Place Value and Money

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Say hello.

What are your spring break plans?

November 2022

Early Numeracy
- Counting principles
- Connecting number
- Comparison of numbers
- Addition and subtraction concepts

January 2023

Addition and Subtraction
- Addition computation
- Subtraction computation
- Addition and subtraction fluency
- Addition and subtraction word problems

March 2023

Place value and money
- Understanding tens and ones
- Representing thousands, hundreds, tens, and ones
- Money

April 2023

Geometry
- Identification of shapes
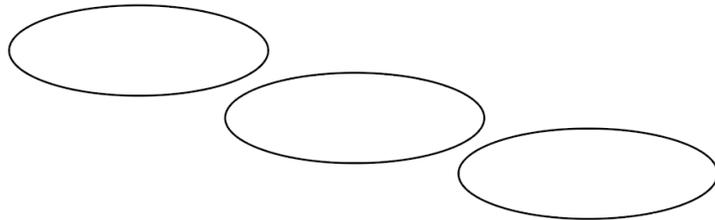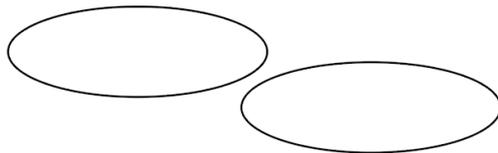- Composing and decomposing shapes

M꒐T꒐H

Instructional Platform

MA+H

Place Value and Money

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Instructional Platform

Instructional Delivery

Instructional Strategies

Instructional Platform

INSTRUCTIONAL DELIVERY

Explicit instruction

Precise language

Multiple representations

INSTRUCTIONAL STRATEGIES

Fluency building

Problem solving instruction

MA+H

MODELING

Step-by-step explanation

Planned examples

PRACTICE

Guided practice

Independent practice

SUPPORTS

Ask high-level and low-level questions

Eliciting frequent responses

Providing affirmative and corrective feedback
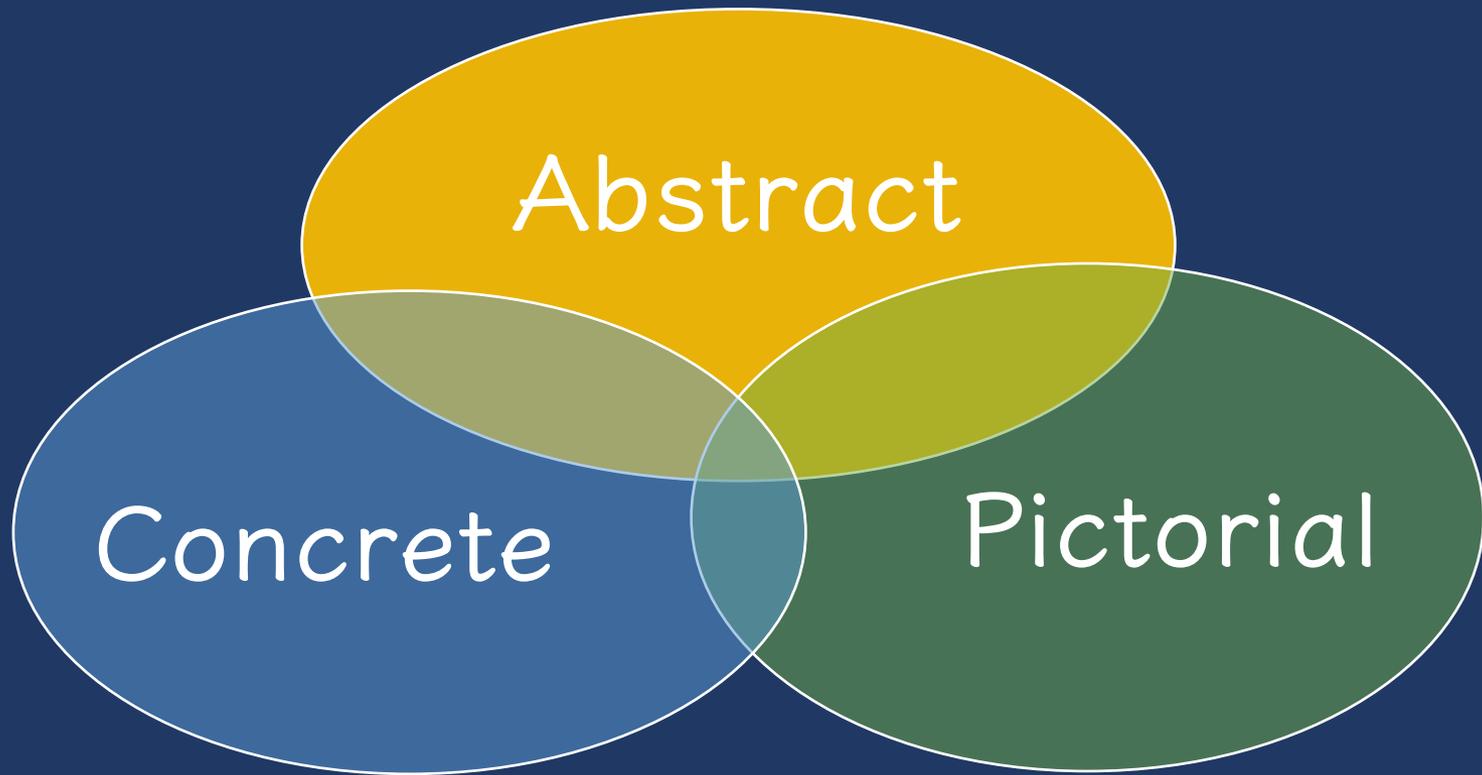
What math content do you model?

How do you engage students in guided practice?

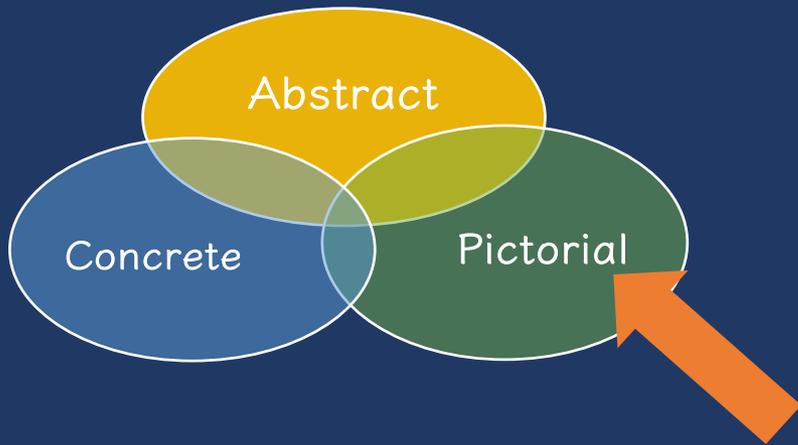Use formal math language

Use terms precisely

What's one way you support the math vocabulary of students?

