Geometry & Measurement

Assessment through Engagement

Planning for the New *Grade 1* Math

April - June, 2023

Provincial Session 5

April 18

Review Number Outcomes
Goal of Mastery to 1000

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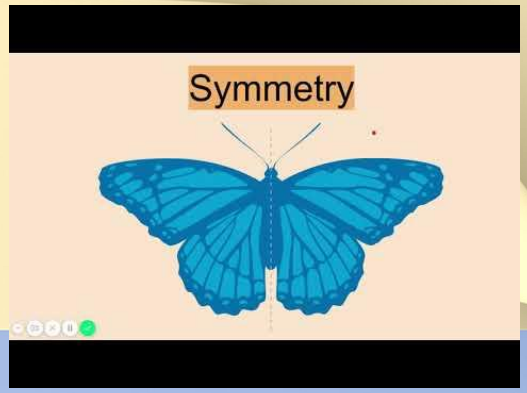
Central Alberta Regional Consortium
Working Together: Making a Difference

Land Acknowledgment

We respectfully acknowledges that we are situated on Traditional lands across the province of Alberta home to many First Nations, including the Cree, Blackfoot, Métis, Nakota Sioux, Saulteaux, Inuit, and many others whose histories, languages, and cultures continue to influence our vibrant community.

March	April
Time: Duration is described and quantified with time.	
1T1. Students explain time in relation to cycles. • Time is an experience of change. • Time can be perceived as a cycle	1T1. Students explain time in relation to cycles. • Time is an experience of change. • Time can be perceived as a cycle
Geometry: Shapes are defined by geometric attributes.	
	1G1. Students interpret shape in two and three dimensions. • A shape can be modeled in various sizes and orientations. • A shape is symmetrical if it can be decomposed into matching halves (fractions)
Statistics: The science of collecting, analyzing, visualizing and interpreting data can inf	
1ST1. Students investigate and represent data. • Data can be answers to questions. May wish to do Stats all year and integrate into Science.	1ST1. Students investigate and represent data. • Data can be answers to questions. 1ST1.2 Students investigate and represent data. • Data can be represented in a graph.



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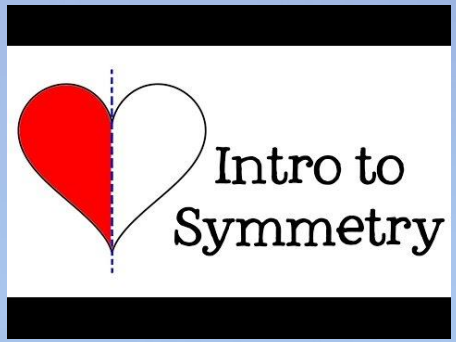

2:35 min

How can quantity be communicated?

1N1.1 Students interpret and explain quantities to 100.

Knowledge	Understanding	Skills & Procedures
A numeral is a symbol or group of symbols used to represent a number. The absence of quantity is represented by 0.	Quantity is expressed in words and numerals based on patterns. Quantity in the world is represented in multiple ways.	Represent quantities using words, numerals, objects, or pictures. Identify a quantity of 0 in familiar situations.

1N1.2 Students interpret and explain quantities to 100.

Knowledge	Understanding	Skills & Procedures
Counting can begin at any number. Counting more than one object at a time is called skip counting.	Each number counted includes all previous numbers (counting principle: hierarchical inclusion). A quantity can be determined by counting more than one object in a set at a time.	Count within 100, forward by 1s, starting at any number, according to the counting principles. Count backward from 20 to 0 by 1s. Skip count to 100, forward by 5s and 10s, starting at 0. Skip count to 20, forward by 2s, starting at 0.

Subitizing Cards

Number Line Game

5's on a number line 5's in fish Borders
10's build a flower animal line feet

Number lines Sparklebox

Let's give it a try!

