Name_____ Date_____

Number
Unit 1 Line Master 1

Place-Value Chart to Hundred Thousands

Thousands			Units		
Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Thousands			Units		
Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones

Name_____ Date_____

Number
Unit 1 Line Master 2

Place-Value Relationships

Complete the chart.
Explain the relationships you see in the chart.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
How many ten thousands are in one hundred thousand?	How many thousands are in ten thousand?	How many hundreds are in one thousand?	How many tens are in one hundred?	How many ones are in one ten?	
How many thousands are in one hundred thousand?	How many hundreds are in ten thousand?	How many tens are in one thousand?	How many ones are in one hundred?		
How many hundreds are one hundred thousand?	How many tens are in ten thousand?	How many ones are in one thousand?			
How many tens are in one hundred thousand?	How many ones are in ten thousand?				
How many ones are in one hundred thousand?					

Name_____ Date_____

Number
Unit 1 Line Master 3a

Spin, Roll, and Add!

Play with a partner.

Materials:

- Spinner
- Open paperclip
- Number cube
- Place-value chart

What to Do

On the spinner, use a pencil point to hold the open paperclip as the pointer.
One player chooses a 6-digit number and records it.
The other player:

- Spins the pointer to see which digit will change.
- Rolls the number cube to see how many 1s, 10s, 100s, or 1000s to add.
- Records the addition and writes the number in a place-value chart.

Take turns spinning and rolling to build new numbers.

For example:

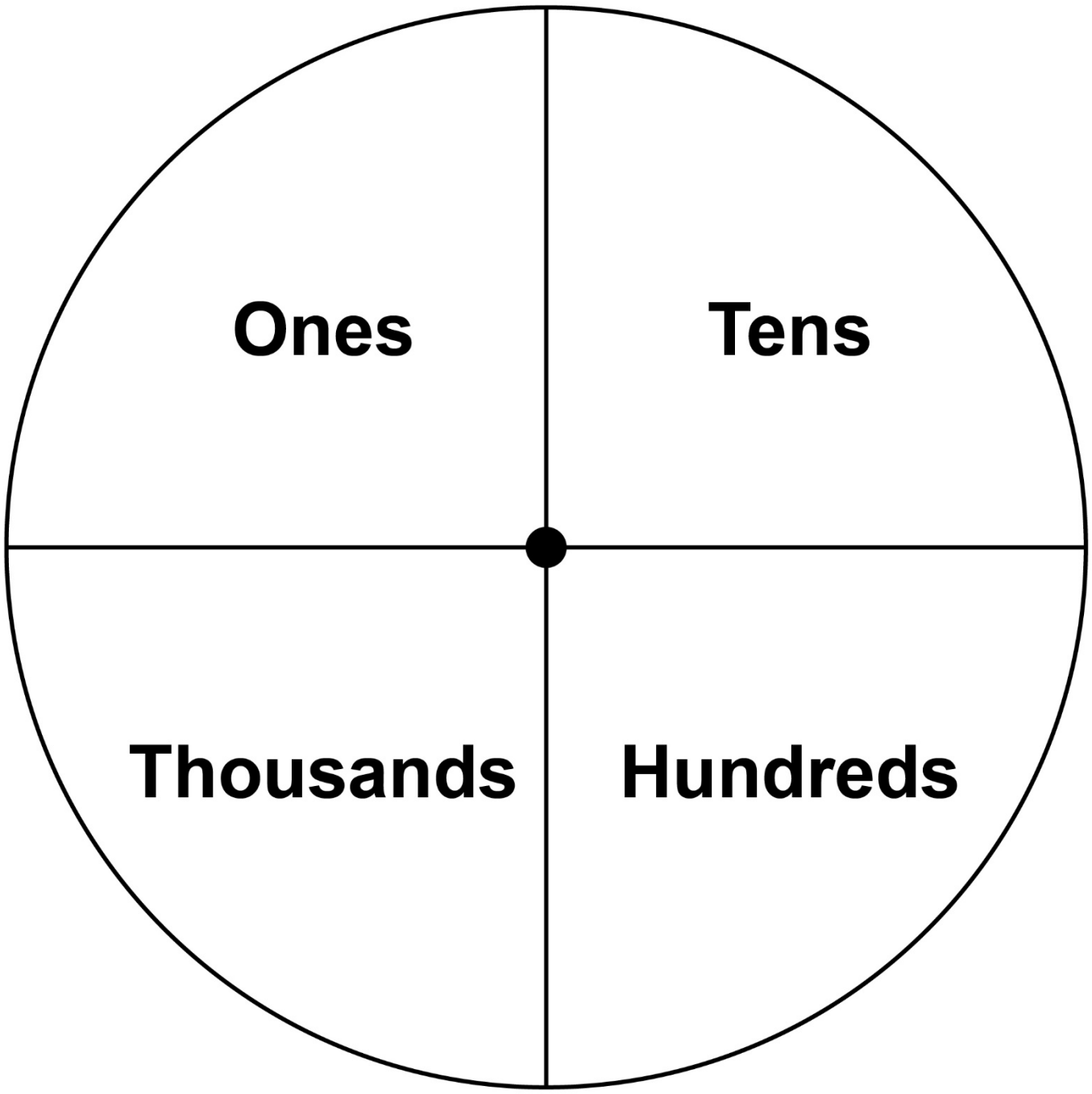
Rudy chose 215 488 to start.
Emmy spun Hundreds and rolled 1, so she added 100.
Then, Rudy spun Thousands and rolled 4, so he added 4000.

Start: 215 488
215 488 + 100 = 215 588
215 588 + 4000 = 219 588

Name_____ Date_____

Number
Unit 1 Line Master 3b

Spin, Roll, and Add! (cont'd)



Name_____ Date_____

Number
Unit 1 Line Master 4

Spin, Roll, and Subtract!

Play with a partner.

Materials:

- Spinner
- Open paperclip
- Number cube
- Place-value chart

What to Do

On the spinner, use a pencil point to hold the open paperclip as the pointer.
One player chooses a 6-digit number and records it.
The other player:

- Spins the pointer to see which digit will change.
- Rolls the number cube to see how many 1s, 10s, 100s, or 1000s to subtract.
- Records the subtraction and writes the number in a place-value chart.

Take turns spinning and rolling to build new numbers.

For example:

Rudy chose 215 488 to start.
Emmy spun Hundreds and rolled 1, so she subtracted 100.
Then, Rudy spun Thousands and rolled 4, so he subtracted 4000.

Start: 215 488
215 488 – 100 = 215 388
215 588 – 4000 = 211 588

Name________________________________ Date_____________________

Number
Unit 1 Line Master 5

Graphing Place Value

Play with a partner.

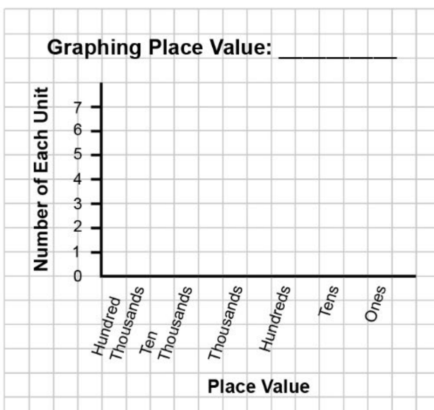
Materials:

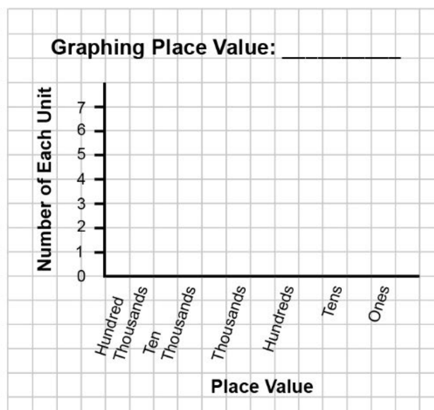
- Number cube

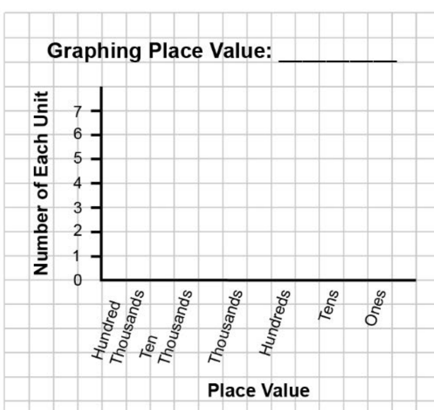
What to Do

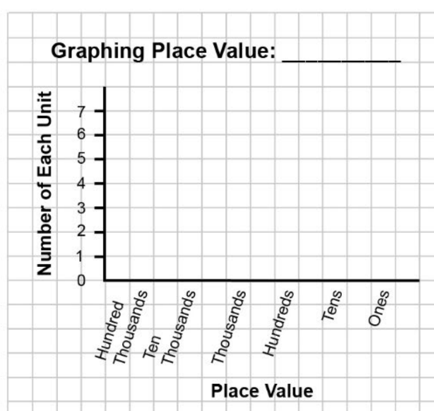
For each graph:

- Roll the number cube 6 times to get a 6-digit number.
- Write the number at the top of the graph.
- Draw a bar graph to represent your number.









Name_____ Date_____

Number
Unit 1 Line Master 6

Open Number Line

Name_____ Date_____

Number
Unit 1 Line Master 7a

Spin and Compare

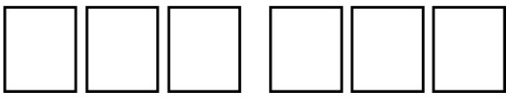
Play with a partner.

Materials:

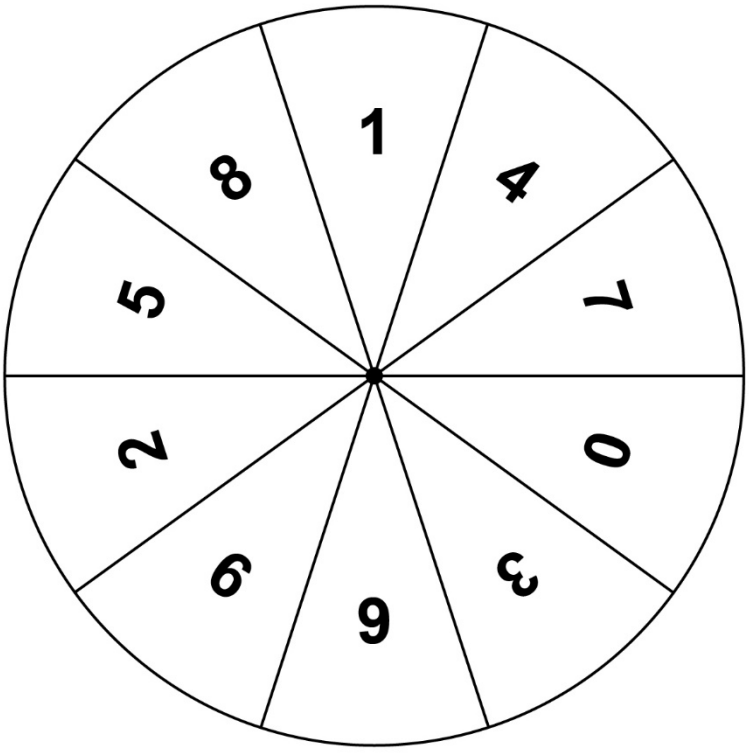
- Open paperclip as pointer

What to Do

Each of you spins the pointer to create a 6-digit number.



Spin once for each digit.
You decide on its place-value position.
Try to create the greatest number you can.
Compare numbers with your partner.
The player with the greater number scores 1 point.
Play until one of you reaches 10 points.



Name_____ Date_____

Number
Unit 1 Line Master 7b

Spin and Compare (cont'd)

Player 1	or	Player 2

Variation:

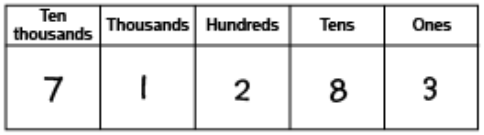
Score a point when you make a smaller number than your partner.