Abstract

Concrete

Pictorial

Virtual Manipulatives

Number & Operations

Place Value

Fractions & Decimals

Integers & Algebra

Geometry

Time & Money

Data & Probability

Extras

Help students see and learn math using different tools!

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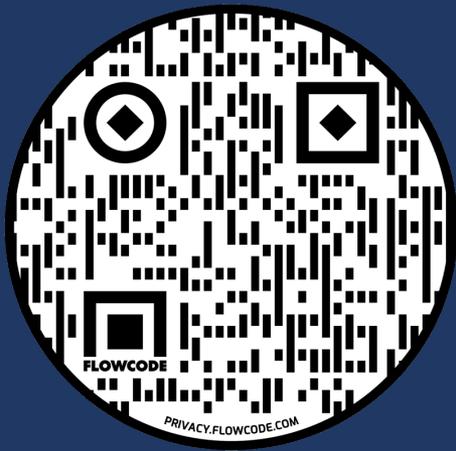
bit.ly/srpowell

Fractions & Decimals

fraction strips	fraction strips	fraction strips	Cuisenaire rods
fraction circles	geoboard	geoboard	geoboard	pattern blocks
two-color counters	decimal strips	place value disks	percentage strips	

| Addition | Subtraction |
| Multiplication | Division |

Counting

Comparing numbers

Counting coins

Telling time

Identifying equivalent fractions

Knowing multiples

Identifying shapes

Knowing formulas

MATH

Addition	Subtraction
Multiplication	Division

How do you support students with fact fluency?

UPS✓

UNDERSTAND
Read and explain.

PLAN
How will you solve the problem?

SOLVE
Set up and do the math!

✓CHECK
Does your answer make sense?

Created by: Sarah Powell (srpowell@austin.utexas.edu)

Total

Difference

Change

Equal Groups

Comparison

Ratios/Proportions

MATH

Place Value

Place Value:

The value of a digit based on its position in a number.
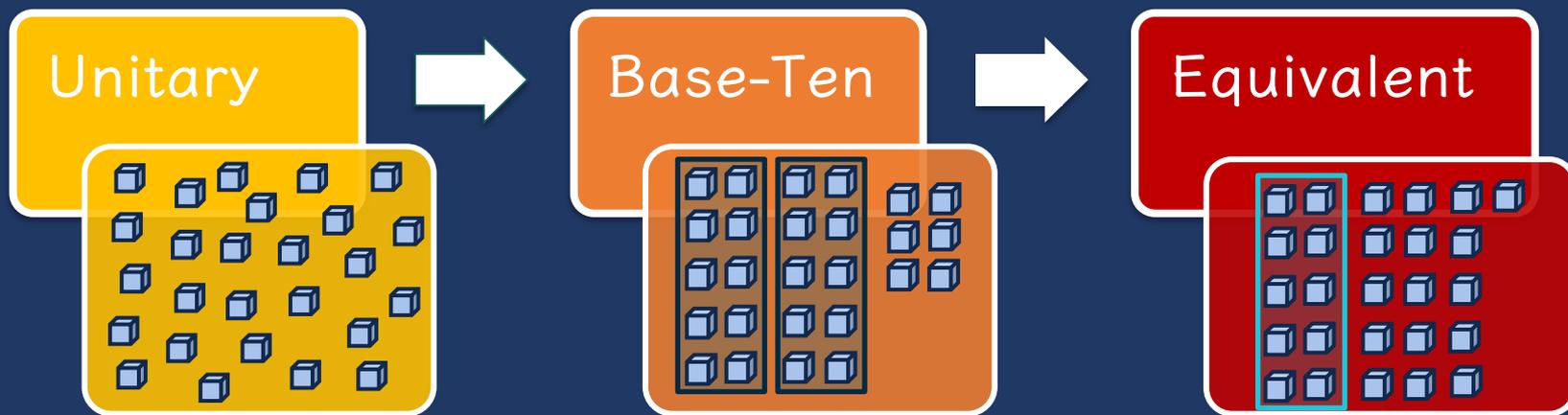
5,192

thousands   hundreds   tens   ones

MA+H

Tens and Ones

Tens and Ones

Ten Frame

Unitary → Base-Ten → Equivalent

(Van de Walle et al., 2019)

Tens and Ones

Count sets with 0-19 items in the set using a ten frame.
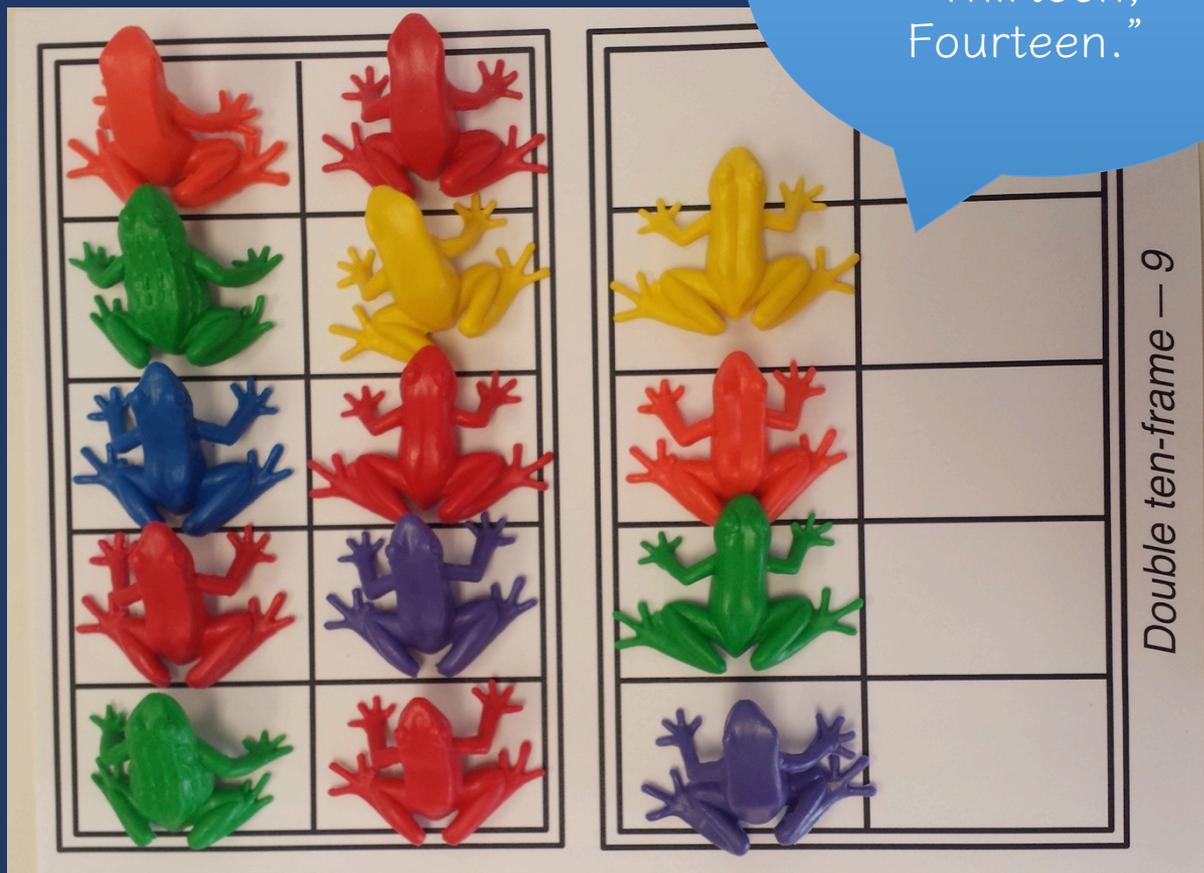
Determine how many sets of ten. Determine how many ones.

