

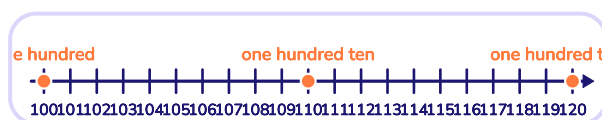
Place Value to 120: math lesson, Grade 1 – download the PDF

Numbers get big fast! In this chapter you will learn how to count, build, read, write, and compare numbers all the way to 120. The secret is place value: every digit in a number has a job, and the job depends on where the digit sits. By the end you will be able to look at any number up to 120 and tell exactly how many tens and ones it holds.

1. Counting to 120 by ones

You can start counting at any number and keep going. Each time you count on by one, the number gets one bigger. The ones digit goes 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. After 9 there are no more single digits, so we trade ten ones for one new ten and start the ones over at 0.

That is why 39 is followed by 40, and why 99 is followed by 100. After 100 we keep the pattern going: 101, 102, 103, and so on up to 109. Then comes 110, 111, and finally 120, which is the end of our counting road in this chapter.



E**Example 1: counting on**

Start at 58 and count on five numbers.

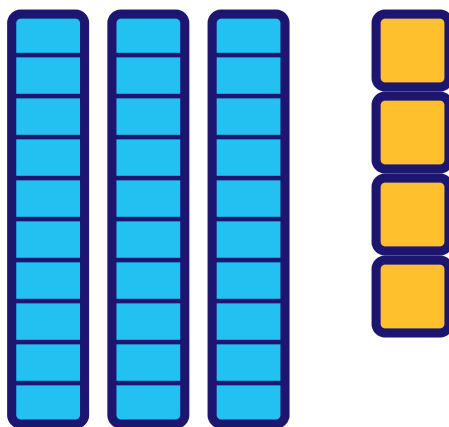
58, 59, 60, 61, 62, 63. Look at the ones digits: 8, 9, 0, 1, 2, 3. After 9 the ones digit started over at 0 and the tens digit went from 5 to 6.

2. Tens and ones**D****Tens and ones**

A two-digit number is made of **tens** and **ones**. The left digit tells how many tens. The right digit tells how many ones. For example, 34 has 3 tens and 4 ones, so

$$34 = 30 + 4.$$

A group of ten ones can be joined into one rod called a ten. Look at the picture below: three rods and four little cubes show the number 34.

**3 tens and 4 ones**

Number	Tens	Ones	Expanded form
25	2	5	$20 + 5$
48	4	8	$40 + 8$
70	7	0	$70 + 0$
91	9	1	$90 + 1$



Careful with zero

The number 40 has 4 tens and 0 ones. The zero is not empty talk: it is a place holder that shows there are no ones. If you left it out, you would only see the digit 4, which is a very different number!

3. Bundling tens with objects

Real objects can be bundled too. If you have many pencils, straws, or stickers, you can make groups of ten. Each full group is one ten, and the pieces left over are the ones.



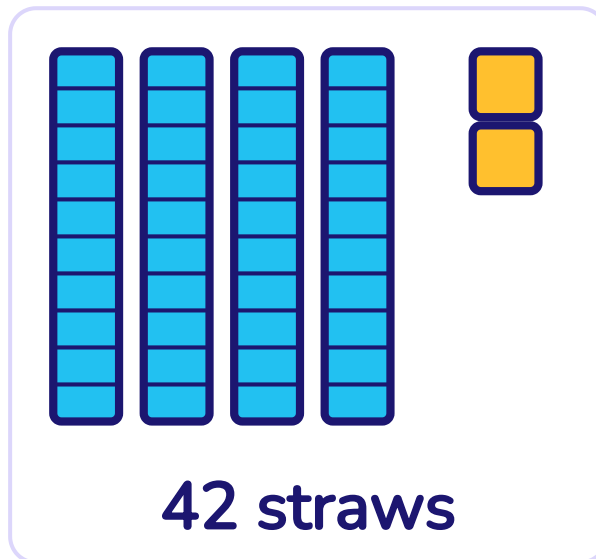
How to find tens and ones in a pile

1. Make groups of 10 objects. Put a rubber band around each group.
2. Count the groups. That is the number of tens.
3. Count the loose objects. That is the number of ones.
4. Write the tens digit first, then the ones digit.

E**Example 2: bundling straws**

Noah has 42 straws. He makes bundles of ten.

He can make 4 bundles of ten, and 2 straws are left over. So 42 is 4 tens and 2 ones.



