

Looking at Number & Place Value

Marian Small
October 2015



Grade 1

- Count to and skip count by 2s, 5s, and 10s across 120, forwards and backwards, beginning with 0 or 1, or from any given number (USA) (Extend to 3s)



I care about

- Why is it called skip counting?
- Do you skip more numbers when you count by 2s, 5s or 10s?
- Why are there patterns? What are they?
- What would you skip count to get to a number fast? Why?



Grade 1

- **Count, recognize, model, read, write, and order numbers to 120 in numerals, using the $<$, $>$ and $=$ signs**



What I care about

- Notion of counting in subgroups
- Notion that except for the first few small numbers, there are **ALWAYS** many ways to model
-



What I care about

- How many words do I say to read the number?
- What makes one number more than another?



Grade 1

- Recognise the place value of each digit in a two-digit number (10s, 1s)



I might ask

- I switch the two-digits of a two-digit number and the values are 27 apart.
- What could the numbers have been?



Grade 1

- Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases.....



Grade 1

- 10 can be thought of as a bundle of ten ones — called a “ten”
- The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones



Grade 1

- The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones)



Grade 1

- Given a number, identify one more and one less; given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used



I might ask

- Why is adding 10 to 45 SO much easier than adding, say 7?



Or

- I might show a hundred chart and ask why adding ten is SO easy.



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



Grade 1

- Identify, represent and estimate numbers using different representations, including the number line (UK), and use the language of: equal to, more than, less than (fewer), most, least



So I might ask

- What numbers do you think these might be?





Grade 1

- Use place value and number facts to solve problems



I might ask

- A two-digit number has a LOT more tens than ones.
- Name some numbers it could be.
- Name some numbers it could not be.



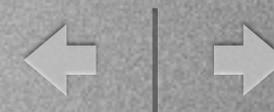
Grade 2

- **Count from 0 in multiples of 50 and 100; find 10 or 100 more or less than a given number**



I could ask

- I added 100 to a number.
- What can you be sure of even if you don't know what my number was?



Grade 2

- Understand the place value of each digit in a three-digit number (100s, 10s, 1s), for example, 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:



Grade 2

- 100 can be thought of as a bundle of ten tens — called a “hundred”
- The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones)



I could ask

- A number has a hundreds digit 2 more than the tens digit and 1 less than the ones digit.
- What could the number be?



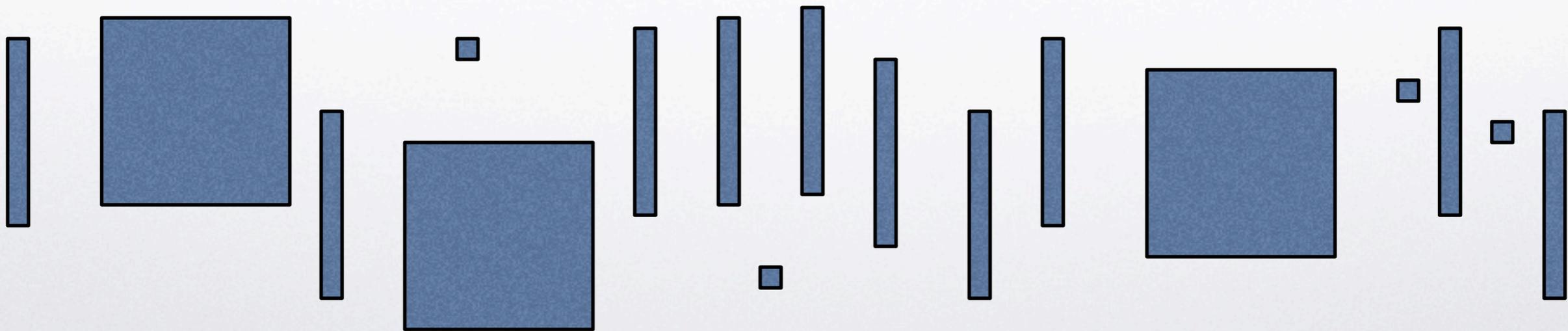
Grade 2

- **Group, partition, and rearrange collections up to 1000 in hundreds, tens, and ones to facilitate more efficient counting**



I might ask

- How would you count how much there is?