Dominos

Dice

Subitizing

Steve Wyborney: Subitizing Slide Decks to Download

May	June
and operating.	
1N1.2 Students interpret and explain quantities to 100. • Each number counted includes all previous numbers (counting principle: hierarchical inclusion) • A quantity can be determined by counting more than one object in a set at a time	1N1.2 Students interpret and explain quantities to 100. • Each number counted includes all previous numbers (counting principle: hierarchical inclusion) • A quantity can be determined by counting more than one object in a set at a time
1N1.3 Students represent equal sharing and grouping of quantities within 20. • Quantity can be partitioned by sharing or grouping.	1N1.3 Students represent equal sharing and grouping of quantities within 20. • Quantity can be partitioned by sharing or grouping.
1N1.5 Students interpret and explain quantities to 100. • Two quantities are equal when there is the same number of objects in both sets. • Equality is a balance between two quantities.	1N1.5 Students interpret and explain quantities to 100. • Two quantities are equal when there is the same number of objects in both sets. • Equality is a balance between two quantities.
1N2.1 Students examine addition and subtraction within 20. • Addition and subtraction are processes that describe the composition and decomposition of quantity.	1N2.1 Students examine addition and subtraction within 20. • Addition and subtraction are processes that describe the composition and decomposition of quantity.

1N2.1 Students examine addition and subtraction within 20.		
Knowledge	Understanding	Skills & Procedures
Quantities can be composed or decomposed to model a change in quantity. Addition can be applied in various contexts, including • combining parts to find the whole • increasing an existing quantity Subtraction can be applied in various contexts, including • comparing two quantities • taking away one quantity from another • finding a part of a whole Addition and subtraction can be modelled using a balance.	Addition and subtraction are processes that describe the composition and decomposition of quantity.	Visualize quantities between 10 and 20 as compositions of 10 and another quantity. Model addition and subtraction within 20 in various ways, including with a balance. Relate addition and subtraction to various contexts involving composition or decomposition of quantity.

Combining parts can also include decitracks and Cuisenaire Rods.

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Mathigon

May	June
• Addition and subtraction can show a change in quantity through joining, separating, or comparing. 1N2. 3 Students acquire an understanding of addition and subtraction within 20. • Addition number facts have related subtraction number facts. 1N3. Students examine one-half as part-whole relationship. • In a quantity partitioned into two equal groups, each group represents one-half of the whole quantity. • In a shape or object partitioned into two identical pieces, each piece represents one-half of the whole.	• Addition and subtraction can show a change in quantity through joining, separating, or comparing. 1N2. 3 Students acquire an understanding of addition and subtraction within 20. • Addition number facts have related subtraction number facts. 1N3. Students examine one-half as part-whole relationship. • In a quantity partitioned into two equal groups, each group represents one-half of the whole quantity. • In a shape or object partitioned into two identical pieces, each piece represents one-half of the whole.
1ST1. Students investigate and represent data. • Data can be answers to questions. 1ST1.2 Students investigate and represent data. • Data can be represented in a graph.	1ST1. Students investigate and represent data. • Data can be answers to questions. 1ST1.2 Students investigate and represent data. • Data can be represented in a graph.

1N2.3 Students examine addition and subtraction within 20.

Knowledge	Understanding	Skills & Procedures
Addition and subtraction number facts represent part- part-whole relationships. Fact families are groups of related addition and subtraction number facts.	Addition number facts have related subtraction number facts.	Identify patterns in addition and subtraction, including patterns in addition tables. Recognize families of related addition and subtraction number facts. Recall addition number facts, with addends to 10, and related subtraction number facts.

Money APP

In what ways can parts and wholes be related?		
1N3 Students examine one-half as a part-whole relationship.		
Knowledge	Understanding	Skills & Procedures
One-half can be one of two equal groups or one of two equal pieces.	In a quantity partitioned into two equal groups, each group represents one- half of the whole quantity. In a shape or object partitioned into two identical pieces, each piece represents one- half of the whole.	Identify one-half in familiar situations. Partition an even set of objects into two equal groups, limited to sets of 10 or less. Partition a shape or object into two equal pieces. Describe one of two equal groups or pieces as one-half. Verify that the two halves of one whole group, shape, or object are the same size.

