less than

Lesson 2.1: Whole Number Place Values and Periods

Teaching Strategy

When teaching place value try to get the learners to use a chart like the one this lesson. With practice they will be able to identify place value and periods without a chart. It is important that learners know every period is made up of ones tens and hundreds.

Reading and writing whole numbers is important as often numbers are written in words in problem solving questions. We write numbers in words the same way that we read them. Explain that there is no ***and*** when reading whole numbers. Tens digits and ones digits are separated by a hyphen when they fall between twenty and one hundred. Example thirty-two. This applies to all periods.

Learner will see Intro Video as shown below.

Introductory Video:

SCAN ME

Want to watch a video of this lesson?

https://youtu.be/T5Qf0qSSJFI

Watch Video from 5:20

The values of the digits (hundreds, tens, and ones) are called their **place values**. Every time we move one place to the left, the place value gets 10 times bigger.

Each set of three places is grouped together into a **period**. **Note: in the USA they use commas to separate periods.**

Example: Here is a list of the most common **place values**, their **periods**, and a number as an example.

Billions period				**Millions period**				**Thousands period**				**Ones period**		
Hundred billions	Ten billions	Billions	Separator	Hundred millions	Ten millions	Millions	Separator	Hundred thousands	Ten thousands	Thousands	Separator	Hundreds	Tens	Ones
9	**4**	**0**		**7**	**3**	**2**		**8**	**1**	**4**		**3**	**6**	**5**

The number is 940 732 814 365.

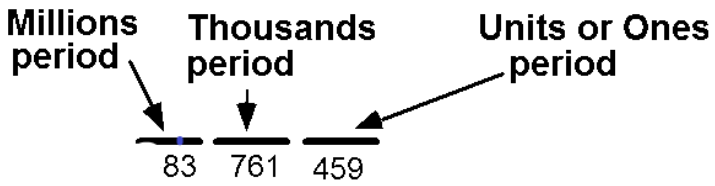
9 hundred billions	900 000 000 000
4 ten billions	40 000 000 000
0 one billions	0 000 000 000
7 hundred millions	700 000 000
3 ten millions	30 000 000
2 one millions	2 000 000
8 hundred thousands	800 000
1 ten thousands	10 000
4 one thousands	4 000
3 hundreds	300
6 tens	60
5 ones	5
Total:	**940 732 814 365**

When we say a number out loud, we say one **period** at a time—first the billions **period,** then the millions **period**, then the thousands **period**, and finally the ones **period**:

> Nine hundred forty billion, seven hundred thirty-two million, eight hundred fourteen thousand, three hundred sixty-five

The number 83 761 459 contains **three** periods.

> **Note:** The number with the greatest value is the 8 because the 8 has a value of 80 million. The farther left you go, the higher the value.

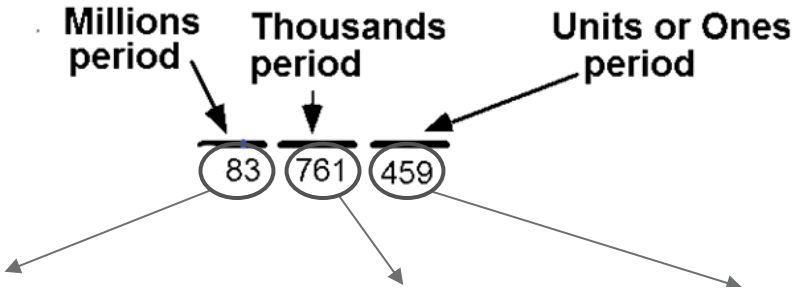


Writing Numbers in Words

To write numbers in words, you do the following:

1. Read numbers by their periods
2. Use commas to separate the periods
3. Use hyphens (-) to separate tens and ones places

Example:



Eighty-three million, seven hundred sixty-one thousand, four hundred fifty-nine

Note: When writing numbers in words, do not use the "s" of the period name, and do not include the ones/units period in writing.