Number

Activity 1 Assessment

Representing Numbers to 1 000 000

Representing Numbers Using Place Value

Represents 5-digit number on place-value chart (decomposes in one way).	Represents 6-digit number on place-value chart (decomposes in one way).	Uses relationships among place-value positions to read a number in more than one way.
		
"71 283 has 7 ten-thousands, 1 thousand, 2 hundreds, 8 tens, and 3 ones."	639 587: I used the digits of the number to tell me the number to write in each column."	"6 hundred-thousands,3 ten-thousands, 9 thousand, 5 hundreds, 8 tens, and 7 ones can also be 639 thousands, 5 hundreds, and 87 ones."

Observations/Documentation

Number

Activity 1 Assessment

Representing Numbers to 1 000 000

Representing Numbers Using Place Value (cont'd)

Represents numbers using expanded form.

Hundred thousands	Ten thousands	Thousands	Hundreds	Tens	Ones
6	3	9	5	8	7

"639 587 =
600 000 + 30 000 + 9000 + 500 + 80 + 7"

Rounds 6-digit numbers to various places.

Hundred thousands	Ten thousands	Thousands	Hundreds	Tens	Ones
6	3	9	5	8	7

"639 587 rounded to the nearest ten is 639 590,
to the nearest hundred is 639 600,
to the nearest thousand is 640 000,
to the nearest 10 000 is 640 000, and to the
nearest hundred thousand is 600 000."

Represents numbers flexibly using place-value relationships.

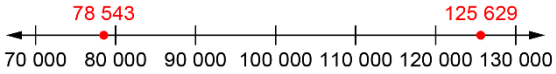
"639 587 =
600 000 + 30 000 + 9000 + 500 + 80 + 7
Or 600 000 + 39 000 + 400 + 180 + 7
Or 639 000 + 587"

Observations/Documentation

Number

Activity 2 Assessment

Comparing Numbers to 1 000 000

Comparing and Ordering Quantities		
Compares numbers using only the first digits. **78 543 65 987** "78 543 is greater than 65 987 because 7 is bigger than 6."	Compares numbers with benchmarks.  "I compared the numbers to 100 000. 78 543 is less than 100 000 and 125 629 is greater than 100 000. So, 125 629 is greater."	Visualizes benchmarks on a number line to compare. "I picture 125 629 farther to the right on the line than 78 543. So, 125 629 is greater than 78 543."
Observations/Documentation		

Number

Activity 2 Assessment

Comparing Numbers to 1 000 000

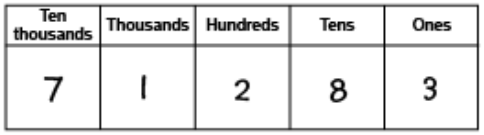
Comparing and Ordering Quantities (cont'd)		
Uses place value understanding to compare numbers, digit by digit. 125 327 125 109 "Both start with 125 thousands. 3 hundreds is greater than 1 hundred, 2 tens is greater than 0 tens, and 7 ones is less than 9 ones. So, 125 327 is greater than 125 109."	Compares and orders three or more numbers using a variety of strategies. **74 307 367 104 366 455** "74 307 has only 5 digits, so it's the least. To compare 367 104 and 366 455, I have to look at the thousands place; 7 is greater than 6, so 367 104 is the greatest number."	Compares numbers flexibly and records comparisons symbolically (<, =, >). **375 867 < 497 328** "Both are 6-digit numbers. The first digit tells me that 375 867 is less than 497 328." **375 867 > 356 095** "For this pair, I have to check the ten-thousands place."
Observations/Documentation		

Number

Activity 3 Assessment

Number Relationships and Place Value Consolidation

Representing Numbers Using Place Value

Represents 5-digit number on place-value chart (decomposes in one way).	Represents 6-digit number on place-value chart (decomposes in one way).	Uses relationships among place-value positions to read a number in more than one way.
		
"71 283 has 7 ten-thousands, 1 thousand, 2 hundreds, 8 tens, and 3 ones."	639 587: I used the digits of the number to tell me the number to write in each column."	"6 hundred-thousands,3 ten-thousands, 9 thousand, 5 hundreds, 8 tens, and 7 ones can also be 639 thousands, 5 hundreds, and 87 ones."

Observations/Documentation

Number

Activity 3 Assessment

Number Relationships and Place Value Consolidation

Representing Numbers Using Place Value (cont'd)

Represents numbers using expanded form.

Hundred thousands	Ten thousands	Thousands	Hundreds	Tens	Ones
6	3	9	5	8	7

"639 587 =
600 000 + 30 000 + 9000 + 500 + 80 + 7"

Rounds 6-digit numbers to various places.

Hundred thousands	Ten thousands	Thousands	Hundreds	Tens	Ones
6	3	9	5	8	7

"639 587 rounded to the nearest ten is 639 590,
to the nearest hundred is 639 600,
to the nearest thousand is 640 000,
to the nearest 10 000 is 640 000, and to the
nearest hundred thousand is 600 000."

Represents numbers flexibly using place-value relationships.

"639 587 =
600 000 + 30 000 + 9000 + 500 + 80 + 7
Or 600 000 + 39 000 + 400 + 180 + 7
Or 639 000 + 587"

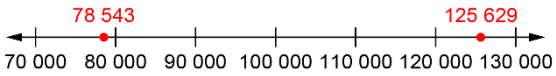
Observations/Documentation

Number

Activity 3 Assessment

Number Relationships and Place Value Consolidation

Comparing and Ordering Quantities

Compares numbers using only the first digits.	Compares numbers with benchmarks.	Visualizes benchmarks on a number line to compare.
78 543 65 987 "78 543 is greater than 65 987 because 7 is bigger than 6."	 "I compared the numbers to 100 000. 78 543 is less than 100 000 and 125 629 is greater than 100 000. So, 125 629 is greater."	"I picture 125 629 farther to the right on the line than 78 543. So, 125 629 is greater than 78 543."

Observations/Documentation

Number

Activity 3 Assessment

Number Relationships and Place Value Consolidation

Comparing and Ordering Quantities (cont'd)

Uses place value understanding to compare numbers, digit by digit. **125 327** **125 109**  "Both start with 125 thousands. 3 hundreds is greater than 1 hundred, 2 tens is greater than 0 tens, and 7 ones is less than 9 ones. So, 125 327 is greater than 125 109."	Compares and orders three or more numbers using a variety of strategies. **74 307** **367 104** **366 455** "74 307 has only 5 digits, so it's the least. To compare 367 104 and 366 455, I have to look at the thousands place; 7 is greater than 6, so 367 104 is the greatest number."	Compares numbers flexibly and records comparisons symbolically (<, =, >). **375 867 < 497 328** "Both are 6-digit numbers. The first digit tells me that 375 867 is less than 497 328." **375 867 > 356 095** "For this pair, I have to check the ten-thousands place."

Observations/Documentation

Name_____ Date_____

Number
Unit 2 Line Master 1

Conquer the Obstacles!

Gameboard

1 Start	2	3	4	5	6	7	8	9	10
20	19	18	17	16	15	14	13	12	11
21	22	23	24	25	26	27	28	29	30
40	39	38	37	36	35	34	33	32	31
41	42	43	44	45	46	47	48	49	50
60	59	58	57	56	55	54	53	52	51
61	62	63	64	65	66	67	68	69	70
80 Finish	79	78	77	76	75	74	73	72	71

Name_____ Date_____

Number
Unit 2 Line Master 2a

Conquer the Obstacles!

Game Cards

There are 1160 tennis balls the tennis club. The instructor buys 325 new tennis balls. How many tennis balls does the tennis club have now?	There are 438 students in the school. There are 224 Primary students. The rest of the students are Junior students. How many Junior students are there?	On opening night, 4214 people came to see the play. On the second night, 3187 people came. How many people saw the play in total?
The school has a bag of 3125 pinnies. The gym teacher used 435 pinnies for an activity. How many pinnies are still in the bag?	The school library has a collection of building blocks. The library loans 2355 blocks to one class. There are 4220 blocks left. How many blocks are in the collection?	There are 326 players in the local junior soccer league. The hockey league has 542 players. How many more hockey players are there?
The school raised $1426 for the Terry Fox run. Your class raises some more money. The total is now $1581. How much money did your class raise?	The art club has 452 markers. A community group donated another 212 markers. How many markers do they have now?	A family drives 1137 km on the first day of a road trip. Then, they drive another 1684 km the second day. How many kilometres did they drive?

Name_____ Date_____

Number
Unit 2 Line Master 2b

Conquer the Obstacles! (cont'd)

Game Cards

Estimate 3539 − 1521	Estimate 2732 + 5238	Estimate 881 − 227
Estimate 9998 − 1111	Estimate 789 + 221	Estimate 4502 − 2225
Calculate 1316 + 452	Calculate 6871 − 1154	Calculate 678 + 1332

Name_____ Date_____

Number
Unit 2 Line Master 2c

Conquer the Obstacles! (cont'd)

Game Cards

Calculate 544 − 273	Calculate 7118 − 5396	Calculate 925 − 740
Calculate 1810 + 5012	Calculate 4229 + 3863	Calculate 1477 – 398
Calculate 1243 + 7466	Calculate 2864 − 1575	Calculate 2766 + 198

Name_____ Date_____

Number
Unit 2 Line Master 2d

Conquer the Obstacles! (cont'd)

Game Cards

There are 80 tennis balls in a bin in the gym. The gym teacher adds 15 new tennis balls to the bin. How many tennis balls are there now?	The school has a bag of 75 pinnies. The gym teacher used 30 pinnies for an activity. How many pinnies are still in the bag?	The art club has 122 markers. A community group donated another 70 markers. How many markers do they have now?
A family drives 97 km before stopping for a break. Then, they drive another 63 km. How many kilometres was the drive?	The school library has a collection of Chromebooks. The library loans 35 to one class. There are 105 Chromebooks left. How many are in the collection?	Class A raised $78 for the Terry Fox run. Your class raises some more money. The total is now $138. How much money did your class raise?
The school raised $1426 for the Terry Fox run. Your class raises some more money. The total is now $1581. How much money did your class raise?	The art club has 452 markers. A community group donated another 212 markers. How many markers do they have now?	A family drives 137 km before stopping for a break. Then, they drive another 84 km. How many kilometres was the drive?