Quantities to 20

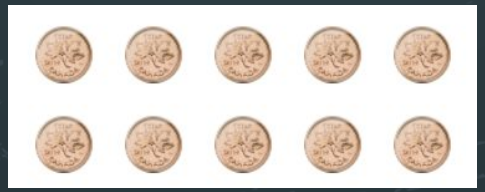
Equal Partitioning

Compose 16

Your Choice

One number is 10

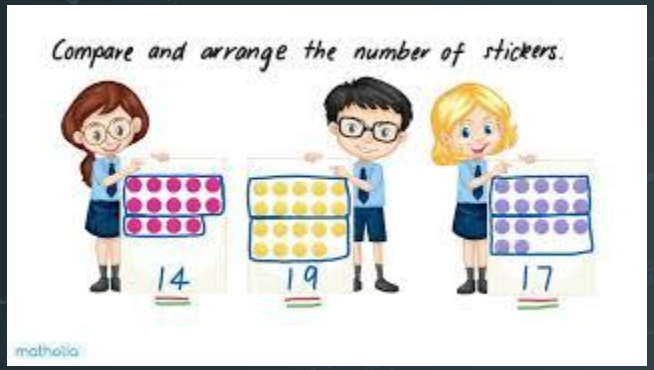
OR



One number is 8

Or they roll a number and that's where they build from

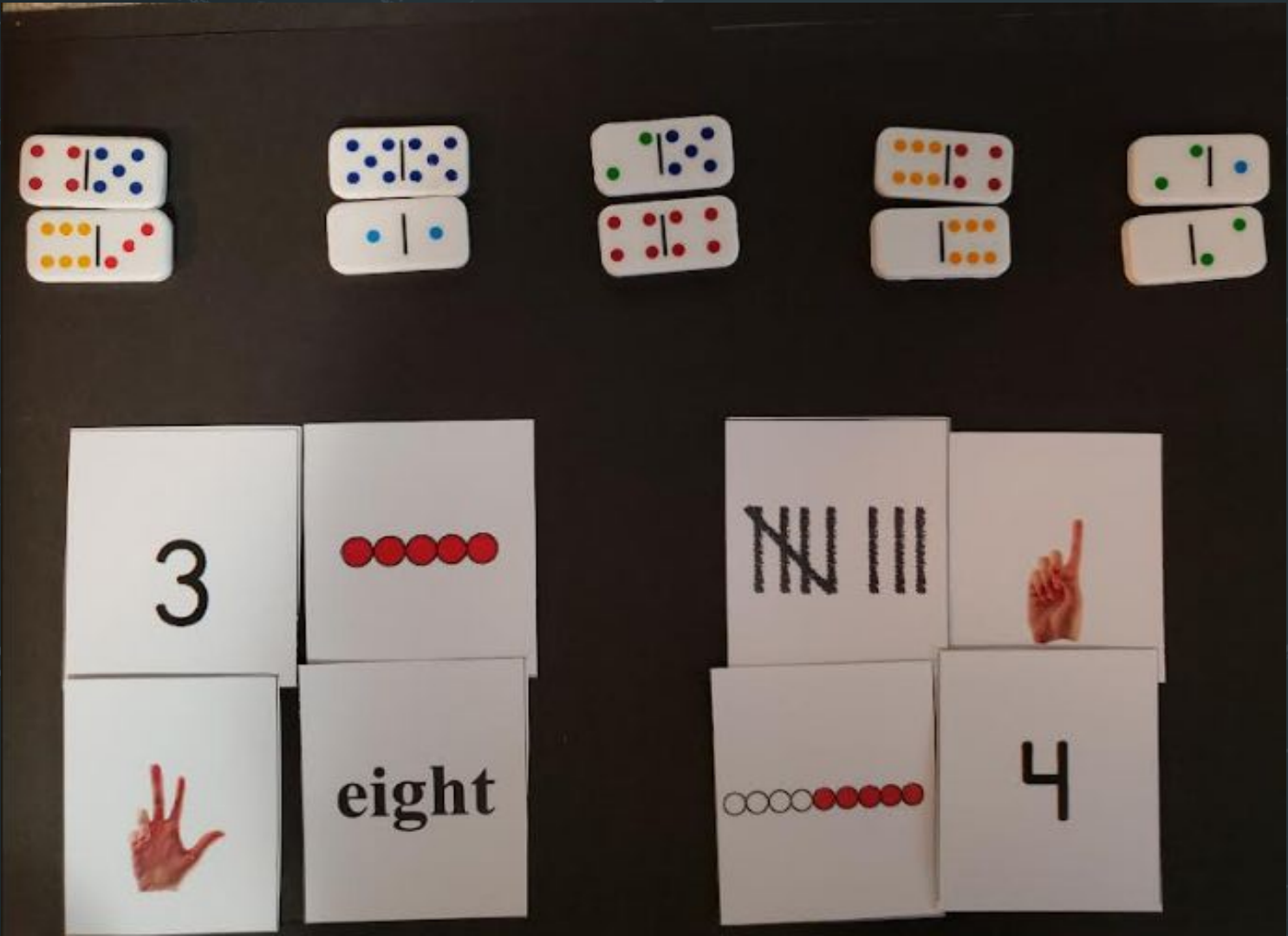
How could you use cuisenaire rods and deci tracks to prompt thinking to make 16?