When you add loose ones, watch for a new ten. If Noah finds 8 more straws, he has $2 + 8 = 10$ loose straws. Those make one more bundle! Now he has 5 tens and 0 ones, which is 50.

4. Reading and writing numbers to 120

We say numbers with words, and we write them with digits. The tens have special names: ten, twenty, thirty, forty, fifty, sixty, seventy, eighty, ninety. For a number like 67, say the tens word and then the ones word: sixty-seven.

Digits	Words
12	twelve
40	forty
67	sixty-seven
100	one hundred
113	one hundred thirteen
120	one hundred twenty

Numbers above 99 start with the words one hundred. Ten tens make one hundred. So 100 has 10 tens and 0 ones. The number 115 can be read as one hundred fifteen, and it has 11 tens and 5 ones. The number 120 has 12 tens and 0 ones.



Teen and ty numbers

Fourteen and forty sound alike, but they are not the same. Fourteen is 14 (1 ten and 4 ones). Forty is 40 (4 tens and 0 ones). Also, 61 and 16 use the same digits but mean different numbers. Always check which digit is in the tens place.

5. Counting by tens

When you count by tens, each step adds one whole ten. The tens digit goes up by one and the ones digit stays 0: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120.



Example 3: boxes of markers

Each box holds 10 markers. Maya has 6 boxes. How many markers is that?

Count by tens, one box at a time: 10, 20, 30, 40, 50, 60. Maya has 60 markers.

Counting by tens is a fast way to count big collections. Group by ten first, then count the groups, and last add the loose ones.

6. Using a hundred chart

A hundred chart lists the counting numbers in rows of ten. Our chart goes all the way to 120. The numbers that end in 0 are shaded so you can see them line up on the right side of every row.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120



Moving on the chart

- Move one square to the right: the number is 1 more.
- Move one square to the left: the number is 1 less.
- Move one row down: the number is 10 more.
- Move one row up: the number is 10 less.



Zyro's tip

On my home planet we hop down a hundred chart like stepping stones. One hop down is always ten bigger, so I never lose my place!

7. Ten more and ten less

To find ten more, add one to the tens digit. To find ten less, take one away from the tens digit. In both cases the ones digit does not change.



Example 4: ten more, ten less

Start at 45. Ten more is 55, because 4 tens become 5 tens. Ten less is 35, because 4 tens become 3 tens. The 5 ones stay the same in both answers.

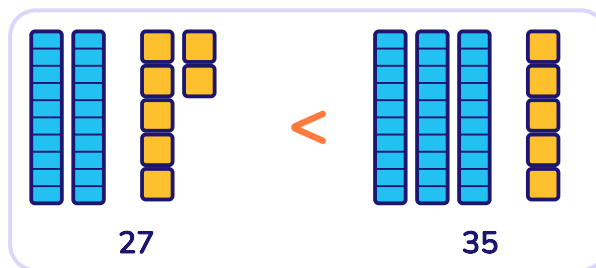
Be ready for numbers near 100. Ten more than 98 is 108, because 9 tens and 1 more ten make 10 tens. Ten less than 100 is 90. Ten less than 110 is 100. Ten more than 110 is 120.

8. Comparing two-digit numbers

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How to compare two numbers

1. Look at the tens digits first. The number with more tens is greater.
2. If the tens are the same, compare the ones digits.
3. Choose the symbol: $>$ means greater than, $<$ means less than, and $=$ means equal to.



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Example 5: comparing

Compare 27 and 35. Look at the tens: 2 tens is less than 3 tens, so **$27 < 35$** .

Now compare 62 and 68. Both have 6 tens, so look at the ones: 2 is less than 8, so **$62 < 68$** .

!

Remember the symbol

The open side of the symbol always faces the bigger number, like a hungry mouth that wants the bigger snack.



Do not stop at the ones

Some people see that 9 is greater than 1 and say $39 > 41$. That is wrong! Always start with the tens. Since 3 tens is less than 4 tens, $39 < 41$.

Key takeaways

- Count on from any number to 120. After 99 comes 100, and 120 is the last number in this chapter.
- In a two-digit number, the left digit is the tens and the right digit is the ones:
 $34 = 30 + 4$.
- Ten ones make one ten, and ten tens make one hundred.
- Bundle objects in groups of ten to count them: the bundles are tens and the loose objects are ones.
- When you count by tens, the tens digit goes up by one and the ones digit stays 0.
- On a hundred chart, one row down is 10 more and one row up is 10 less.
- Compare tens first, then ones, and use $>$, $<$, or $=$.



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