Name_____ Date_____

Number
Unit 2 Line Master 2e

Conquer the Obstacles! (cont'd)

Game Cards

Estimate 139 − 21	Estimate 132 + 138	Estimate 281 − 97
Estimate 298 − 111	Estimate 189 + 221	Estimate 302 − 88
Calculate 116 + 52	Calculate 271 − 36	Calculate 148 + 32

Name_____ Date_____

Number
Unit 2 Line Master 2f

Conquer the Obstacles! (cont'd)

Game Cards

Calculate 144 − 73	Calculate 218 − 96	Calculate 225 − 140
Calculate 181 + 12	Calculate 229 + 63	Calculate 177 – 98
Calculate 43 + 126	Calculate 86 − 57	Calculate 176 + 98

Name_____ Date_____

Number
Unit 2 Line Master 2g

Conquer the Obstacles! (cont'd)

Game Cards (Blank)

Word Problem	Word Problem	Word Problem
Estimate	Estimate	Estimate
Calculate	Calculate	Calculate

Number

Activity 4 Assessment

Estimating Sums and Differences

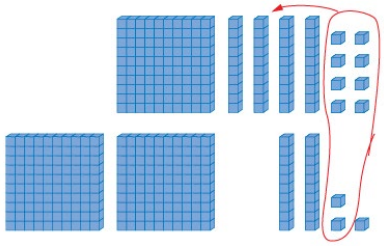
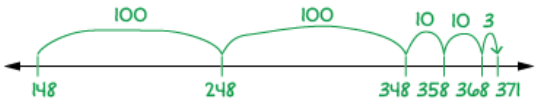
Estimating Sums and Differences			
Uses front-end estimation Estimate: 28 + 46 + 177 + 158 20 + 40 + 100 + 100 = 260 “I estimate about 260.”	Uses rounding to write each number to the nearest ten Estimate: 28 + 46 + 177 + 158 30 + 50 + 180 + 160 = 420 “I estimate about 420.”	Uses rounding and compensation Estimate: 28 + 46 + 177 + 158 I’ll round two up and two down. 30 + 40 + 170 + 160 = 400 “I estimate about 420.”	Estimates flexibly to check reasonableness of solutions 3123 + 1248 + 4169 + 1150 = 9690 Estimate to check: 123 + 169 is about 300, so 3123 + 4169 is about 7300. 248 + 150 is about 400, so 1248 + 1150 is about 2400. 7300 + 2400 is 9700. Since 9690 is close to 9700, the solution seems reasonable.
Observations/Documentation			

Number

Activity 5 Assessment

Modelling Addition and Subtraction

Conceptual Meaning of Whole Number Addition and Subtraction

Recognizes addition and subtraction situations and models concretely to add or subtract to 1000	Models and symbolizes ways to solve problems to 1000	Uses an understanding of place value to decompose both numbers to solve problems to 10 000
148 + 223 = ? 	148 + 223 = ? 	896 – 345 = ? 800 – 300 = 500 90 – 40 = 50 6 – 5 = 1 } 500 + 50 + 1 = 551 "I subtracted the hundreds, the tens, and then the ones."

Observations/Documentation

Number

Activity 5 Assessment

Modelling Addition and Subtraction

Conceptual Meaning of Whole Number Addition and Subtraction (cont'd)

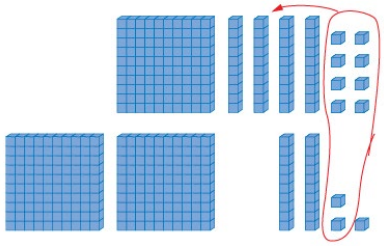
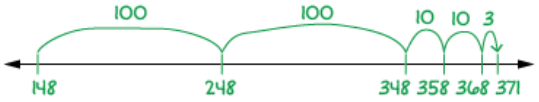
Uses an understanding of place value to add and subtract to 10 000 using the standard algorithm $\begin{array}{r} {\scriptstyle 1} \\ 3348 \\ +\ 6548 \\ \hline 9896 \end{array}$ "I had 16 ones. So I traded 10 ones for 1 ten."	Estimates to determine if answer to problem is reasonable 896 - 345 = ? "896 is close to 900. 345 is close to 350. 900 - 350 = 550. 550 is close to 551, the answer I calculated, so my answer is reasonable."	Creates and solves addition and subtraction problems flexibly using a variety of strategies 1874 raffle tickets were sold in advance. 227 more tickets were sold at the door. How many tickets were sold altogether? $\begin{array}{r} {\scriptstyle 1\ 1\ 1} \\ 1874 \\ +\ 227 \\ \hline 2101 \end{array}$
Observations/Documentation		

Number

Activity 6 Assessment

Adding and Subtracting Larger Numbers

Conceptual Meaning of Whole Number Addition and Subtraction

Recognizes addition and subtraction situations and models concretely to add or subtract to 1000	Models and symbolizes ways to solve problems to 1000	Uses an understanding of place value to decompose both numbers to solve problems to 10 000
148 + 223 = ? 	148 + 223 = ? 	896 – 345 = ? 800 – 300 = 500 90 – 40 = 50 6 – 5 = 1 } 500 + 50 + 1 = 551 "I subtracted the hundreds, the tens, and then the ones."

Observations/Documentation

Number

Activity 6 Assessment

Adding and Subtracting Larger Numbers

Conceptual Meaning of Whole Number Addition and Subtraction (cont'd)

Uses an understanding of place value to add and subtract to 10 000 using the standard algorithm

$$\begin{array}{r} {\scriptstyle 1} \\ 3348 \\ +\ 6548 \\ \hline 9896 \end{array}$$

"I had 16 ones. So I traded 10 ones for 1 ten."

Estimates to determine if answer to problem is reasonable

896 - 345 = ?

"896 is close to 900. 345 is close to 350. 900 - 350 = 550. 550 is close to 551, the answer I calculated, so my answer is reasonable."

Creates and solves addition and subtraction problems flexibly using a variety of strategies

1874 raffle tickets were sold in advance. 227 more tickets were sold at the door. How many tickets were sold altogether?

$$\begin{array}{r} {\scriptstyle 1\ 1\ 1} \\ 1874 \\ +\ 227 \\ \hline 2101 \end{array}$$

Observations/Documentation

Number

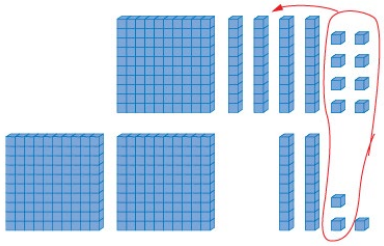
Activity 7 Assessment

Creating and Solving Problems

Conceptual Meaning of Whole Number Addition and Subtraction

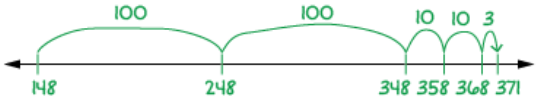
Recognizes addition and subtraction situations and models concretely to add or subtract to 1000

148 + 223 = ?



Models and symbolizes ways to solve problems to 1000

148 + 223 = ?



Uses an understanding of place value to decompose both numbers to solve problems to 10 000

896 – 345 = ?

800 – 300 = 500
90 – 40 = 50
6 – 5 = 1

} 500 + 50 + 1 = 551

"I subtracted the hundreds, the tens, and then the ones."

Observations/Documentation

Number

Activity 7 Assessment

Creating and Solving Problems

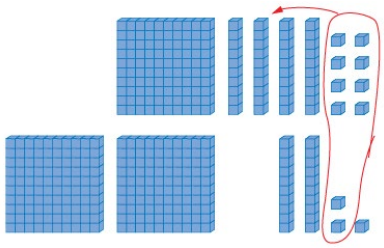
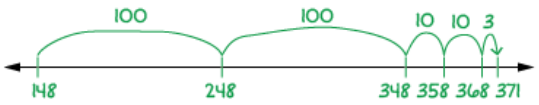
Conceptual Meaning of Whole Number Addition and Subtraction (cont'd)		
Uses an understanding of place value to add and subtract to 10 000 using the standard algorithm $\begin{array}{r} {\scriptstyle 1} \\ 3348 \\ +\ 6548 \\ \hline 9896 \end{array}$ "I had 16 ones. So I traded 10 ones for 1 ten."	Estimates to determine if answer to problem is reasonable 896 - 345 = ? "896 is close to 900. 345 is close to 350. 900 - 350 = 550. 550 is close to 551, the answer I calculated, so my answer is reasonable."	Creates and solves addition and subtraction problems flexibly using a variety of strategies 1874 raffle tickets were sold in advance. 227 more tickets were sold at the door. How many tickets were sold altogether? $\begin{array}{r} {\scriptstyle 1\ 1\ 1} \\ 1874 \\ +\ 227 \\ \hline 2101 \end{array}$
Observations/Documentation		

Number

Activity 8 Assessment

Fluency with Addition and Subtraction Consolidation

Conceptual Meaning of Whole Number Addition and Subtraction

Recognizes addition and subtraction situations and models concretely to add or subtract to 1000	Models and symbolizes ways to solve problems to 1000	Uses an understanding of place value to decompose both numbers to solve problems to 10 000
148 + 223 = ? 	148 + 223 = ? 	896 – 345 = ? 800 – 300 = 500 90 – 40 = 50 6 – 5 = 1 } 500 + 50 + 1 = 551 "I subtracted the hundreds, the tens, and then the ones."

Observations/Documentation

Number

Activity 8 Assessment

Fluency with Addition and Subtraction Consolidation

Conceptual Meaning of Whole Number Addition and Subtraction (cont'd)

Uses an understanding of place value to add and subtract to 10 000 using the standard algorithm $\begin{array}{r} {\scriptstyle 1} \\ 3348 \\ +\ 6548 \\ \hline 9896 \end{array}$ "I had 16 ones. So I traded 10 ones for 1 ten."	Estimates to determine if answer to problem is reasonable 896 - 345 = ? "896 is close to 900. 345 is close to 350. 900 - 350 = 550. 550 is close to 551, the answer I calculated, so my answer is reasonable."	Creates and solves addition and subtraction problems flexibly using a variety of strategies 1874 raffle tickets were sold in advance. 227 more tickets were sold at the door. How many tickets were sold altogether? $\begin{array}{r} {\scriptstyle 1\ 1\ 1} \\ 1874 \\ +\ 227 \\ \hline 2101 \end{array}$
Observations/Documentation		

Number

Activity 8 Assessment

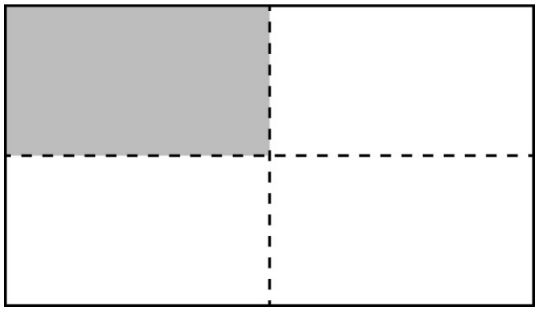
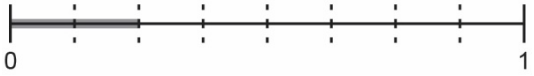
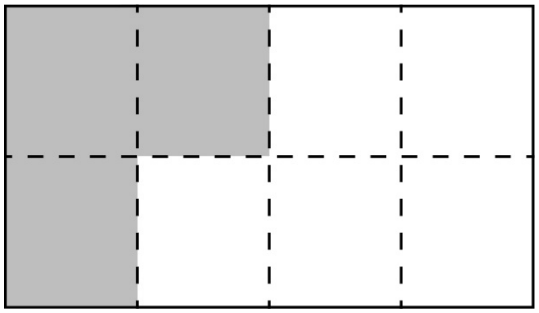
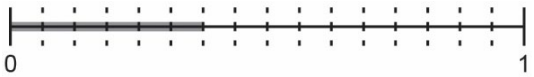
Fluency with Addition and Subtraction Consolidation

Estimating Sums and Differences			
Uses front-end estimation Estimate: 28 + 46 + 177 + 158 20 + 40 + 100 + 100 = 260 “I estimate about 260.”	Uses rounding to write each number to the nearest ten Estimate: 28 + 46 + 177 + 158 30 + 50 + 180 + 160 = 420 “I estimate about 420.”	Uses rounding and compensation Estimate: 28 + 46 + 177 + 158 I’ll round two up and two down. 30 + 40 + 170 + 160 = 400 “I estimate about 420.”	Estimates flexibly to check reasonableness of solutions 3123 + 1248 + 4169 + 1150 = 9690 Estimate to check: 123 + 169 is about 300, so 3123 + 4169 is about 7300. 248 + 150 is about 400, so 1248 + 1150 is about 2400. 7300 + 2400 is 9700. Since 9690 is close to 9700, the solution seems reasonable.
Observations/Documentation			