Quantities to 20

Sorting least to greatest - 100

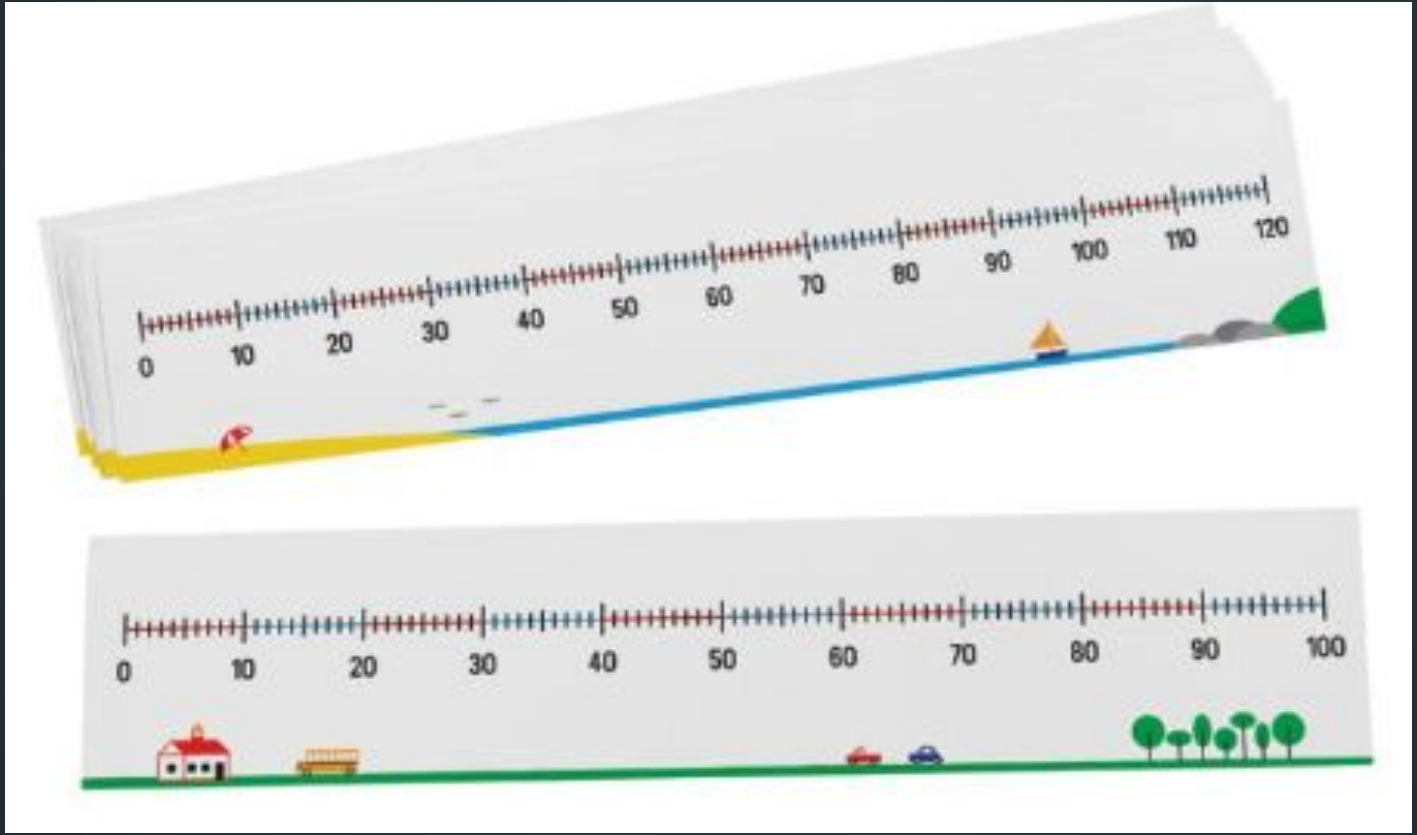
Comparative Language



Same addition questions only students have input. Differentiate cards and dominos based on level of ability.

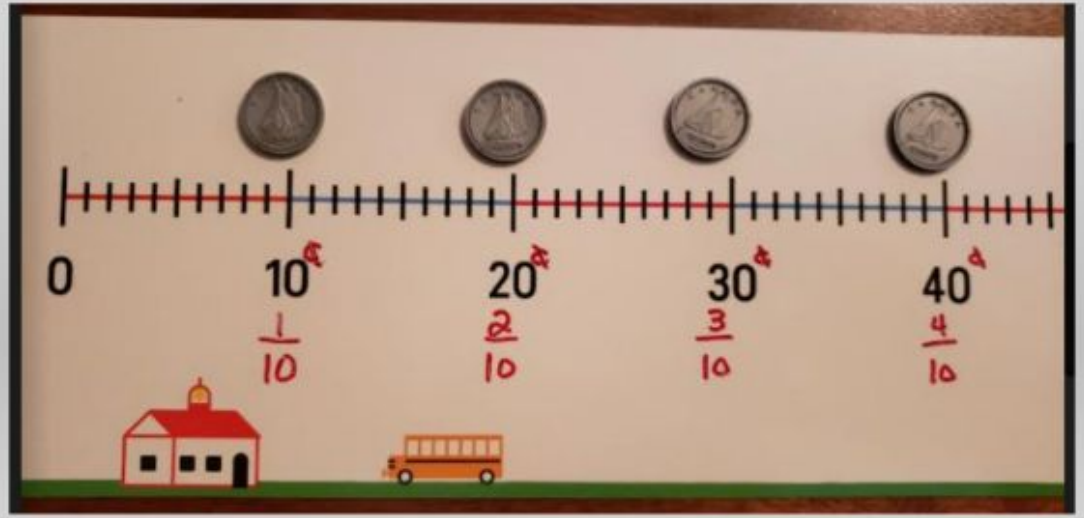
Which domino has the greatest sum? Which 2 digit number is the greatest? Least?

Didax Numberline



Comparing Numbers on a number line.


0
10¢
1/10
20¢
2/10
30¢
3/10
40¢
4/10
50¢
5/10
60¢
6/10
70¢
7/10
80¢
8/10
90¢
9/10
100¢
10/10


0
10¢
1/10
20¢
2/10
30¢
3/10
40¢
4/10

1	2	3	4	5	6	7	8	9	10

1	2	3	4	5	6	7	8	9	10

1	2	3	4

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

1ST1. Students investigate and represent data.

- Data can be answers to questions.

1ST1.2 Students investigate and represent data.

- Data can be represented in a graph.

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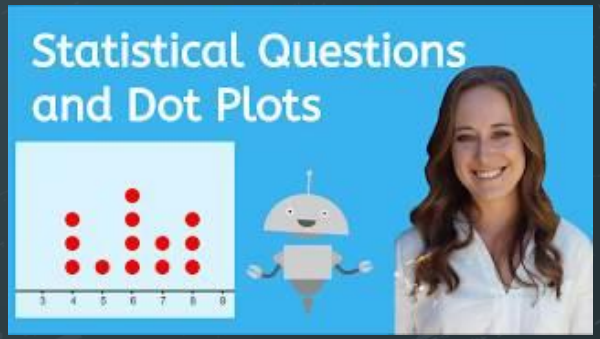
What makes a good statistical question?