Read as:
14 is 1 ten and 4 ones.

Ten Frame

MATH

Tens and Ones

Tens and Ones

Model:

Show 16.

Show 4.

Show 11.

Tens and Ones

Count sets with 0-19 items in the set using items that can be linked or connected.

Determine how many sets of ten. Determine how many ones.

Read as:
14 is 1 ten and 4 ones.

MA+H

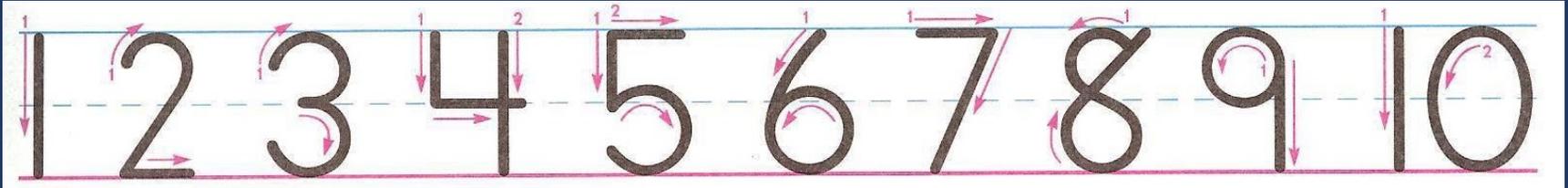# Tens and Ones

Model:

Show 12.
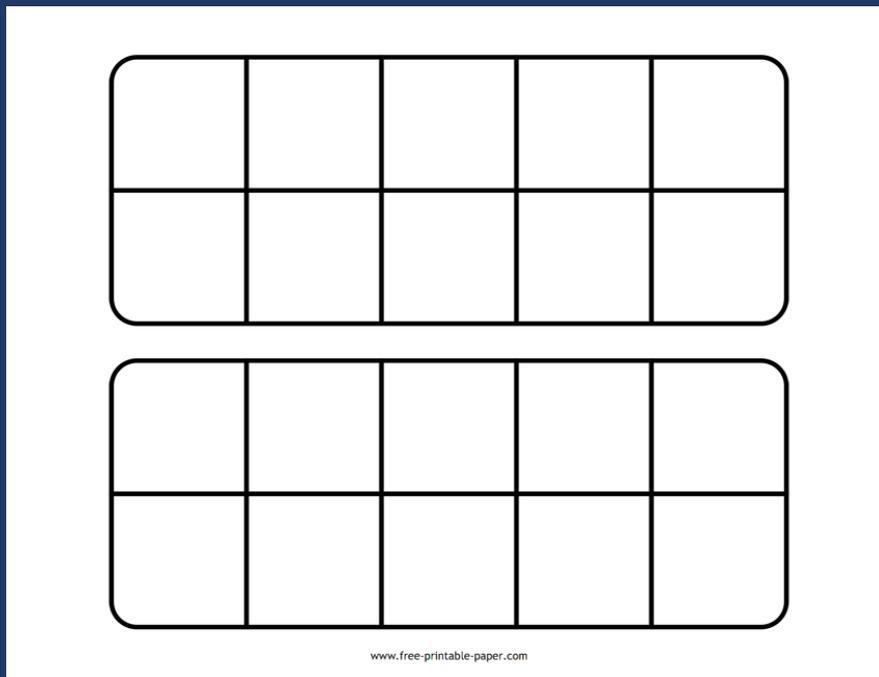
Show 7.

Show 19.

Numerals

Connect numerals to numbers.

Connect numbers to place value.

Tens and Ones

Use a double ten frame for numbers 0-29.

Tens and Ones

Use a hundred chart to identify patterns with tens and ones.

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

MATH

Tens and Ones

Use a hundred chart to identify patterns with tens and ones.

0	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

MATH

Tens and Ones

Model:

Show 21.

Show 34.

Standard Form and Expanded Notation

Connect standard form of a number (58) to the expanded notation (50 + 8 or 5 tens and 8 ones).

58	99
83	76
60	52
41	39
27	12

5 tens and 8 ones	9 tens and 9 ones
8 tens and 3 ones	7 tens and 6 ones
6 tens and 0 ones	5 tens and 2 ones
4 tens and 1 one	3 tens and 9 ones
2 tens and 7 ones	1 ten and 2 ones

Standard Form and Expanded Notation

Roll dice to create numbers with tens and ones.

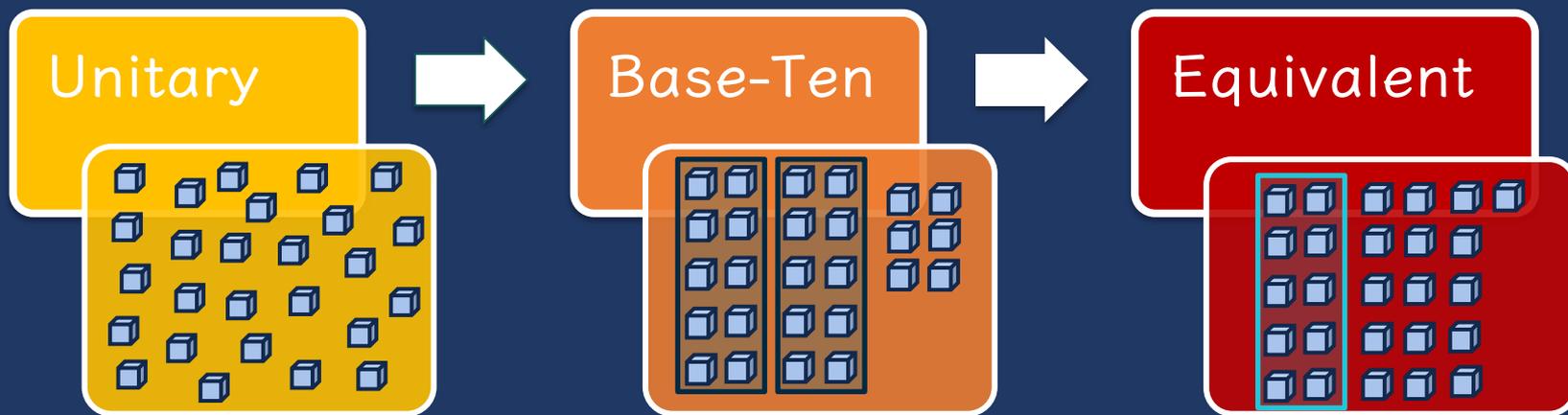Write in standard form and expanded form.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

MATH

Standard Form
Expanded Notation

What are activities you use to help students connect standard form to expanded notation?