Name_____ Date_____

Number
Unit 3 Line Master 1a

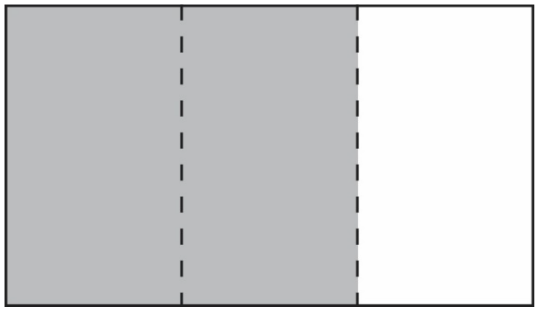
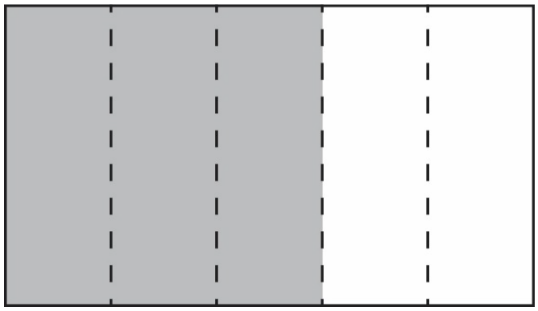
Fraction Cards

$\frac{1}{4}$	
	$\frac{6}{24}$
$\frac{3}{8}$	
	$\frac{12}{32}$

Name_____ Date_____

Number
Unit 3 Line Master 1b

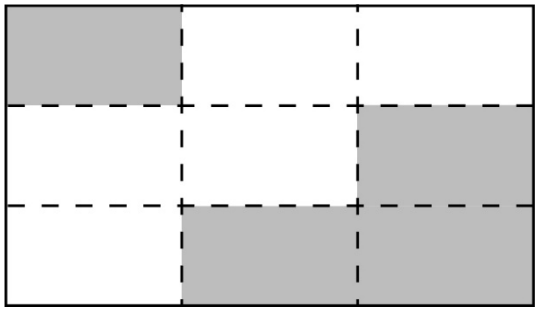
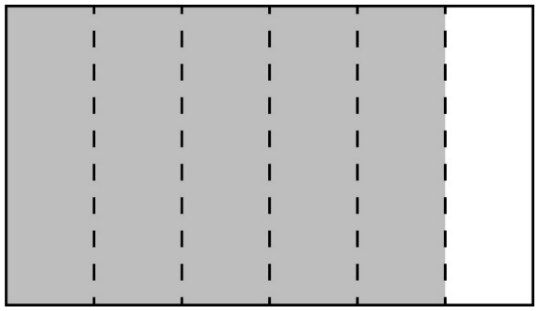
Fraction Cards (cont'd)

$\frac{2}{3}$	
	$\frac{16}{24}$
$\frac{3}{5}$	
	$\frac{21}{35}$

Name_____ Date_____

Number
Unit 3 Line Master 1c

Fraction Cards (cont'd)

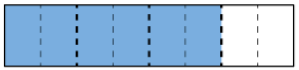
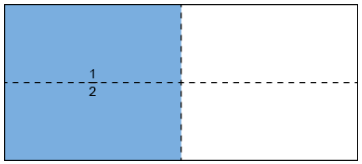
$\frac{4}{9}$	
	$\frac{16}{36}$
$\frac{5}{6}$	
	$\frac{30}{36}$

Number

Activity 9 Assessment

Exploring Equivalence in Fractions

Investigating Fractions

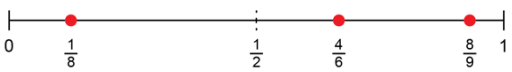
Recognizes that equivalent fractions name the same quantity  "If I partition each fourth into 2 equal parts, I see $\frac{3}{4}$ and $\frac{6}{8}$ are the same amount."	Identifies equivalent fractions using paper folding  "I folded the rectangle in half and shaded one region. I folded it in half again to show $\frac{1}{2} = \frac{2}{4}$. I continued to fold the paper in half to show that $\frac{1}{2}$ also equals $\frac{4}{8}$ and $\frac{8}{16}$."	Names equivalent fractions by multiplying or dividing numerator and denominator by the same number $\frac{1}{4} \cdot \frac{1 \times 3}{4 \times 3} = \frac{3}{12}$ "So, $\frac{3}{12}$ is equivalent to $\frac{1}{4}$."

Observations/Documentation

Number

Activity 9 Assessment

Exploring Equivalence in Fractions

Investigating Fractions (cont'd)		
Writes a fraction in simplest form $\frac{16}{20}$: $\frac{16 \div 4}{20 \div 4} = \frac{4}{5}$ "4 and 5 have no common factors. So, $\frac{4}{5}$ is in simplest form."	Uses fraction sense (e.g., benchmarks) to compare fractions  "I know $\frac{4}{6}$ is a little more than half, $\frac{8}{9}$ is pretty close to one whole, and $\frac{1}{8}$ is close to zero."	Compares and orders fractions using a variety of strategies (e.g., equivalent fractions) $\frac{5}{8}, \frac{3}{4}, \frac{1}{2}$: I wrote each fraction with denominator 8. $\frac{3 \times 2}{4 \times 2} = \frac{6}{8}$ and $\frac{1 \times 4}{2 \times 4} = \frac{4}{8}$; so, $\frac{1}{2} < \frac{5}{8} < \frac{3}{4}$
Observations/Documentation		

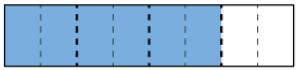
Number

Activity 10 Assessment

Equivalent Fractions

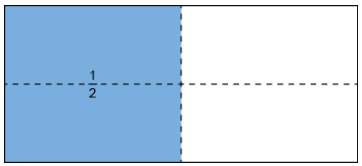
Investigating Fractions

Recognizes that equivalent fractions name the same quantity



"If I partition each fourth into 2 equal parts, I see $\frac{3}{4}$ and $\frac{6}{8}$ are the same amount."

Identifies equivalent fractions using paper folding



"I folded the rectangle in half and shaded one region. I folded it in half again to show $\frac{1}{2} = \frac{2}{4}$. I continued to fold the paper in half to show that $\frac{1}{2}$ also equals $\frac{4}{8}$ and $\frac{8}{16}$."

Names equivalent fractions by multiplying or dividing numerator and denominator by the same number

$$\frac{1}{4} \cdot \frac{1 \times 3}{4 \times 3} = \frac{3}{12}$$

"So, $\frac{3}{12}$ is equivalent to $\frac{1}{4}$."

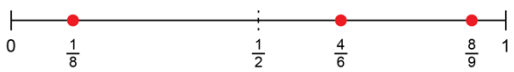
Observations/Documentation

Number

Activity 10 Assessment

Equivalent Fractions

Investigating Fractions (cont'd)

Writes a fraction in simplest form	Uses fraction sense (e.g., benchmarks) to compare fractions	Compares and orders fractions using a variety of strategies (e.g., equivalent fractions)
$\frac{16}{20}$: $\frac{16 \div 4}{20 \div 4} = \frac{4}{5}$ "4 and 5 have no common factors. So, $\frac{4}{5}$ is in simplest form."	 "I know $\frac{4}{6}$ is a little more than half, $\frac{8}{9}$ is pretty close to one whole, and $\frac{1}{8}$ is close to zero."	$\frac{5}{8}, \frac{3}{4}, \frac{1}{2}$: I wrote each fraction with denominator 8. $\frac{3 \times 2}{4 \times 2} = \frac{6}{8}$ and $\frac{1 \times 4}{2 \times 4} = \frac{4}{8}$; so, $\frac{1}{2} < \frac{5}{8} < \frac{3}{4}$

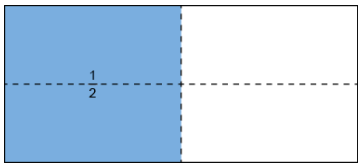
Observations/Documentation

Number

Activity 11 Assessment

Comparing and Ordering Fractions

Investigating Fractions

Recognizes that equivalent fractions name the same quantity	Identifies equivalent fractions using paper folding	Names equivalent fractions by multiplying or dividing numerator and denominator by the same number
 "If I partition each fourth into 2 equal parts, I see $\frac{3}{4}$ and $\frac{6}{8}$ are the same amount."	 "I folded the rectangle in half and shaded one region. I folded it in half again to show $\frac{1}{2} = \frac{2}{4}$. I continued to fold the paper in half to show that $\frac{1}{2}$ also equals $\frac{4}{8}$ and $\frac{8}{16}$."	$\frac{1}{4} \cdot \frac{1 \times 3}{4 \times 3} = \frac{3}{12}$ "So, $\frac{3}{12}$ is equivalent to $\frac{1}{4}$."

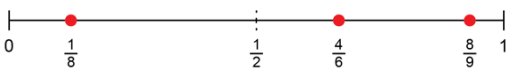
Observations/Documentation

Number

Activity 11 Assessment

Comparing and Ordering Fractions

Investigating Fractions (cont'd)

Writes a fraction in simplest form	Uses fraction sense (e.g., benchmarks) to compare fractions	Compares and orders fractions using a variety of strategies (e.g., equivalent fractions)
$\frac{16}{20}$: $\frac{16 \div 4}{20 \div 4} = \frac{4}{5}$ "4 and 5 have no common factors. So, $\frac{4}{5}$ is in simplest form."	 "I know $\frac{4}{6}$ is a little more than half, $\frac{8}{9}$ is pretty close to one whole, and $\frac{1}{8}$ is close to zero."	$\frac{5}{8}, \frac{3}{4}, \frac{1}{2}$: I wrote each fraction with denominator 8. $\frac{3 \times 2}{4 \times 2} = \frac{6}{8}$ and $\frac{1 \times 4}{2 \times 4} = \frac{4}{8}$; so, $\frac{1}{2} < \frac{5}{8} < \frac{3}{4}$

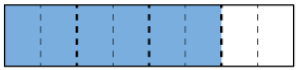
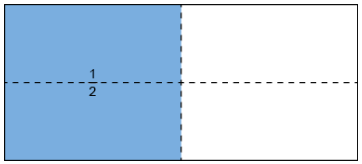
Observations/Documentation

Number

Activity 12 Assessment

Fractions Consolidation

Investigating Fractions

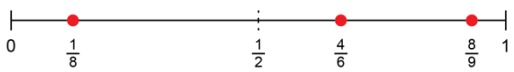
Recognizes that equivalent fractions name the same quantity	Identifies equivalent fractions using paper folding	Names equivalent fractions by multiplying or dividing numerator and denominator by the same number
 "If I partition each fourth into 2 equal parts, I see $\frac{3}{4}$ and $\frac{6}{8}$ are the same amount."	 "I folded the rectangle in half and shaded one region. I folded it in half again to show $\frac{1}{2} = \frac{2}{4}$. I continued to fold the paper in half to show that $\frac{1}{2}$ also equals $\frac{4}{8}$ and $\frac{8}{16}$."	$\frac{1}{4} \cdot \frac{1 \times 3}{4 \times 3} = \frac{3}{12}$ "So, $\frac{3}{12}$ is equivalent to $\frac{1}{4}$."