Student Example 1

Instructor led

Write 82 426 in words

Want to watch a video of this lesson?
Or use the link below:
https://youtu.be/QtwiGWi5a7E

Student Example 2

Instructor led

Write 14 897 in expanded form

Want to watch a video of this lesson?
https://youtu.be/iK0y39rjBgQ

Exercise 2.1

Using the number **6 048 217**, write the digits that are in the following places:

1. ten thousands place _____
2. thousands place _____
3. millions place _____
4. hundred-thousands place _____
5. ones place _____
6. tens place _____

Using the number **6 048 217**, write the period names of each of the following groups of numbers.

7. 048 _____

8. 217 _____

9. 6 _____

Using the number **405 937 628**, write the digits that are in the following places:

10. ten thousands place _____

11. thousands place _____

12. millions place _____

13. hundred-thousands place _____

14. ones place _____

15. tens place _____

16. ten millions place _____

Using the number **405 937 628**, write the period names of each of the following groups of numbers.

17. 628 _____

18. 405 _____

19. 937 _____

Write the following numbers in expanded form and in words:

20. 319 _____

_____

_____

21. 885 _____

_____

_____

22. 1 254 _____

_____

_____

_____

23. 6 405 _____

_____

_____

_____

24. 7 238 _____

_____

_____

_____

25. 9 782 _____

_____

_____

_____

26. 11 051 _____

_____

_____

_____

27. 15 207

28. 36 963

29. 40 116

30. 823 591

31. 606 277

32. 5 703 460

Write the following numbers in expanded form and as digits:

33. Four Hundred seventy-three

_____

_____

34. One thousand six hundred forty-three

_____

_____

35. Three thousand, five hundred sixty-nine

_____

_____

36. Eight thousand, seventy-eight

_____

_____

37. Sixty-four thousand, one hundred ninety-three

_____

_____

38. Eighty-one thousand, two hundred fifty-seven

_____

_____

39. Two hundred ninety-two thousand, four hundred sixteen

_____

_____

40. Eight hundred seven thousand, six hundred two

_____

_____

41. Seven million, thirty-six thousand, seventy-five

_____

_____

42. Ten million, forty thousand, three

_____

_____

43. Twelve million, three hundred one thousand, sixty

_____

_____

44. Forty million, eight hundred thousand, nine hundred two

_____

_____

45. Thirty-nine million, four hundred fifty two-thousand, seven hundred thirteen

_____

_____

Lesson 2.2: Comparing Whole Numbers

Teaching Strategy

When comparing two numbers only, some learners understand that for greater than and less than, the arrow points to the smaller number. Others will remember best that the Pacman eats the larger number, both ways work.

Learner will see Intro Video as shown below.

When comparing a group of numbers, have the learner write all numbers in columns. They may want to use lined paper and turn sideways as the lines will provide columns for the learners to write in. Ensure the ones places are lined up then the tens and so on.

Introductory Video:

SCAN ME

Want to watch a video of this lesson?

https://youtu.be/nFsQA2Zvy1o

Comparing Two Numbers

We can compare two numbers using the > (greater than) or < (less than) symbols between two numbers of different values. The arrow always points to the smaller number.

Example 1	Use the symbols > or < to compare 42 and 52.
Solution 1	**>** replaces the words **"is greater than"** **<** replaces the words **"is less than"** Since 42 is less than 52, we write 42 < 52.
Example 2	Use > or < to compare 987 and 978.
Solution 2	Since 987 is greater than 978, we write 987 > 978.

Student Example 1

Instructor led

Use > or < to make a true statement.

394 397

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https://youtu.be/9Jg5S7F2SMQ

Arranging Numbers in Order

To arrange a set of numbers in order from greatest to least or from least to greatest, we need to have some idea of the value or size of the numbers.