Unitary → Base-Ten → Equivalent

(Van de Walle et al., 2019)

Progression of Place Value

What are activities might you use to connect these three phases of place value?
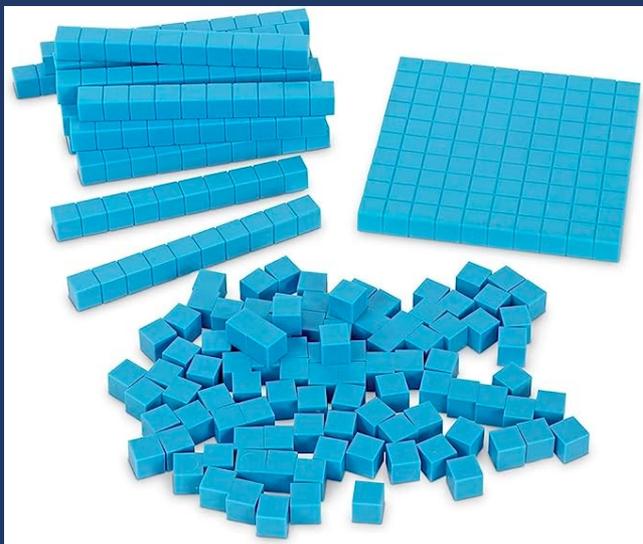
Hundreds, Tens, and Ones

Hundreds, Tens, and Ones

Ones	
Tens	
Hundreds	

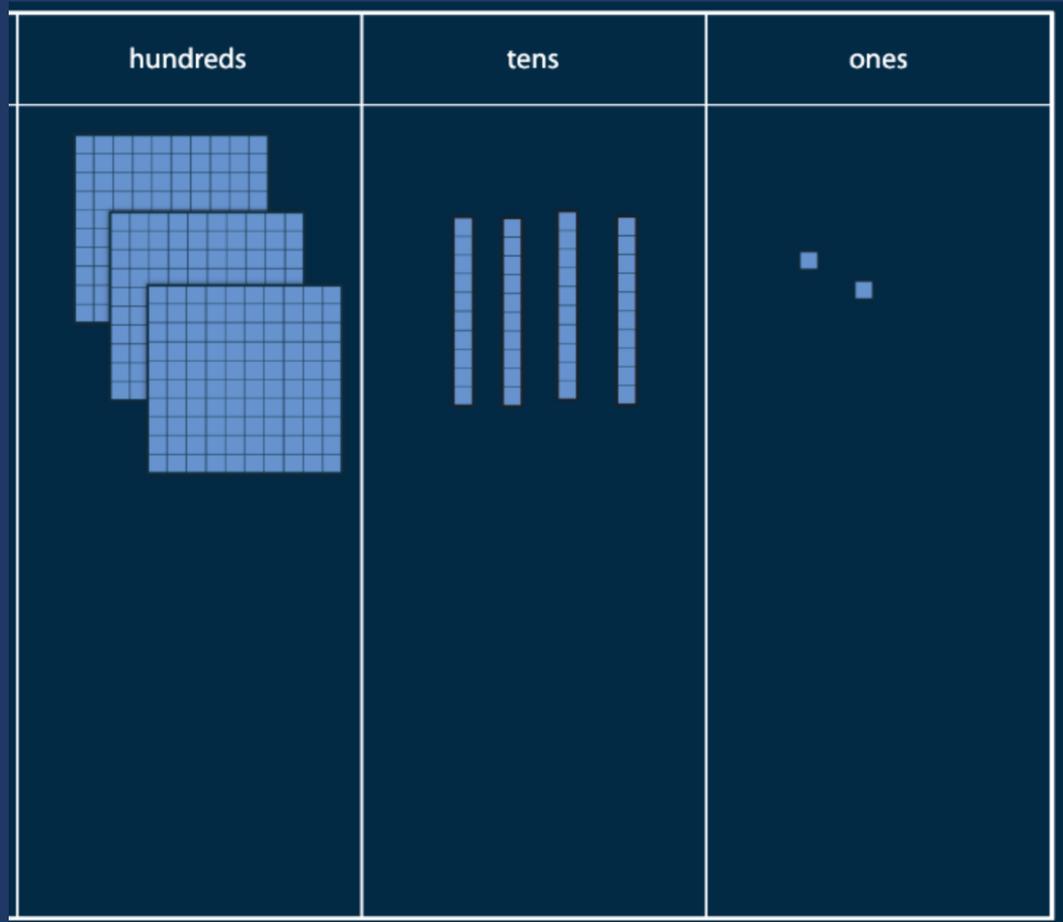# Hundreds, Tens, and Ones

Proportional materials

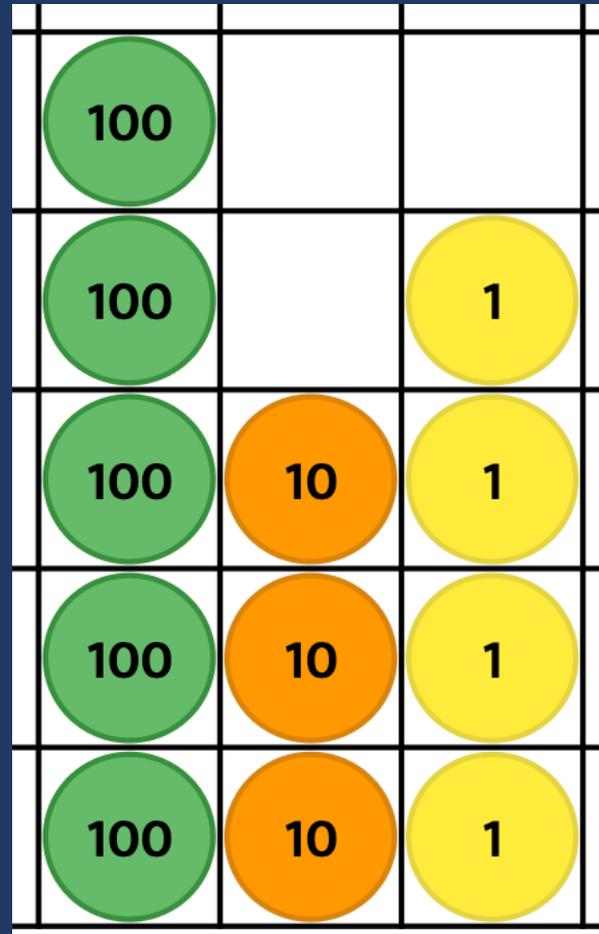

Non-proportional materials

M A + H

Hundreds, Tens, and Ones

Show numbers 0-999.