Observations/Documentation

Number

Activity 12 Assessment

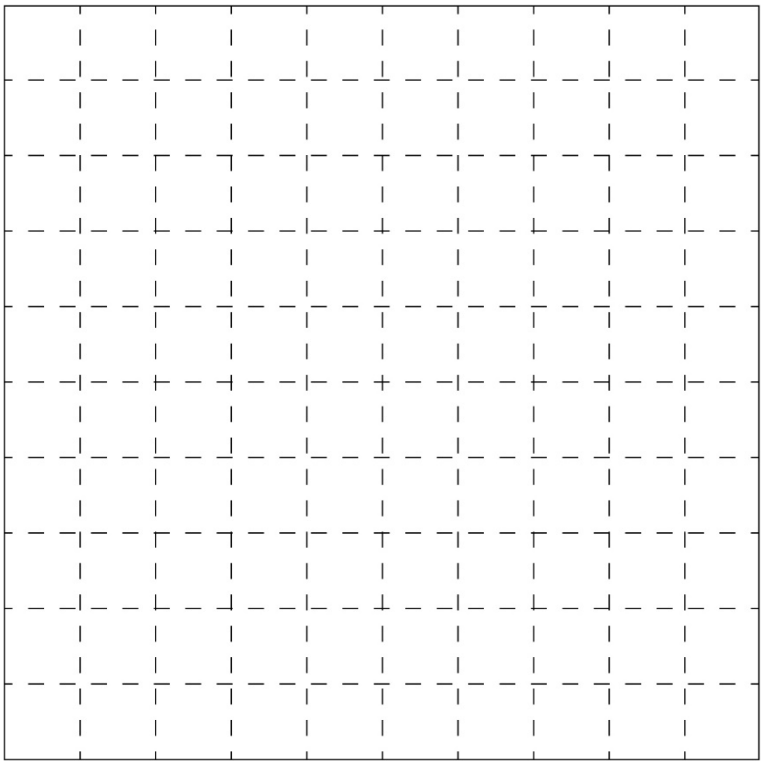
Fractions Consolidation

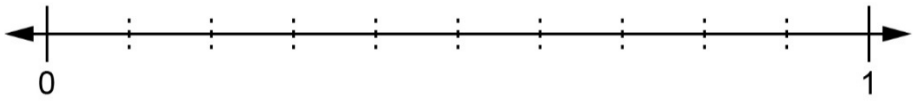
Investigating Fractions (cont'd)		
Writes a fraction in simplest form $\frac{16}{20}: \frac{16 \div 4}{20 \div 4} = \frac{4}{5}$ "4 and 5 have no common factors. So, $\frac{4}{5}$ is in simplest form."	Uses fraction sense (e.g., benchmarks) to compare fractions  "I know $\frac{4}{6}$ is a little more than half, $\frac{8}{9}$ is pretty close to one whole, and $\frac{1}{8}$ is close to zero."	Compares and orders fractions using a variety of strategies (e.g., equivalent fractions) $\frac{5}{8}, \frac{3}{4}, \frac{1}{2}$: I wrote each fraction with denominator 8. $\frac{3 \times 2}{4 \times 2} = \frac{6}{8}$ and $\frac{1 \times 4}{2 \times 4} = \frac{4}{8}$; so, $\frac{1}{2} < \frac{5}{8} < \frac{3}{4}$
Observations/Documentation		

Name_____ Date_____

Number
Unit 4 Line Master 1

Exploring Tenths





Name_____ Date_____

Number
Unit 4 Line Master 2a

Decimal Word Cards

One-tenth	Two-tenths
Three-tenths	Four-tenths
Five-tenths	Six-tenths
Seven-tenths	Eight-tenths
Nine-tenths	Ten-tenths

Name_____ Date_____

Number
Unit 4 Line Master 2b

Decimal Word Cards (cont'd)

Zero-tenths	One whole
One and five-tenths	One and nine-tenths
Two and one-tenth	Two and three-tenths
Twenty-tenths	One and one-tenth
Three and two-tenths	Two wholes

Name_____ Date_____

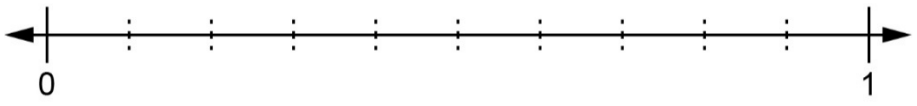
Number
Unit 4 Line Master 3

Place-Value Mat

Hundredths

Hundreds	Tens	Ones	•	Tenths	Hundredths

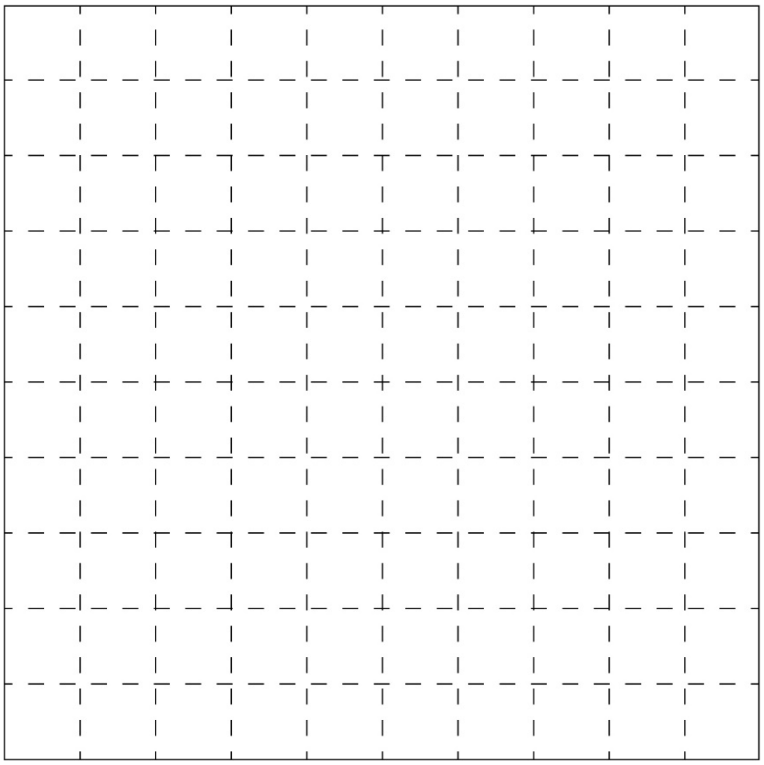
My Number

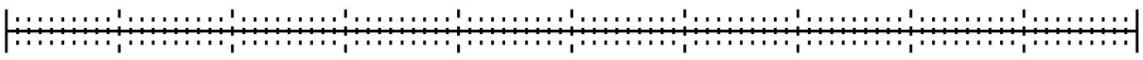


Name_____ Date_____

Number
Unit 4 Line Master 4

Exploring Hundredths

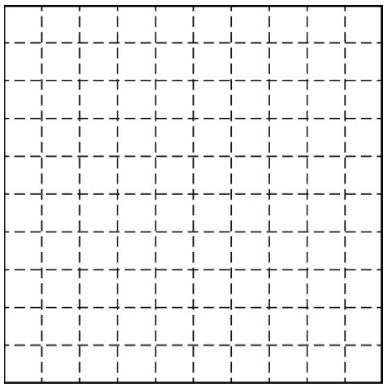
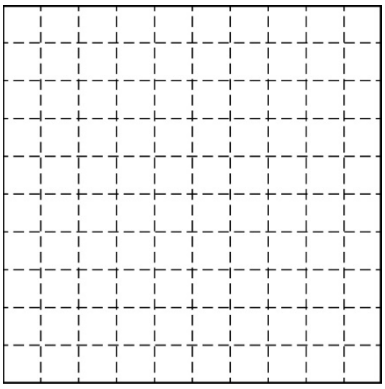
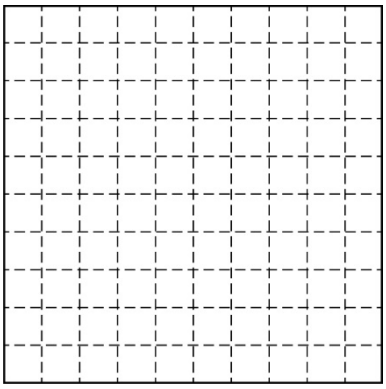