Example 3	Arrange the numbers **876**, **687**, and **768** from least to greatest.
Solution 3	**8** 7 6 Write the numbers one under the other according to place value. **6** 8 7 All the numbers have a digit in the hundreds place. Of these, the **7** 6 8 least is 6 hundreds, and the greatest is 8 hundreds. From least to greatest, the numbers are 687, 768, and 876.
Example 4	Arrange **2 674**, **987**, **2 746**, and **2 564** from greatest to least.
Solution 4	2 6 7 4 Align the numbers according to place value. 9 8 7 987 has 0 thousands. It is the least number and is written 2 7 4 6 last. 2 5 6 4 The other numbers all have 2 thousands so we must compare digits in the hundreds place. Of these, 7 is the greatest, then 6, then 5. From greatest to least, the numbers are 2 746, 2 674, 2 564, and 987.

Student Example 2

Instructor led

Arrange numbers form least to greatest.

10 315 812 5 642 819 4 329

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https://youtu.be/QutrbD8y-aY

Exercise 2.2

Use the symbols > or < to compare the following pairs of numbers. Questions 1 is done for you.

1. 29 **<** 31
2. 37 34
3. 67 76
4. 95 87
5. 472 462
6. 829 831
7. 976 981
8. 564 565
9. 7 655 7 654
10. 8 220 8 217
11. 5 734 5 647
12. 9 463 9 461
13. 10 398 11 001
14. 4 321 4 389
15. 62 834 62 777
16. 93 461 93 508
17. 333 463 333 469
18. 855 469 854 469
19. 2 761 453 2 762 543
20. 4 613 569 4 613 668

Arrange the following sets of numbers from greatest to least. Questions 21 is done for you.

21. 631 736 7 29

    736 729 631

22. 518 513 618

23. 7 631 6 584 7 583

24. 6 513 6 318 6 515 5 918

25. 79 564 97 365 79 456 97 456

Arrange the following sets of numbers from least to greatest.

26. 651 809 806

27. 756 573 567 576

28. 39 310 39 106 38 107 38 106

29. 89 651 73 809 73 806 88 951

30. Below are the five longest rivers in the world and their lengths in kilometres. Rewrite the **river names** in **ascending order (least to greatest)**.

Yangtze River	6,300 km
Nile River	6,650 km
Mississippi–Missouri River	6,274 km
Yenisei River	5,539 km
Amazon River	6,400 km

Lesson 2.3: Rounding Off Whole Numbers

Teaching Strategy

Rounding is easiest explained to learners by: if the number to the right (behind) the number that is being rounded is 5 or greater the rounded number goes up one and all places behind become zeros. If the number behind is 4 or less the rounded number stays the same and all numbers behind become zeros. A number line can also be used to assist visual learner in understanding the rounding process. Halfway on a number line always rounds up.

Learner will see Intro Video as shown below.

Introductory Video:

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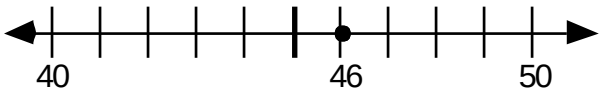
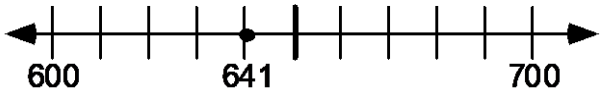
https://youtu.be/fd-E18EqSVk

There are times when absolute accuracy with numbers is not required. For example, the distance from Edmonton to Vancouver is about 1 200 kilometres. This is an approximation, but it is quite acceptable.

To round a given number means to find another number that is close to it. A number line can be used to illustrate the process of rounding.

Example 1	Round 46 to the nearest ten.
Solution 1	 46 is closer to 50 than to 40, so 46 rounds to 50 (the nearest ten).
Example 2	Round 641 to the nearest hundred.
Solution 2	 641 is closer to 600 than to 700, so 641 rounds to 600 (the nearest hundred).

Using a number line as an aid to understanding is fine, but the following rule is more useful.