Determine how many hundreds, tens, and ones.

Read as:
342 is 3 hundreds, 4 tens, and 2 ones.

hundreds	tens	ones

Hundreds, Tens, and Ones

Model:

Show 209.

Show 178.

Hundreds, Tens, and Ones

Show numbers 0-999.

Determine how many hundreds, tens, and ones.

Read as:
534 is 5 hundreds, 3 tens, and 4 ones.

MATH

Hundreds, Tens, and Ones

Model:

Show 612.
Show 407.

Hundreds, Tens, and Ones

Use other representations for hundreds, tens, and ones.

Connect to standard form.
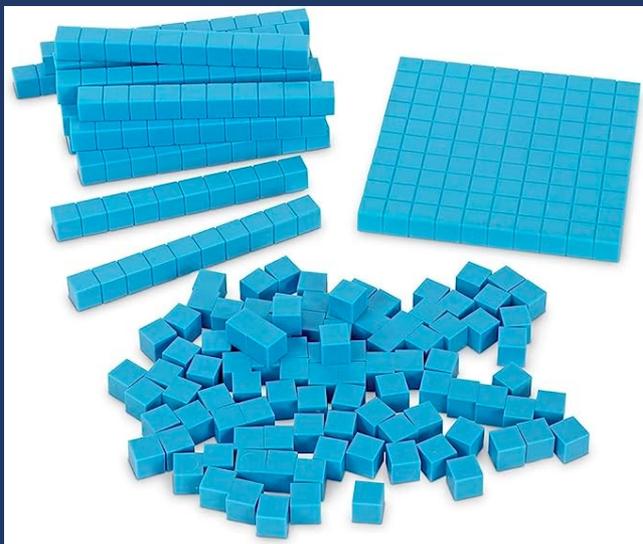
Write in expanded form.

298

673

711

100s	10s	1s
||	||||||||	||||||||

100s	10s	1s
||||||	|||||||	|||

100s	10s	1s
|||||||	|	|

MATH

Thousands and Beyond

Thousands and Beyond

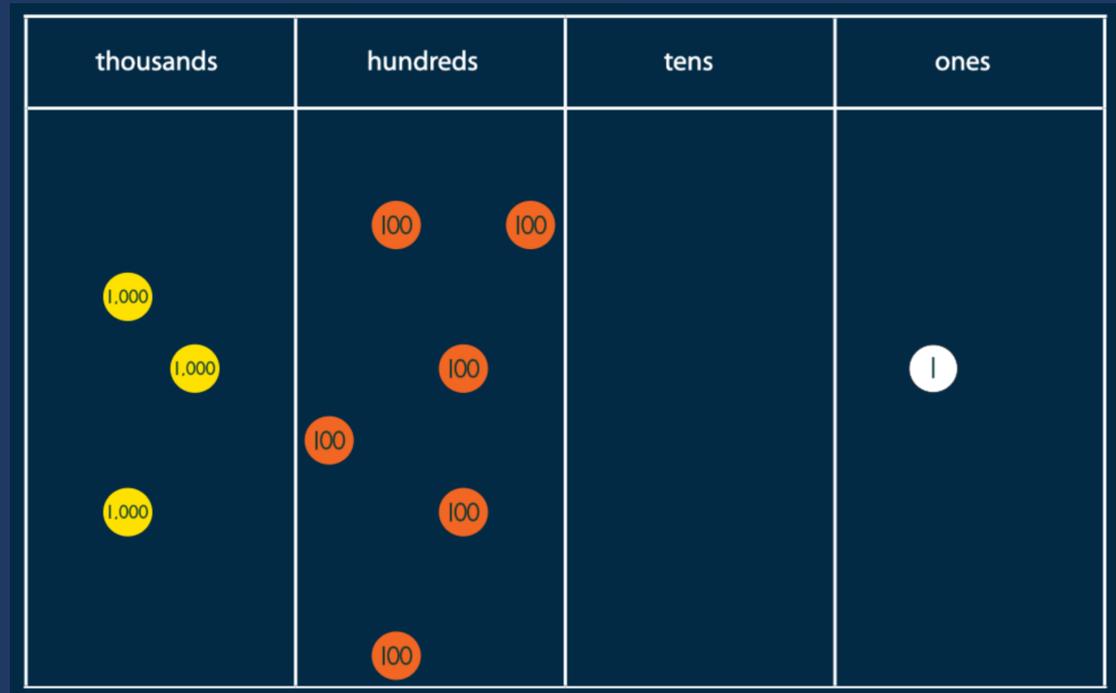Helpful with thousands

Very helpful!