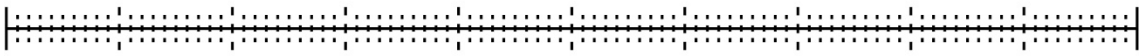


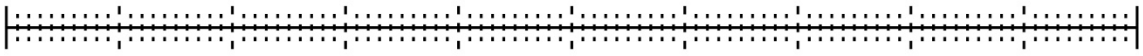
Name_____ Date_____

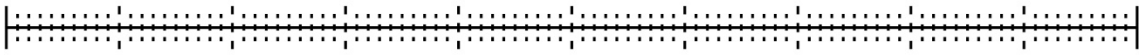
Number
Unit 4 Line Master 5

Comparing Decimals



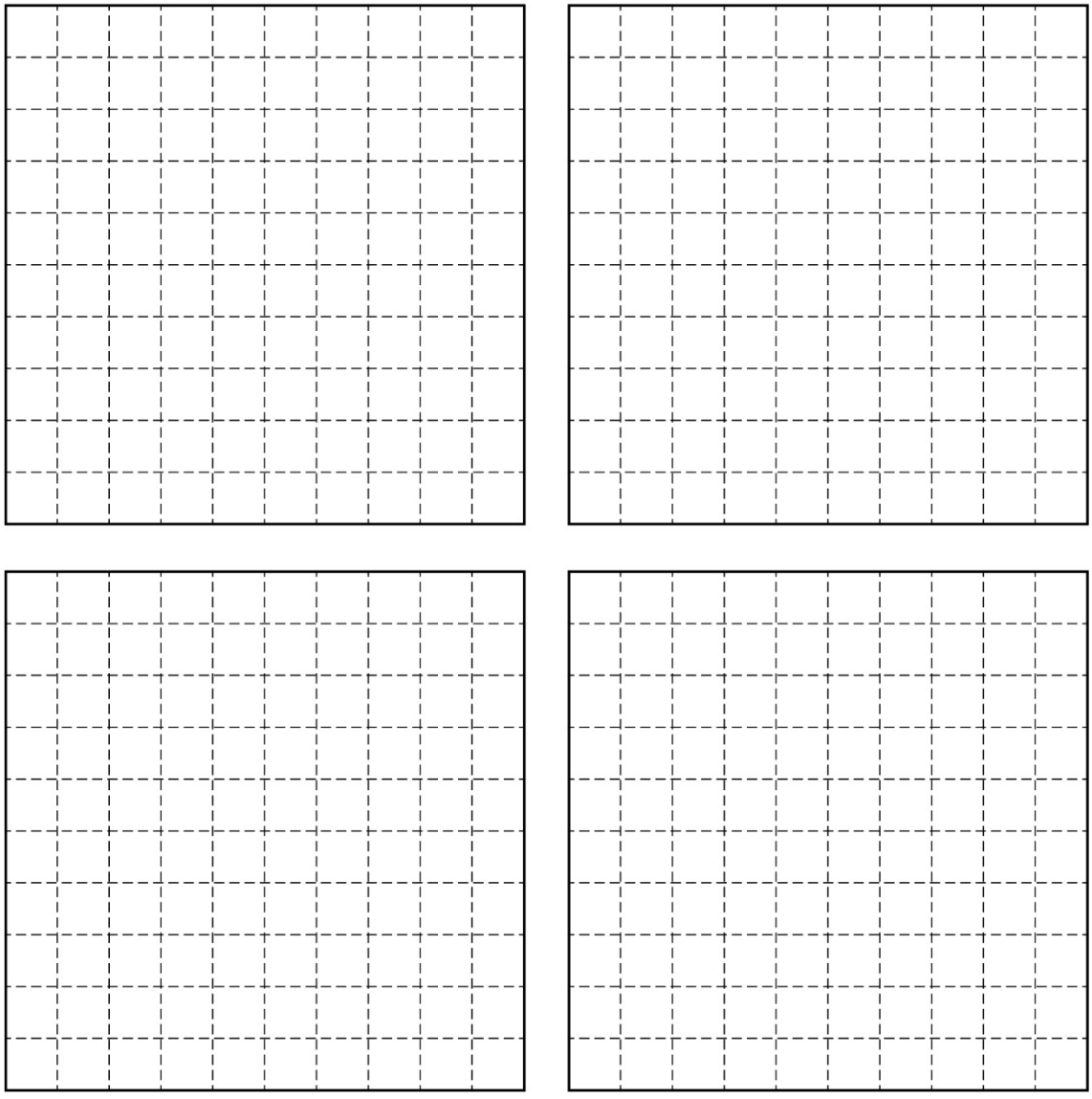




Name_____ Date_____

Number
Unit 4 Line Master 6

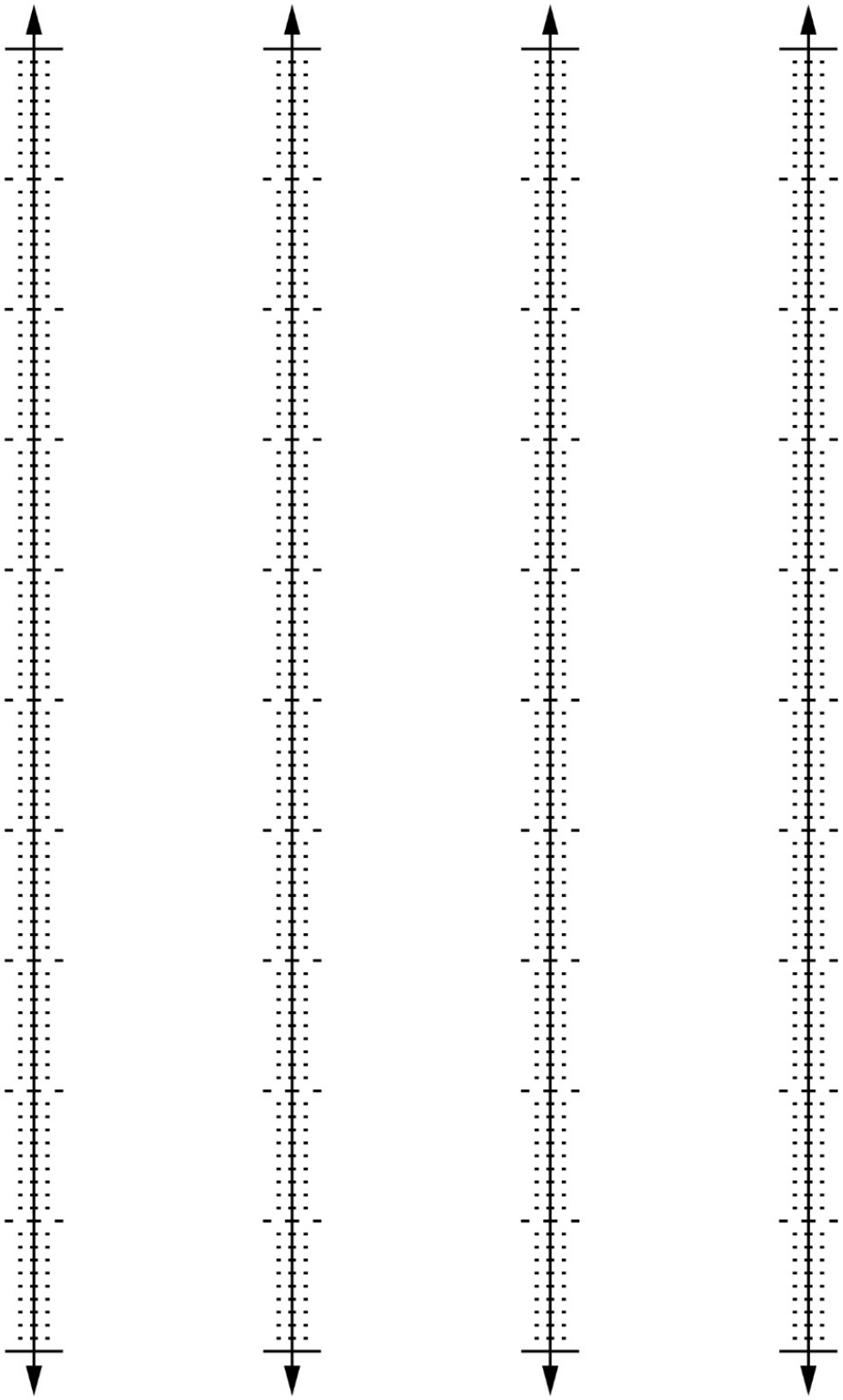
Hundredths Grids



Name_____ Date_____

Number
Unit 4 Line Master 7

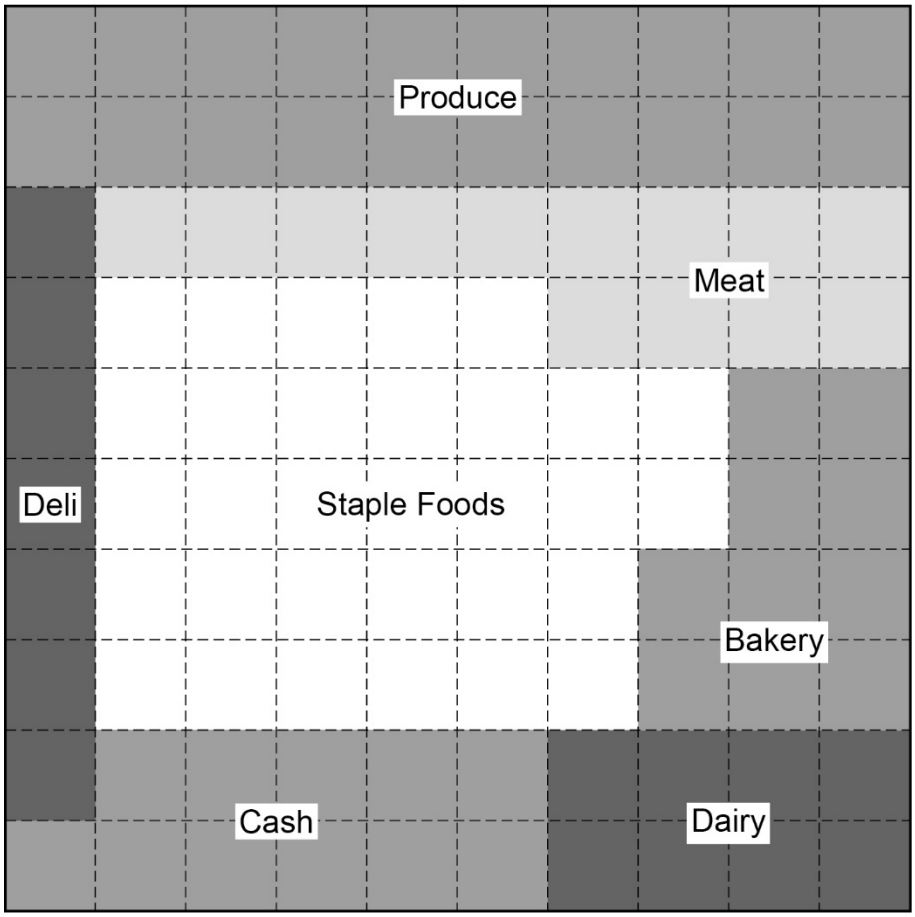
Hundredths Lines



Name_____ Date_____

Number
Unit 4 Line Master 8

The Grocery Store



Name_____ Date_____

Number
Unit 4 Line Master 9a

Spinners

(Decimals with Tenths)

Tenths

Ones

Name_____ Date_____

Number
Unit 4 Line Master 9b

Spinners

(Decimals with Hundredths)