Grade 2

- Compare and order numbers up to 1,000 using $<$, $>$ and $=$ signs



I might ask

- Which is **PROBABLY** more?
- $3 \frac{1}{4}$ or $\frac{1}{99}$?



Grade 2

- **Identify, represent and estimate numbers using different representations, including the number line**



What matters here

- Different representations show different things



So how might you represent 125

- To see that it's a bunch of 25s
- To see that it's more than 100
- To see that it's a cubic number
- To see that it's between 100 and 200?



Grade 2

- Read and write numbers up to 1,000 in numerals and in words



I might ask

- A number includes the word **twenty** and the word **three** when you read it.
- What could it be?



Grade 2

- Solve number problems and practical problems involving these ideas



I might ask

- You reverse the digits of a 3-digit number and subtract one number from the other.
- Then you reverse those digits and add.
- What happens?



Grade 3

- **Count in multiples of 6, 7, 9, 25 and 1,000**



I might ask

- I counted by 6, 7, 9, and 25 starting at 0.
- Could I have said the same number in three of those counts?



Grade 3

- Find 1,000 more or less than a given number



I might ask

- I add 1000 to (or subtract 1000 from) a number.
- Could the number of digits change? When? How?



Grade 3

- Count backwards through 0 to include negative numbers



I might ask

- I count backwards and hit a negative number pretty quickly. Where did I start?



Grade 3

- Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)



I might ask

- How many tens are in 3124?
- Is it 2?
- Is it 312?



Grade 3

- Order and compare numbers beyond 1,000



I might ask

- A number with a LOT of 9s is less than a number with a LOT of 1s.
- How is that possible?



Grade 3

- **Identify, represent and estimate numbers using different representations**



I might ask

- I use exactly 12 base ten blocks to represent a number.
- What might it be?



Maybe

- 93 84 75 66 57
- 903 921 813 822 444
- 1083 2442 1704 9012 8400
- 12 21 120 1200 2100
- 1002 3000 210



Grade 3

- Use place value understanding to round whole numbers to the nearest 10, 100 or 1,000



I might ask

- A number has to be increased to round to the nearest 10 but decreased to round to the nearest 100.
- What could it be?



I might ask

- A number ends up the same when you round to the nearest 10 or nearest 100.
- What could it be?



Grade 3

- Solve number and practical problems that involve all of the above and with increasingly large positive numbers



Grade 3

- Read and understand roman numerals to 10 and extend the pattern to include L (50) and C (100).
- Know that over time, the numeral system changed to include the concept of 0 and place value



I might ask

- A Roman numeral requires 3 symbols.
- What could it be?



Grade 4

- Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.
- Know that over time, the numeral system changed to include the concept of 0 and place value



I might ask

- It takes exactly 5 words to read a number.
What might it be?



I might ask

- Why does a 5-digit number **HAVE** to be less than a 4-digit number?



Grade 4

- **Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000**



Grade 4

- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0



Grade 4

- Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right



I might ask

- A number includes two 7 digits and two 4 digits.
- One 7 is worth 100 times as much as the other.
- One 4 is worth 10 times as much as the other.
- What could it be?



Grade 4

- Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000



Grade 4

- Identify, represent and estimate numbers using different representations (for example 240 is the same as 24 tens)



Grade 4

- Solve number problems and practical problems that involve Ma.4a to Ma.4f



Grade 4

- Read roman numerals to 1,000 (M) and recognise years written in Roman numerals



Grade 5

- Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit



Grade 5

- Round any whole number to a required degree of accuracy



Grade 5

- Use negative numbers in context, and calculate intervals across 0



I might ask

- Two opposite integers are 24 apart.
- What are the numbers?



Grade 5

- Solve number and practical problems that involve all of the above



Grade 6

- Understand and use place value for decimals, measures and integers



Grade 6

- Interpret and compare numbers in standard form



Download

- www.onetwoinfinity.ca
- SingaporeLeaders