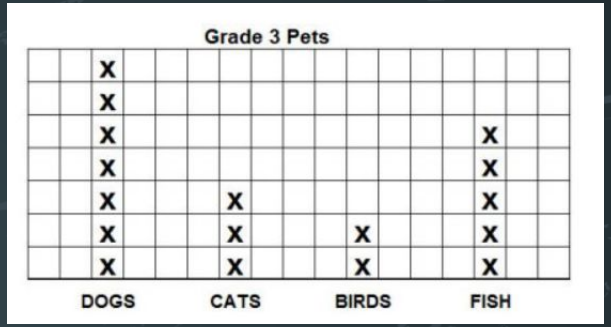
Intro to Statistical Questions and Dot Plots: more terminology than needed for grade 1 but a good review for us!

What good statistical question could we ask?

Our Favourite Sports

Sport	Tally	Number of Students
Hockey	𝍸 I	6
Soccer	𝍸	5
Basketball	IIII	4
Gymnastics	II	2

What is the most favorite sport of students in our Grade 1class?

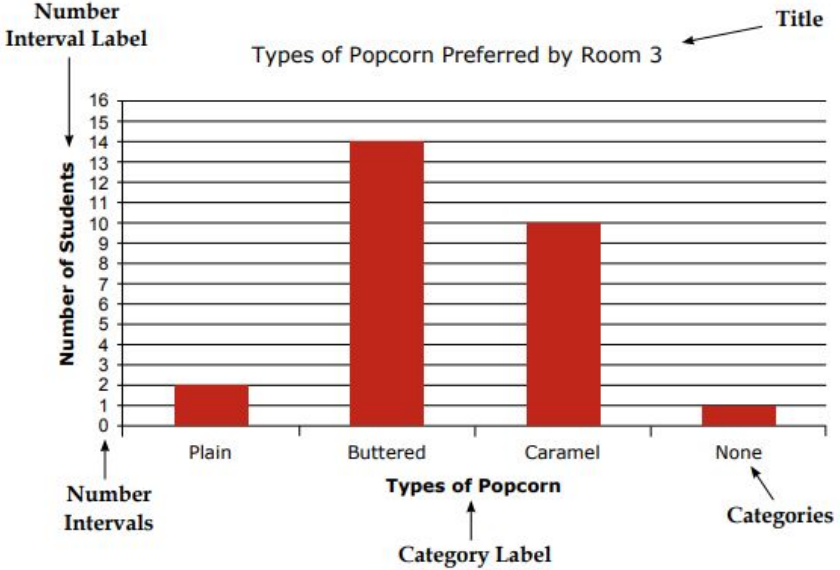


What is the most common type of pet owned by Grade 1 students?

What other questions could be generated?

Bar Graph: A bar graph is a graph that uses horizontal or vertical bars to display data.

Example:



A bar graph needs the following labels:

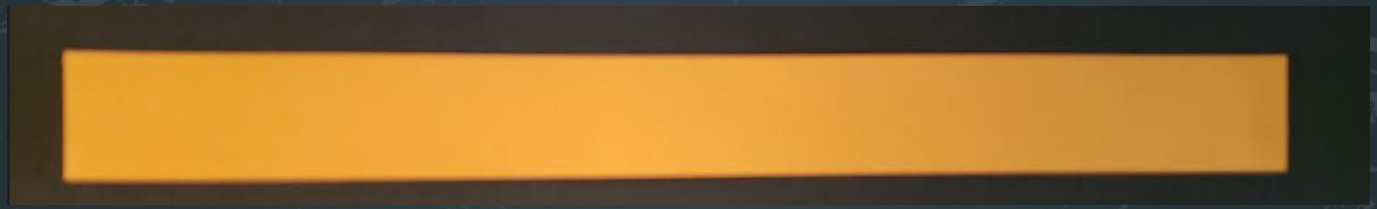
- title
- categories
- category label
- number intervals (Note: Numbers are labelled on the line not the space.)
- number interval label

Generally the data graphed at the elementary level is discrete data (data attained by counting in whole numbers). In this case, there are always spaces left between the bars.