Rule for Rounding Whole Numbers

1. Locate the place value in the numeral to which the number is to be rounded and draw a box around it.
2. Rewrite all the digits to the left of the box as given.
3. Change all the digits to the right of the box to zeros.
4. If the first digit changed to zero is 5 or more, increase the digit in the box by 1, otherwise write the same digit as was given.

Example 3

Round 876 to the nearest ten.

Solution 3

8 [7] 6	Draw a box around the digit in the tens place.
8 [ ] 0	The digit to the left of the box is rewritten as given (it stays the same), and the digit to the right is changed to zero.
8 **8** 0	Since the first digit changed to zero is 6, the digit in the box is increased by 1.

876 rounded to the nearest 10 is 880.

Example 4

Round 786 599 to the nearest thousand.

Solution 4

7 8 [6] 5 9 9	Draw a box around the digit in the thousands place.
7 8 [ ] 0 0 0	Rewrite the digits to the left of the box, and change the digits to the right to zeros.
7 8 7 0 0 0	Since the first digit changed to zero is 5, the digit in the box is increased by 1.

786 599 rounded to the nearest thousand is 787 000.

Student Example 1

Instructor led

Round 24 259 to the nearest hundred.

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https://youtu.be/_qzs1zozTBo

Student Example 2

Instructor led

Round 423 275 to the nearest thousand.

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https://youtu.be/fh8gkPW_6g4

Exercise 2.3

Round the following numbers to the stated place.

To the nearest 10

1. 65 _____
2. 34 _____
3. 53 _____
4. 99 _____
5. 355 _____
6. 726 _____
7. 894 _____
8. 695 _____
9. 47 102 _____
10. 11 567 _____

To the nearest 100

11. 897 _____
12. 88 _____
13. 48 _____
14. 1 251 _____
15. 56 091 _____
16. 118 293 _____

To the nearest 1 000

17. 5 516 _____
18. 10 003 _____
19. 18 911 _____
20. 264 989 _____
21. 578 449 _____
22. 3 451 551 _____

To the nearest 10 000

23. 600 411 _____

24. 38 384 _____

25. 916 400 _____

26. 99 237 _____

To the nearest 100 000

27. 6 489 732 _____

28. 389 225 _____

29. 5 986 208 _____

30. 64 316 912 _____

Round the numbers below to the place value farthest to the left. This is called **front-end rounding**.

Example: In the number 647 213, the 6 is farthest to the left, so we round the number to the hundred thousands place = 600 000.

Round the following numbers using front-end rounding.

31. 94 _____

32. 365 _____

33. 6 549 _____

34. 3 435 _____

35. 24 932 _____

36. 55 499 _____

37. 650 932 _____

38. 849 465 _____

39. 1 888 465 _____

40. Fatima has a mortgage on her home of $264 956. Round the amount she owes to the nearest ten thousand dollars.

Glossary for this Module

Approximation	Not exact; a number that is close to the exact value
Ascending ↑	Going up; increasing to a higher level, value, or degree
Column	 A line of numbers or words written under each other that goes down a page
Counting	Identifying how many things are present
Descending ↓	Going down; decreasing to a lower level, value, or degree
Digit	Any numeral from 0 to 9. For example, 2 and 8 are digits. The number 256 has three digits. The number 10 000 has five digits.
Even Numbers	Any number that ends in 0, 2, 4, 6, 8.
Front-end rounding	Rounding to the farthest left digit. For example, 187 rounds to 200
Inclusive	Including
Multiples	A number added to itself
Odd Numbers	Any number that ends in 1, 3, 5, 7, 9.
Period	A group name of up to three digits in a number. For example, the number 1 503 764 has 1 in the millions period, 503 in the thousands period, and 764 in the ones (or units) period.
Place value	The value of a place shows what it is worth. In the number 2 819, the place values are 2 000, 800, 10, and 9.
Rounding	Changing a number so that it is more convenient for calculations. For example, rounding 123 to 120
Symbol >	Greater than
Symbol <	Less than
Whole Numbers	Numbers we use for counting