MATH

Thousands and Beyond

Show numbers 0-9,999.
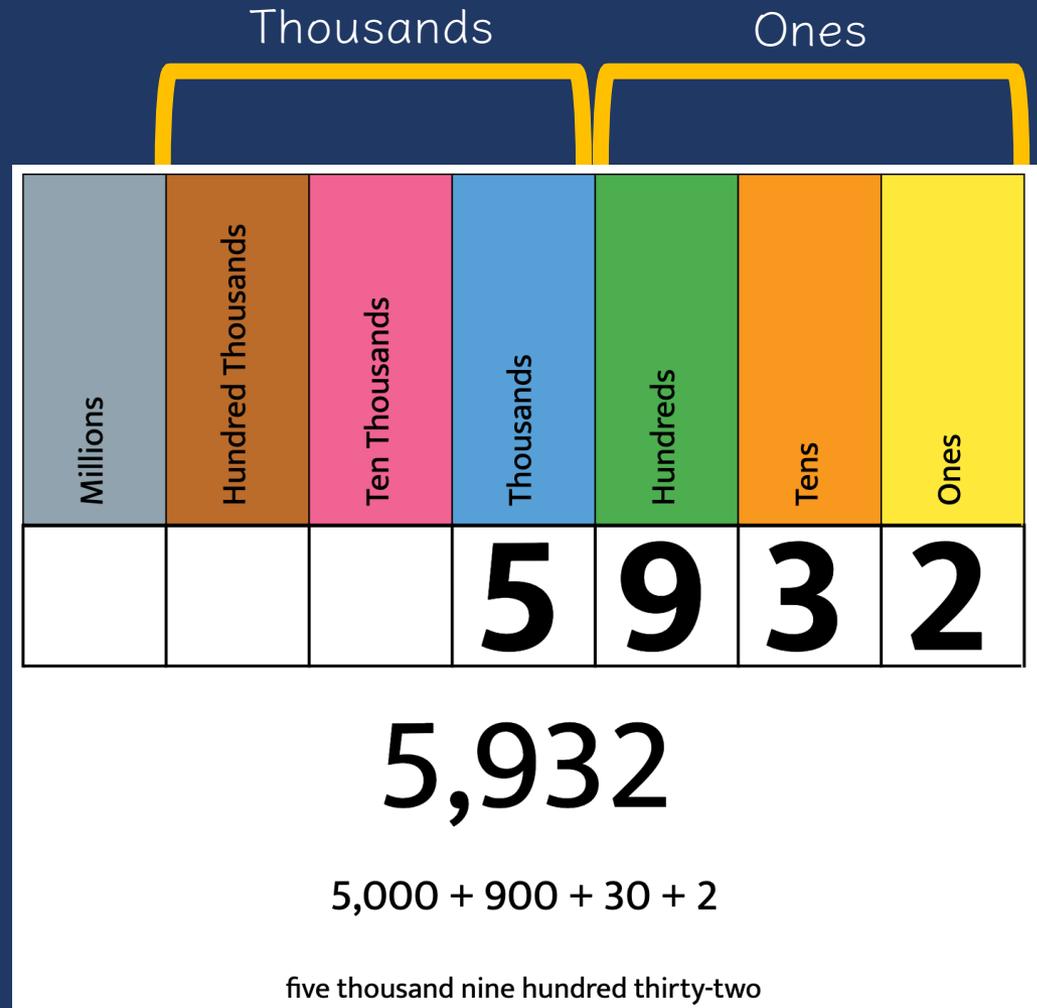
Determine how many thousands, hundreds, tens, and ones.

Read as:
3,601 is 3 thousands, 6 hundreds, and 1 one.

thousands	hundreds	tens	ones
1,000 1,000 1,000	100 100 100 100 100 100		1

Thousands and Beyond

Introduce the comma (,) to separate periods.

Introduce terminology of a *period*. (Each group of digits separated by a comma is a period.)

Thousands   Ones

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
			5	9	3	2

5,932

5,000 + 900 + 30 + 2

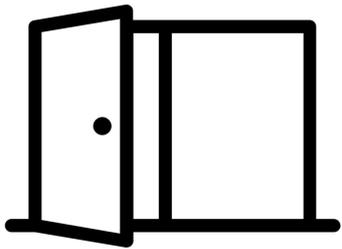five thousand nine hundred thirty-two

M A + H
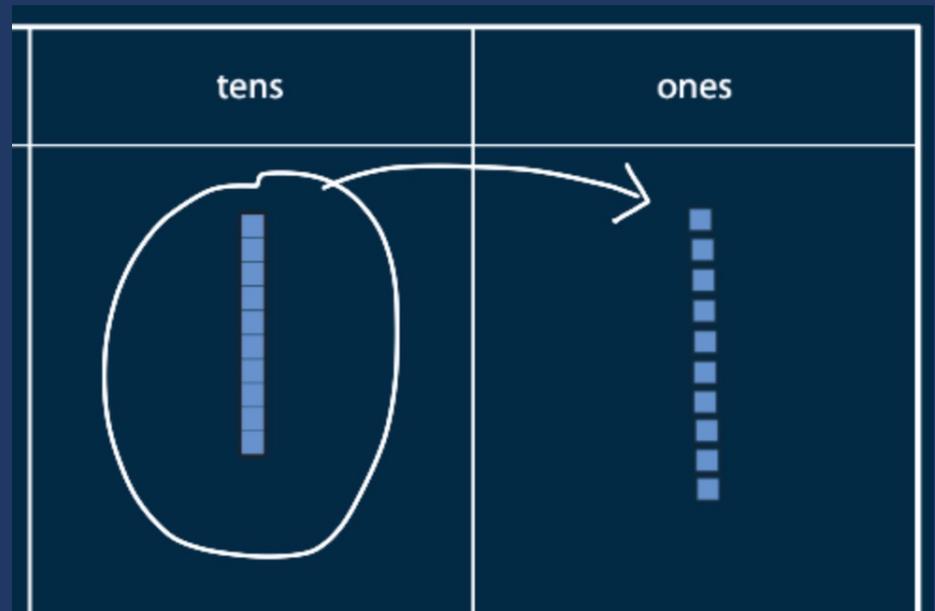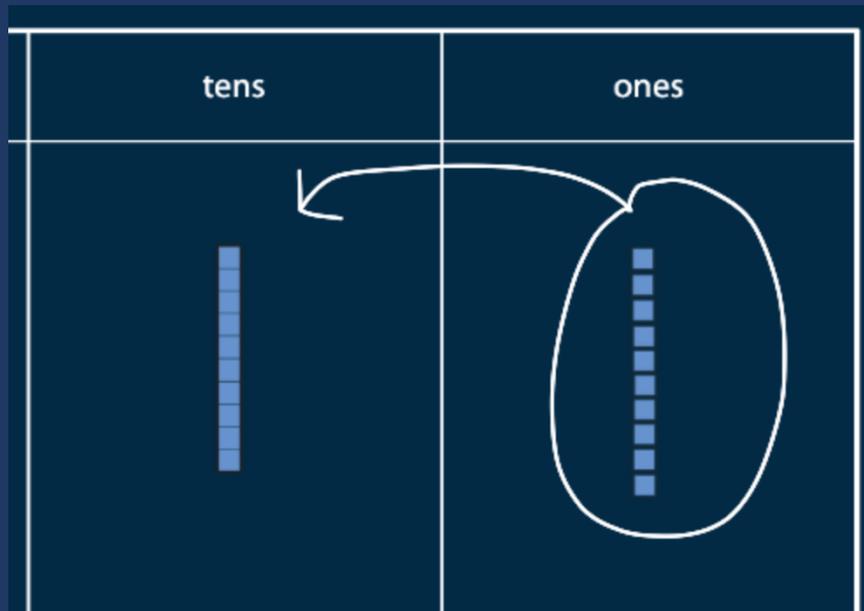
Thousands and Beyond

Model:

Show 1,580.
Show 3,972.

(1) What are the place value difficulties of your students?