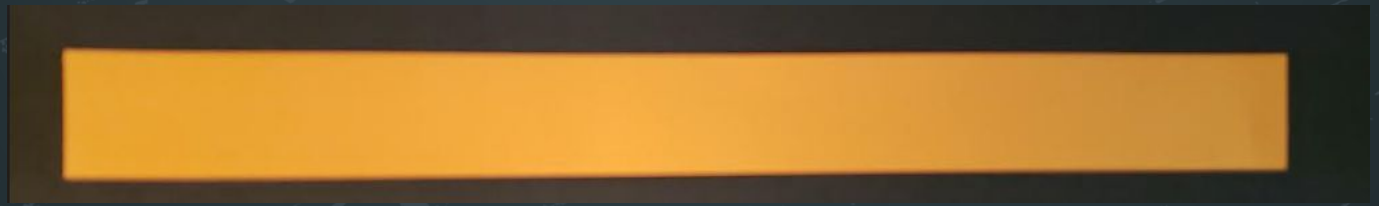
What question could Grade 1 ask?

- Create a fraction strip that has eighths
- Create a fraction strip that has 10 pieces (tenths)
- sixths

Model - let's do eighths.

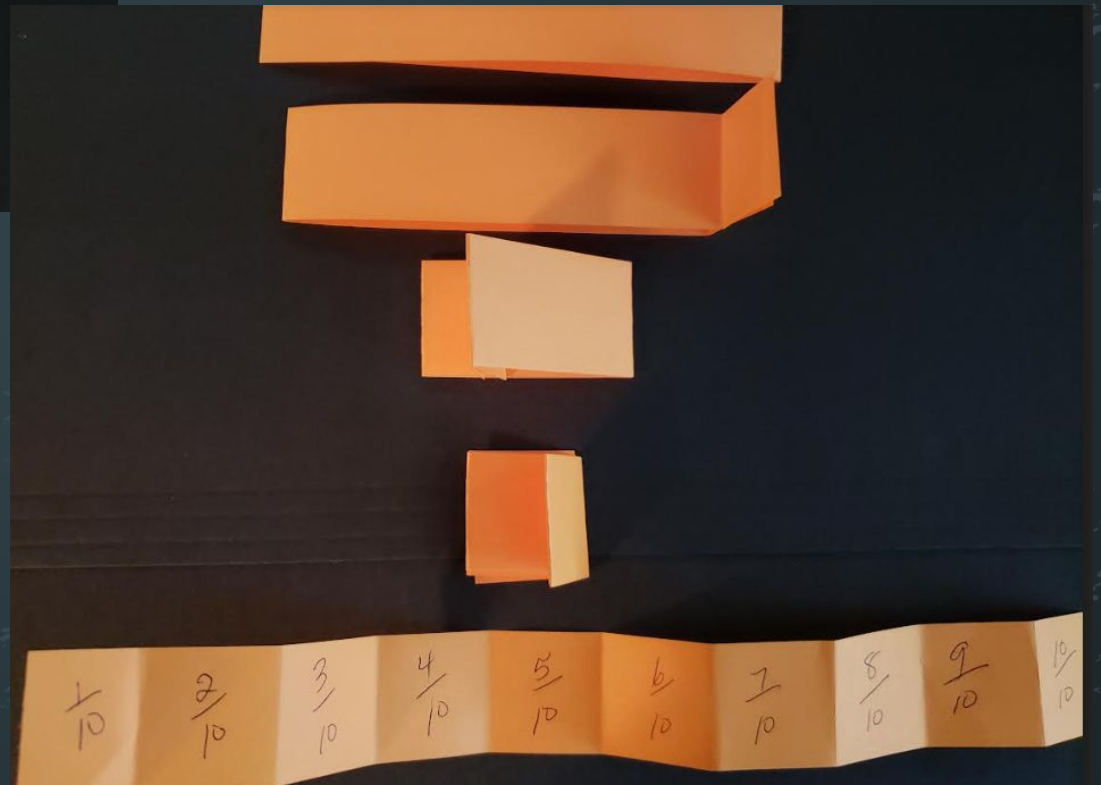


This strip to be turned into tenths



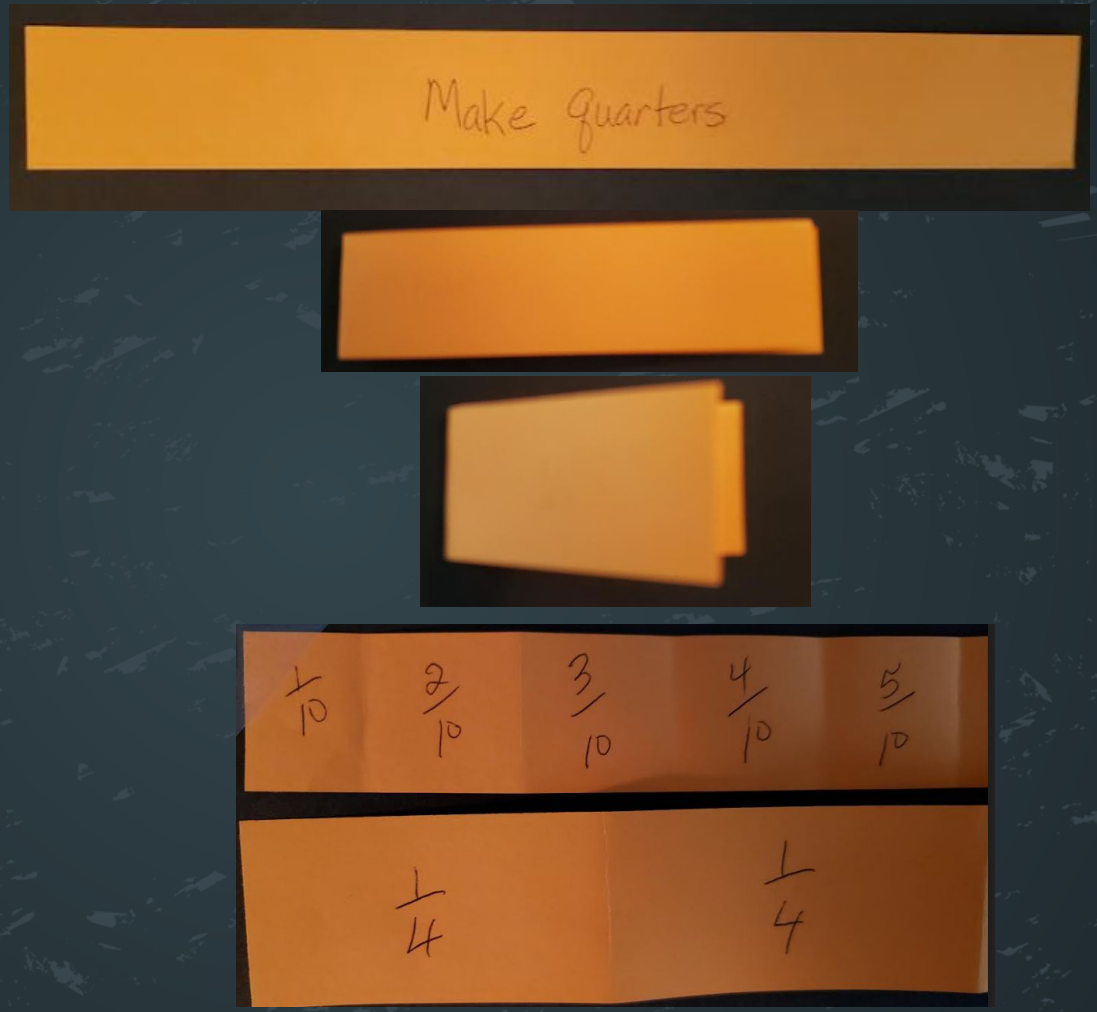
Step 2 - fold in half. How many pieces does this represent?

Step 3. Need an even value for the length so change 5 to 4.


1/10
2/10
3/10
4/10
5/10
6/10
7/10
8/10
9/10
10/10

Compare 1/10 and ¼

- If this is money
- Using paper strips
- Using models



Continuing with Number (100) - critical thinking competency

Pick a range of number you can draw from.

On one card place a zero and clip it to the end of your line.

Take two random numbers

Resources

Math Toolbox - interactive manipulatives K-8

NZ Maths

Thinking 101

Ontario Math

LT Squared

Crickweb

Any questions?