Answer Key

Unit 1

Exercise 1.1

1. 2 two; 3 three; 5 five
2. 1 one; 5 five; 6 six
3. 5 five; 3 three; 8 eight
4. 2 two; 1 one; 3 three
5. 3 three; 1 one; 4 four
6. 4 four; 4 four; 8 eight
7. 7 seven; 2 two; 9 nine
8. 2 two; 2 two; 4 four
9. 5 five; 2 two; 7 seven
10. 4 four; 5 five; 9 nine

Exercise 1.2

1. nineteen
2. fourteen
3. sixteen
4. thirteen
5. eighteen
6. twelve
7. fifteen
8. eleven
9. twenty-seven
10. thirty-six
11. seventy-eight
12. forty-three
13. eighty-nine
14. ninety-six
15. five hundred fourteen
16. nine hundred seventy-two
17. six hundred twenty-three
18. four hundred thirty-five
19. two hundred sixty-four
20. three hundred eighteen

21. 17	22. 15	23. 23	24. 48	25. 65
26. 94	27. 31	28. 88	29. 46	30. 74
31. 233	32. 685	33. 391	34. 555	35. 911
36. 430	37. 716	38. 172	39. 619	40. 868

Exercise 1.3

1. 1 ten and 6 ones; 10 + 6
2. 3 tens and 5 ones; 30 + 5
3. 5 tens and 8 ones; 50 + 8
4. 7 tens and 7 ones; 70 + 7
5. 9 tens and 6 ones; 90 + 6
6. 8 tens and 1 one; 80 + 1
7. 1 hundred, 1 ten and 2 ones; 100 + 10 + 2
8. 2 hundreds, 3 tens and 9 ones; 200 + 30 + 9
9. 4 hundreds, 6 tens and 8 ones; 400 + 60 + 8
10. 2 hundreds, 7 tens and 5 ones; 200 + 30 + 9
11. 6 hundreds, 2 tens and 4 ones; 600 + 20 + 4
12. 7 hundreds, 9 tens and 7 ones; 700 + 90 + 7
13. 5 hundreds, 7 tens and 4 ones; 500 + 70 + 4
14. 8 hundreds, 6 tens and 9 ones; 800 + 60 + 9
15. 9 hundreds, 4 tens and 3 ones; 900 + 40 + 3

Exercise 1.4

1. 6, 8, 10, 24, 44, 126
2. 35, 257, 69, 457
3. a. 8 b. 4 c. 40 d. 222 e. 58 f. 92 g. 86 h. 366
4. a. 7 b. 13 c. 41 d. 449 e. 81 f. 25 g. 109 h. 903
5. a. 8, 10, 12, 14 b. 15, 17, 19, 21 c. 24, 28, 32, 34
6. 21, 23, 25, 27, 29, 31, 33, 35
7. 86, 88, 90, 92, 94, 96, 98, 100, 102
8. 9 016 320

Exercise 1.5

1. 2, 4, 6, 8,10, 12, 14, 16, 18, 20
2. 3, 6, 9, 12, 15, 18, 21, 24, 27, 30
3. 4, 8, 12, 16, 20, 24, 28, 32, 36, 40
4. 5, 10, 15, 20, 25, 30, 35, 40, 45, 50
5. 6, 12, 18, 24, 30, 36, 42, 48, 54, 60
6. 7, 14, 21, 28, 35, 42, 49, 56, 63, 70
7. 8, 16, 24, 32, 40, 48, 56, 64, 72, 80
8. 9, 18, 27, 36, 45, 54, 63, 72, 81, 90
9. 10, 20, 30, 40, 50, 60, 70, 80, 90, 100
10. 45, 50, 55, 60, 65, 70
11. 300, 400, 500, 600, 700, 800
12. a. 20, 25, 30 b. 16, 24, 28, 32 c. 15, 21, 24 d. 10, 12, 16
    e. 42, 54, 66, 72 f. 24, 18, 15, 9 g. 225, 250, 300, 325
    h. 850, 750, 700, 600 i. 24, 16, 12, 8