Hundredths

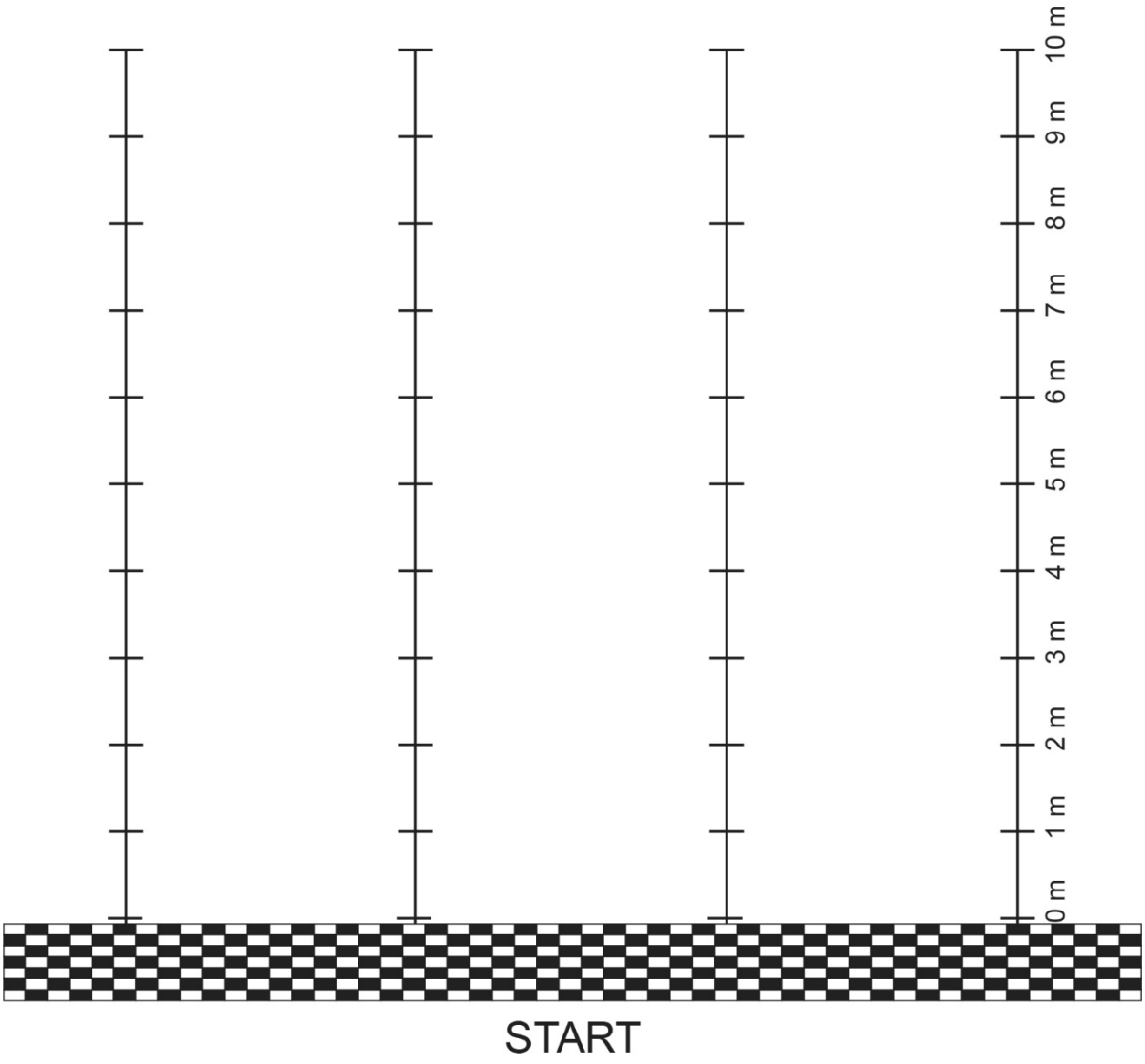
Tenths

Ones

Name_____ Date_____

Number
Unit 4 Line Master 10

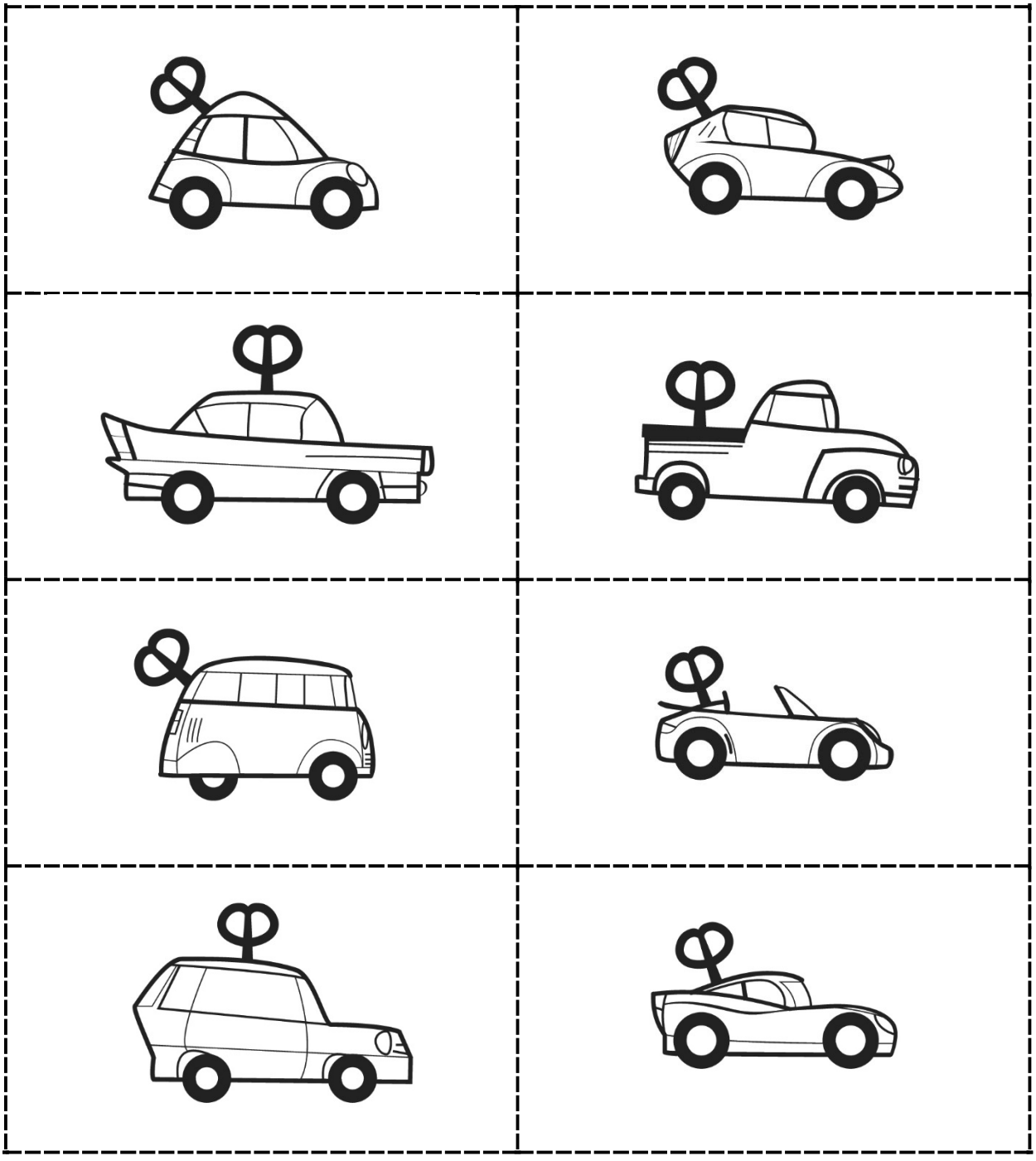
Racetrack Number Line



Name_____ Date_____

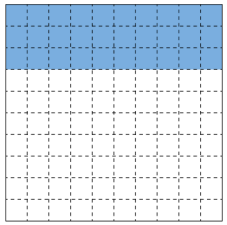
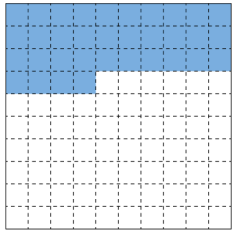
Number
Unit 4 Line Master 11

Wind-Up Cars



Number

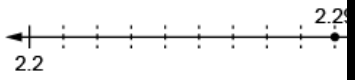
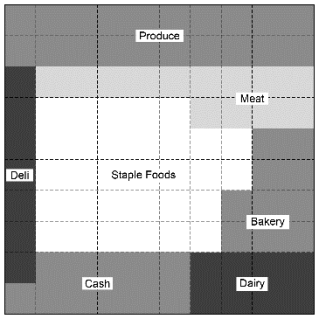
Activity 13 Assessment
Exploring Tenths

Exploring Decimals			
Relates visual representation of decimal with tenths to place value  "0.3; the digit in the tenth place is 3 because there are three tenths shaded."	Compares and orders decimals with tenths using a variety of strategies (e.g., benchmarks, grids) "1.9 > 1.6: both decimals have 1 whole, so I compare the tenths. Nine tenths is greater than 6 tenths, so 1.9 is greater."	Relates visual representation of decimal with hundredths to place value  "0.34 represents 3 tenths and 4 hundredths, or 34 hundredths."	Compares and orders decimals with tenths and/or hundredths using a variety of strategies "1.35 > 1.19: both decimals have 1 whole, so I compare the tenths. Three tenths is greater than 1 tenth, so 1.35 is greater than 1.19."
Observations/Documentation			

Number

Activity 13 Assessment
Exploring Tenths

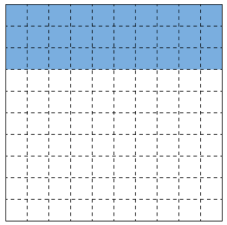
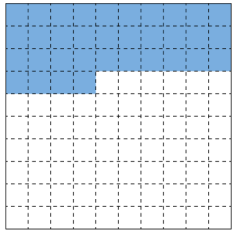
Exploring Decimals (cont'd)

Rounds decimals to the nearest whole number and/or tenth	Expresses fractions as decimal numbers and vice versa, limited to tenths and hundredths	Expresses the fraction, decimal, and percent representations for the same part-whole relationship	Compares percents within 100%
 "2.29 is closer to 2.3 than to 2.2, so I round up to 2.3."	 "The Dairy section covers $\frac{8}{100}$ or 0.08 of the store."	"I know that $\frac{2}{5}$ is the same as four-tenths, which is the same as 0.4, 0.40, and 40%."	"45%, 89%, 27%: I know that 89% is greater than both 45% and 27%, because 8 tens is greater than both 4 tens and 2 tens."

Observations/Documentation

Number

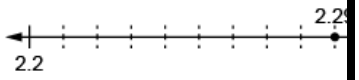
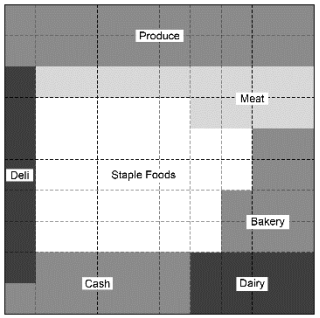
Activity 14 Assessment
Exploring Hundredths

Exploring Decimals			
Relates visual representation of decimal with tenths to place value  "0.3; the digit in the tenth place is 3 because there are three tenths shaded."	Compares and orders decimals with tenths using a variety of strategies (e.g., benchmarks, grids) "1.9 > 1.6: both decimals have 1 whole, so I compare the tenths. Nine tenths is greater than 6 tenths, so 1.9 is greater."	Relates visual representation of decimal with hundredths to place value  "0.34 represents 3 tenths and 4 hundredths, or 34 hundredths."	Compares and orders decimals with tenths and/or hundredths using a variety of strategies "1.35 > 1.19: both decimals have 1 whole, so I compare the tenths. Three tenths is greater than 1 tenth, so 1.35 is greater than 1.19."
Observations/Documentation			

Number

Activity 14 Assessment
Exploring Hundredths

Exploring Decimals (cont'd)

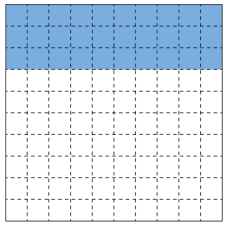
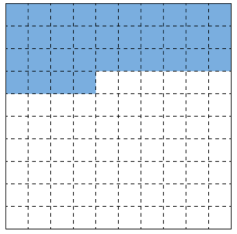
Rounds decimals to the nearest whole number and/or tenth	Expresses fractions as decimal numbers and vice versa, limited to tenths and hundredths	Expresses the fraction, decimal, and percent representations for the same part-whole relationship	Compares percents within 100%
 "2.29 is closer to 2.3 than to 2.2, so I round up to 2.3."	 "The Dairy section covers $\frac{8}{100}$ or 0.08 of the store."	"I know that $\frac{2}{5}$ is the same as four-tenths, which is the same as 0.4, 0.40, and 40%."	"45%, 89%, 27%: I know that 89% is greater than both 45% and 27%, because 8 tens is greater than both 4 tens and 2 tens."

Observations/Documentation

Number

Activity 15 Assessment

Comparing and Ordering Decimals

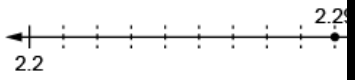
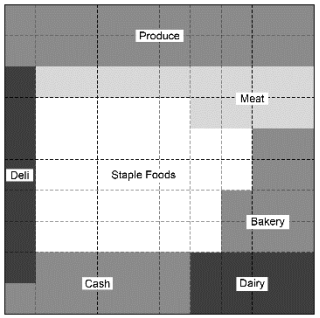
Exploring Decimals			
Relates visual representation of decimal with tenths to place value  "0.3; the digit in the tenth place is 3 because there are three tenths shaded."	Compares and orders decimals with tenths using a variety of strategies (e.g., benchmarks, grids) "1.9 > 1.6: both decimals have 1 whole, so I compare the tenths. Nine tenths is greater than 6 tenths, so 1.9 is greater."	Relates visual representation of decimal with hundredths to place value  "0.34 represents 3 tenths and 4 hundredths, or 34 hundredths."	Compares and orders decimals with tenths and/or hundredths using a variety of strategies "1.35 > 1.19: both decimals have 1 whole, so I compare the tenths. Three tenths is greater than 1 tenth, so 1.35 is greater than 1.19."
Observations/Documentation			

Number

Activity 15 Assessment

Comparing and Ordering Decimals

Exploring Decimals (cont'd)

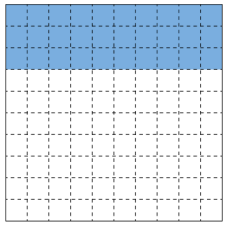
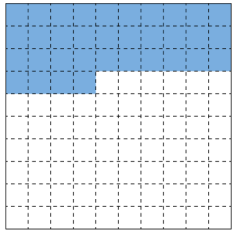
Rounds decimals to the nearest whole number and/or tenth	Expresses fractions as decimal numbers and vice versa, limited to tenths and hundredths	Expresses the fraction, decimal, and percent representations for the same part-whole relationship	Compares percents within 100%
 "2.29 is closer to 2.3 than to 2.2, so I round up to 2.3."	 "The Dairy section covers $\frac{8}{100}$ or 0.08 of the store."	"I know that $\frac{2}{5}$ is the same as four-tenths, which is the same as 0.4, 0.40, and 40%."	"45%, 89%, 27%: I know that 89% is greater than both 45% and 27%, because 8 tens is greater than both 4 tens and 2 tens."

Observations/Documentation

Number

Activity 16 Assessment

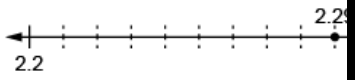
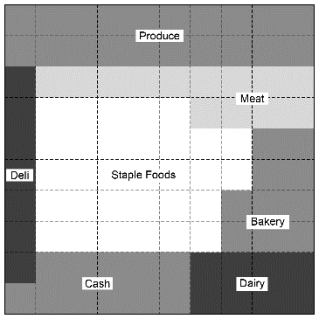
Rounding Decimals

Exploring Decimals			
Relates visual representation of decimal with tenths to place value  "0.3; the digit in the tenth place is 3 because there are three tenths shaded."	Compares and orders decimals with tenths using a variety of strategies (e.g., benchmarks, grids) "1.9 > 1.6: both decimals have 1 whole, so I compare the tenths. Nine tenths is greater than 6 tenths, so 1.9 is greater."	Relates visual representation of decimal with hundredths to place value  "0.34 represents 3 tenths and 4 hundredths, or 34 hundredths."	Compares and orders decimals with tenths and/or hundredths using a variety of strategies "1.35 > 1.19: both decimals have 1 whole, so I compare the tenths. Three tenths is greater than 1 tenth, so 1.35 is greater than 1.19."
Observations/Documentation			

Number

Activity 16 Assessment
Rounding Decimals

Exploring Decimals (cont'd)

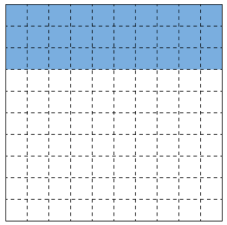
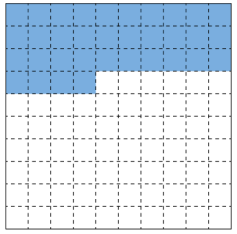
Rounds decimals to the nearest whole number and/or tenth	Expresses fractions as decimal numbers and vice versa, limited to tenths and hundredths	Expresses the fraction, decimal, and percent representations for the same part-whole relationship	Compares percents within 100%
 "2.29 is closer to 2.3 than to 2.2, so I round up to 2.3."	 "The Dairy section covers $\frac{8}{100}$ or 0.08 of the store."	"I know that $\frac{2}{5}$ is the same as four-tenths, which is the same as 0.4, 0.40, and 40%."	"45%, 89%, 27%: I know that 89% is greater than both 45% and 27%, because 8 tens is greater than both 4 tens and 2 tens."