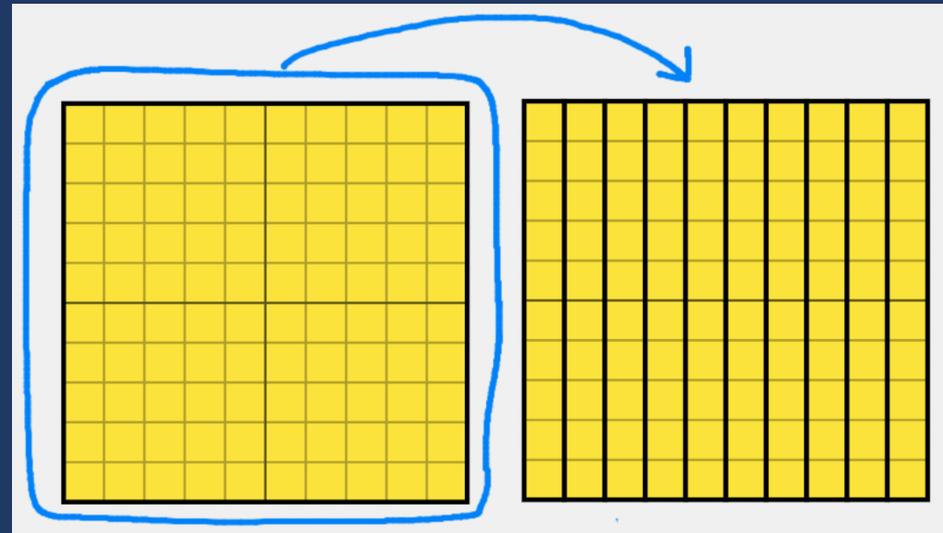(2) Describe an activity to practice place value on its own.

Within Computation

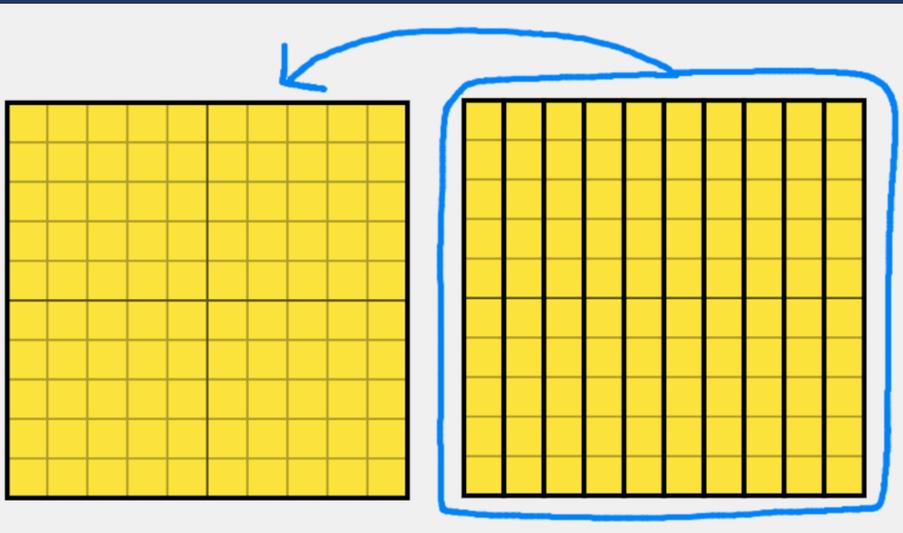# Regrouping

Regrouping

Traditional

Within Computation

Model:
  19 + 36
  227 + 185

Partial Sums

A.
$$
\begin{array}{r}
74 \\
+\ 18 \\
\hline
80 \\
+12 \\
\hline
92
\end{array}
$$

B.
$$
\begin{array}{r}
725 \\
+\ 365 \\
\hline
1,000 \\
80 \\
+\ \ \ 10 \\
\hline
1,090
\end{array}
$$

Within Computation

Model:

19 + 36

227 + 185

Traditional

A.
$$\begin{array}{r} 5 \\ \not{6}^1 2 \\ -\ 1\ 7 \\ \hline 4\ 5 \end{array}$$

B.
$$\begin{array}{r} 2\ 9 \\ \not{3}\not{1}\not{0}^1 5 \\ -\ \ 9\ 6 \\ \hline 2\ 0\ 9 \end{array}$$

Within Computation

Model:

61 – 48

232 – 164

Partial Differences

Within Computation

Model:

61 − 48

232 − 164

Add Up

A.

$$62 - 17$$

17
20   3
60   40
62 + 2
    ___
     45

B.

$$305 - 96$$

96
100   4
300   200
305 + 5
     ___
      209

MA+H

Within Computation

Model:

61 – 48

232 – 164
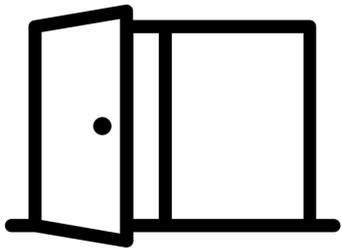
(1) Describe how you will emphasize place value within addition or subtraction.

(2) Discuss your favorite place value representations.

Money

Money

Identifying coins → Identifying the values of coins → Counting up to 25¢

Counting using same coins to $1.00 → Counting using different coins up to $1.00 → Showing different ways to make the same amount

Counting money to $5.00 → Counting money to $20.00 → Making change
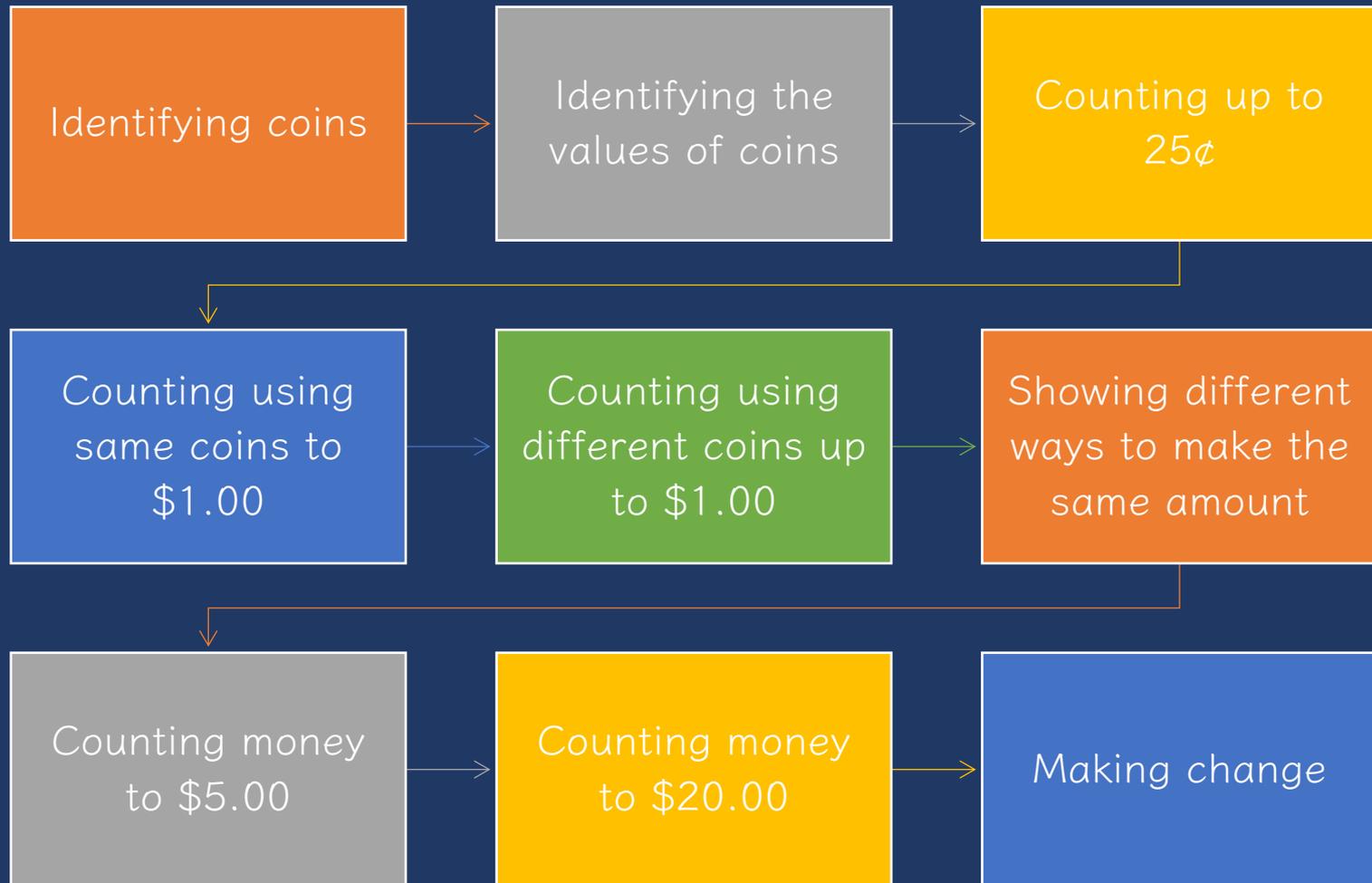
Money