Unit 2

Exercise 2.1

1. 4 2. 8 3. 6 4. 0 5. 7 6. 1
7. thousands 8. units or ones 9. millions
10. 3 11. 7 12. 5 13. 9 14. 8 15. 2 16. 0
17. units or ones 18. millions 19. thousands
20. 300 +10 + 9;Three hundred nineteen
21. 800 + 80 +5; Eight hundred eighty-five
22. 1 000 + 200 + 50 + 4; One thousand, two hundred fifty-four
23. 6 000 + 400 + 5; Six thousand, four hundred five
24. 7 000 + 200 + 30 + 8; Seven thousand, two hundred thirty-eight
25. 9 000 + 700 + 80 + 2; Nine thousand, seven hundred eighty-two
26. 10 000 + 1 000 + 50 + 1; Eleven thousand, fifty-one
27. 10 000 + 5 000 + 200 + 7; Fifteen Thousand, two hundred seven
28. 30 000 + 6 000 + 900 + 60 + 3; Thirty-six Thousand, nine hundred sixty-three
29. 40 000 + 100 + 10 + 6; Forty Thousand, one hundred sixteen

30. 800 000 + 20 000 + 3 000 + 500 + 90 + 1; Eight hundred twenty-three thousand, five hundred ninety-one

31. 600 000 + 6 000 + 200 + 70 + 7; Six hundred six thousand, two hundred seventy-seven

32. 5 000 000 + 700 000 + 3 000 + 400 + 60; Five million, seven hundred three thousand, four hundred sixty

33. 400 +70 + 3; 473

34. 1 000 + 600 + 40 + 43; 1 643

35. 3 000 + 500 + 60 + 9; 3 569

36. 8 000 + 70 + 8; 8 078

37. 60 000 + 4 000 + 100 + 90 + 3; 64 193

38. 80 000 + 1 000 + 200 + 50 + 7; 81 257;

39. 200 000 + 90 000 + 2 000 + 400 + 10 + 6; 292 416

40. 800 000 + 7 000 + 600 + 2; 807 602

41. 7 000 000 + 30 000 + 6 000 + 70 + 5; 7 036 075

42. 10 000 000 + 40 000 + 3; 10 040 003

43. 10 000 000 + 2 000 000 + 300 000 + 1 000 + 60; 12 301 060

44. 40 000 000 + 800 000 + 900 + 2; 40 800 902

45. 30 000 000 + 9 000 000 + 400 000 + 50 000 + 2 000 + 700 + 10 + 3; 39 452 713

Exercise 2.2

1. < 2. > 3. < 4. > 5. > 6. < 7. < 8. < 9. > 10. >

11. > 12. > 13. < 14. < 15. > 16. < 17. < 18. > 19. < 20. <

21. 736, 729, 631 22. 618, 518, 513 23. 7 631, 7 583, 6 584

24. 6 515, 6 513, 6 318, 5 918 25. 97 456, 97 365, 79 564, 79 456

26. 651, 806, 809 27. 567, 573, 576, 756

28. 38 106, 38 107, 39 106, 39 310 29. 73 806, 73 809, 88 951, 89 651

30. Yenisei , Mississippi, Yangtze , Amazon , Nile

Exercise 2.3

1.	70	2.	30	3.	50	4.	100	5.	360
6.	730	7.	890	8.	700	9.	47 100	10.	11 570
11.	900	12.	100	13.	0	14.	1 300	15.	56 100
16.	118 300	17.	6 000	18.	10 000	19.	19 000	20.	265 000
21.	578 000	22.	3 452 000	23.	600 000	24.	40 000	25.	920 000
26.	100 000	27.	6 500 000	28.	400 000	29.	6 000 000	30.	64 300 000
31.	90	32.	400	33.	7 000	34.	3 000	35.	20 000
36.	60 000	37.	700 000	38.	800 000	39.	2 000 000	40.	$260 000