Consider using real money.

If real money is not available, use plastic coins and paper bills.

Also, use pictures of money.

MA+H

Money

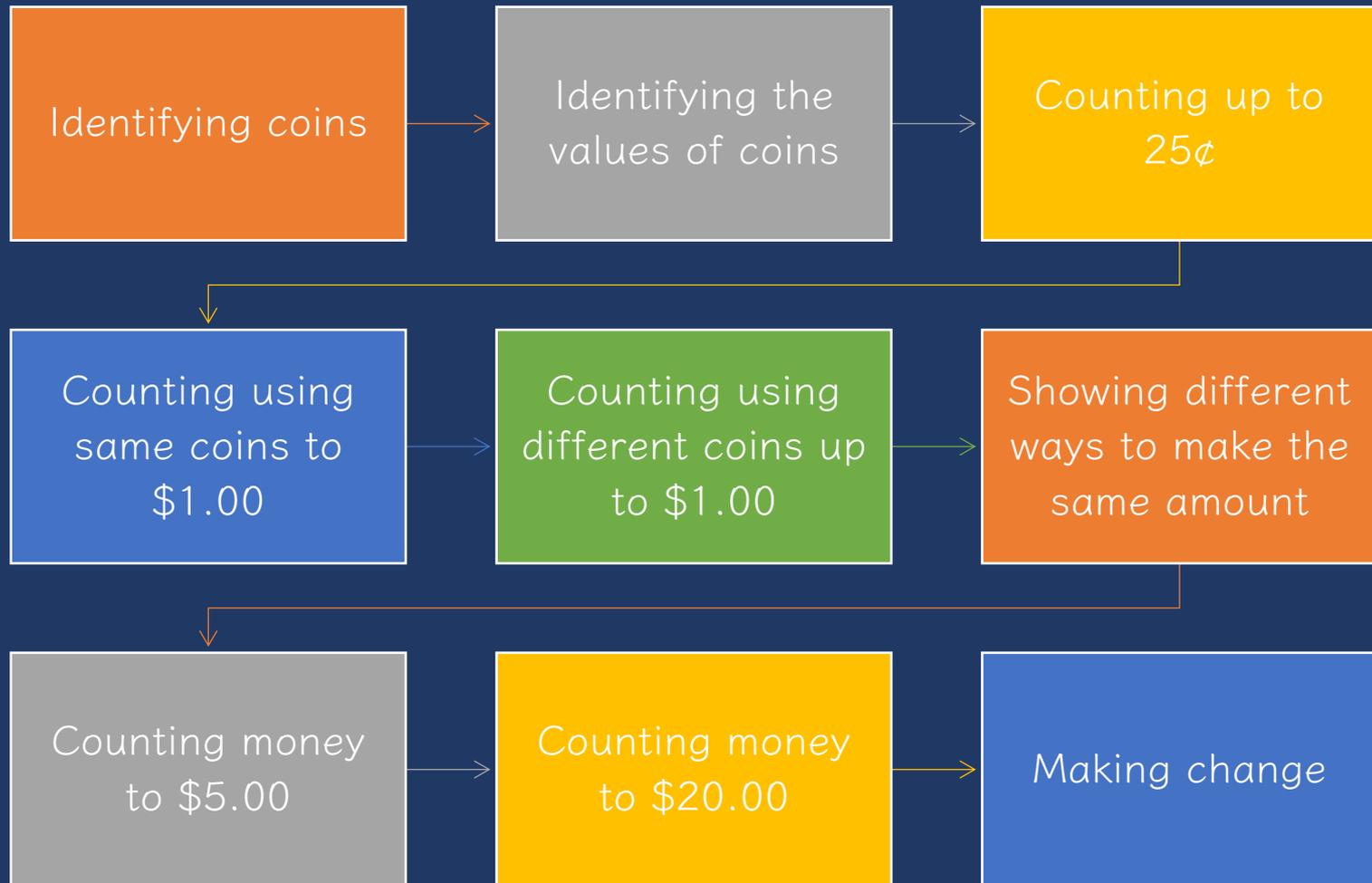Identifying coins → Identifying the values of coins → Counting up to 25¢

Counting using same coins to $1.00 → Counting using different coins up to $1.00 → Showing different ways to make the same amount

Counting money to $5.00 → Counting money to $20.00 → Making change

Identifying Coins and Their Value

Value	Image	Obverse	Reverse
Penny 1¢		Abraham Lincoln	The Lincoln Memorial
Nickel 5¢		Thomas Jefferson	Monticello Jefferson first home
Dime 10¢		Franklin Delano Roosevelt	Olive Branch, Torch, Oak Branch
Quarter 25¢		George Washington	American Bald Eagle
Half Dollar 50¢		John F. Kennedy	The Presidential Seal
Silver Dollar $1.00		Susan B. Anthony	Apollo 11 Insignia, Eagle
Golden Dollar $1.00		Sacagawea	Soaring Eagle and 17 Stars

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