Observations/Documentation

Number

Activity 17 Assessment

Relating Fractions and Decimals

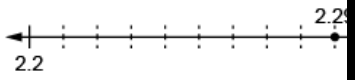
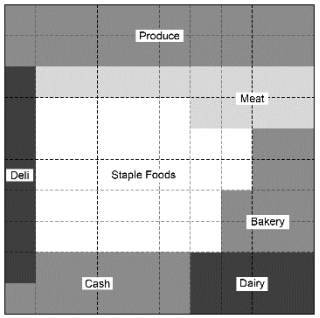
Exploring Decimals			
Relates visual representation of decimal with tenths to place value  "0.3; the digit in the tenth place is 3 because there are three tenths shaded."	Compares and orders decimals with tenths using a variety of strategies (e.g., benchmarks, grids) "1.9 > 1.6: both decimals have 1 whole, so I compare the tenths. Nine tenths is greater than 6 tenths, so 1.9 is greater."	Relates visual representation of decimal with hundredths to place value  "0.34 represents 3 tenths and 4 hundredths, or 34 hundredths."	Compares and orders decimals with tenths and/or hundredths using a variety of strategies "1.35 > 1.19: both decimals have 1 whole, so I compare the tenths. Three tenths is greater than 1 tenth, so 1.35 is greater than 1.19."
Observations/Documentation			

Number

Activity 17 Assessment

Relating Fractions and Decimals

Exploring Decimals (cont'd)

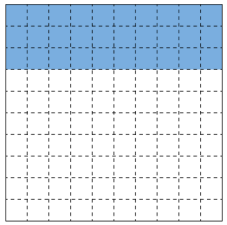
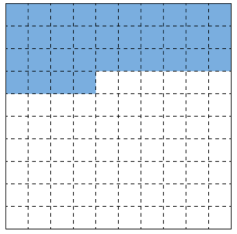
Rounds decimals to the nearest whole number and/or tenth	Expresses fractions as decimal numbers and vice versa, limited to tenths and hundredths	Expresses the fraction, decimal, and percent representations for the same part-whole relationship	Compares percents within 100%
 "2.29 is closer to 2.3 than to 2.2, so I round up to 2.3."	 "The Dairy section covers $\frac{8}{100}$ or 0.08 of the store."	"I know that $\frac{2}{5}$ is the same as four-tenths, which is the same as 0.4, 0.40, and 40%."	"45%, 89%, 27%: I know that 89% is greater than both 45% and 27%, because 8 tens is greater than both 4 tens and 2 tens."

Observations/Documentation

Number

Activity 18 Assessment

Investigating Percents

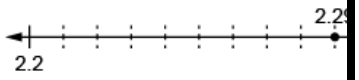
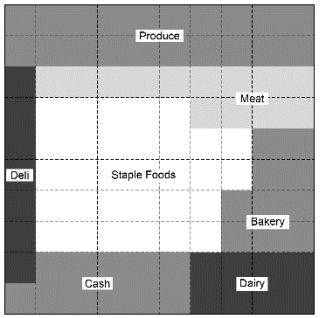
Exploring Decimals			
Relates visual representation of decimal with tenths to place value  "0.3; the digit in the tenth place is 3 because there are three tenths shaded."	Compares and orders decimals with tenths using a variety of strategies (e.g., benchmarks, grids) "1.9 > 1.6: both decimals have 1 whole, so I compare the tenths. Nine tenths is greater than 6 tenths, so 1.9 is greater."	Relates visual representation of decimal with hundredths to place value  "0.34 represents 3 tenths and 4 hundredths, or 34 hundredths."	Compares and orders decimals with tenths and/or hundredths using a variety of strategies "1.35 > 1.19: both decimals have 1 whole, so I compare the tenths. Three tenths is greater than 1 tenth, so 1.35 is greater than 1.19."
Observations/Documentation			

Number

Activity 18 Assessment

Investigating Percents

Exploring Decimals (cont'd)

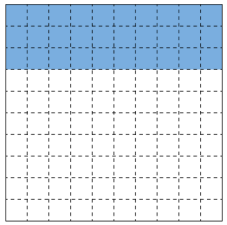
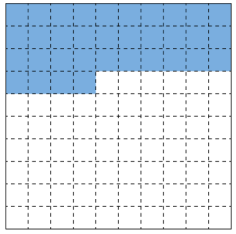
Rounds decimals to the nearest whole number and/or tenth	Expresses fractions as decimal numbers and vice versa, limited to tenths and hundredths	Expresses the fraction, decimal, and percent representations for the same part-whole relationship	Compares percents within 100%
 "2.29 is closer to 2.3 than to 2.2, so I round up to 2.3."	 "The Dairy section covers $\frac{8}{100}$ or 0.08 of the store."	"I know that $\frac{2}{5}$ is the same as four-tenths, which is the same as 0.4, 0.40, and 40%."	"45%, 89%, 27%: I know that 89% is greater than both 45% and 27%, because 8 tens is greater than both 4 tens and 2 tens."

Observations/Documentation

Number

Activity 19 Assessment

Consolidating Decimals

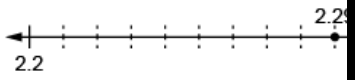
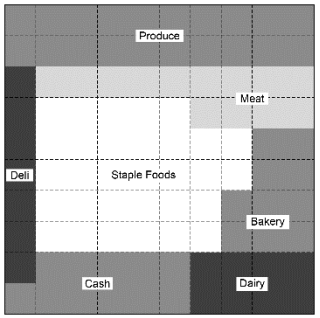
Exploring Decimals			
Relates visual representation of decimal with tenths to place value  "0.3; the digit in the tenth place is 3 because there are three tenths shaded."	Compares and orders decimals with tenths using a variety of strategies (e.g., benchmarks, grids) "1.9 > 1.6: both decimals have 1 whole, so I compare the tenths. Nine tenths is greater than 6 tenths, so 1.9 is greater."	Relates visual representation of decimal with hundredths to place value  "0.34 represents 3 tenths and 4 hundredths, or 34 hundredths."	Compares and orders decimals with tenths and/or hundredths using a variety of strategies "1.35 > 1.19: both decimals have 1 whole, so I compare the tenths. Three tenths is greater than 1 tenth, so 1.35 is greater than 1.19."
Observations/Documentation			

Number

Activity 19 Assessment

Consolidating Decimals

Exploring Decimals (cont'd)

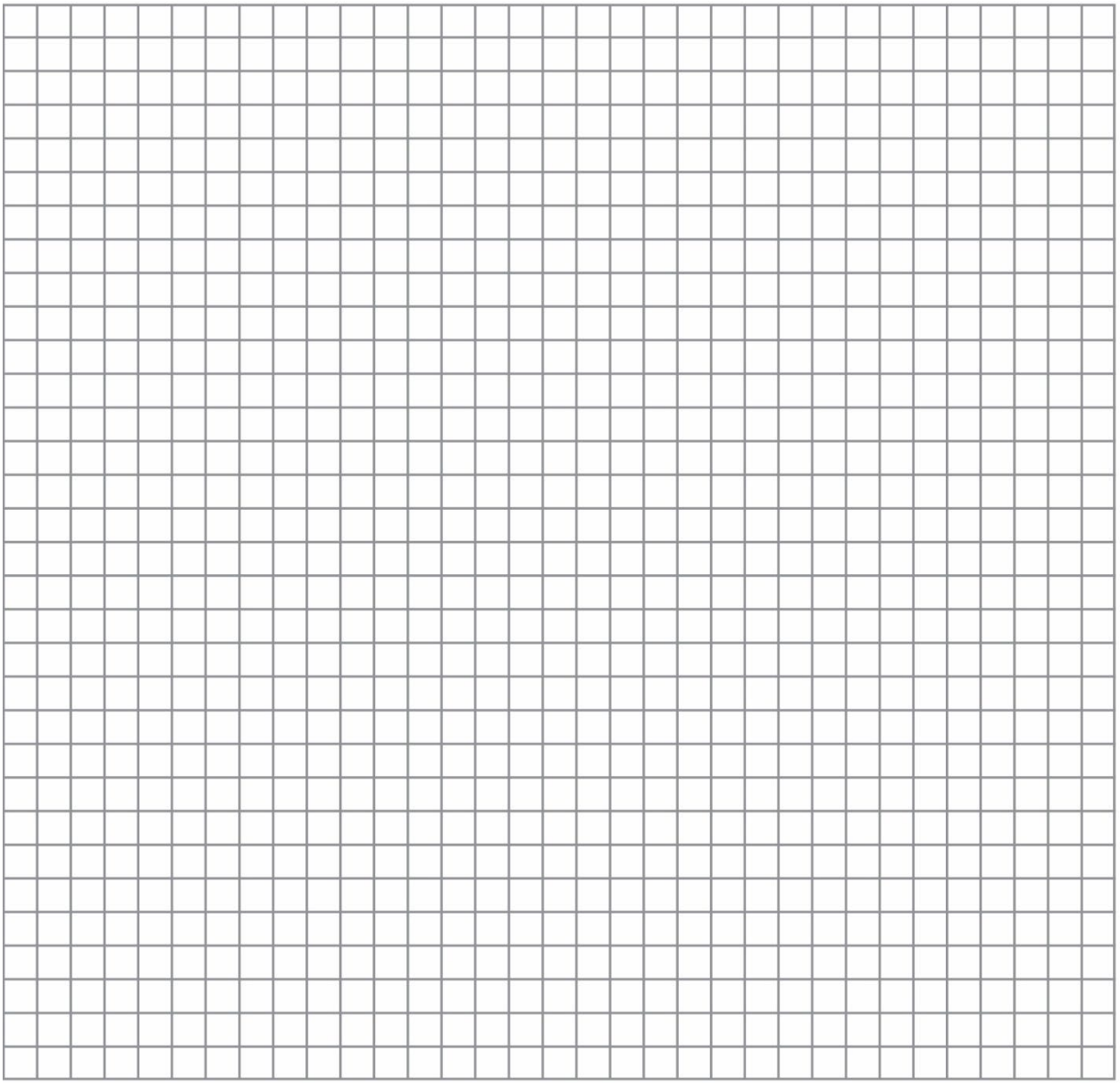
Rounds decimals to the nearest whole number and/or tenth	Expresses fractions as decimal numbers and vice versa, limited to tenths and hundredths	Expresses the fraction, decimal, and percent representations for the same part-whole relationship	Compares percents within 100%
 "2.29 is closer to 2.3 than to 2.2, so I round up to 2.3."	 "The Dairy section covers $\frac{8}{100}$ or 0.08 of the store."	"I know that $\frac{2}{5}$ is the same as four-tenths, which is the same as 0.4, 0.40, and 40%."	"45%, 89%, 27%: I know that 89% is greater than both 45% and 27%, because 8 tens is greater than both 4 tens and 2 tens."

Observations/Documentation

Name _____ Date _____

Number
Unit 5 Line Master 1

0.5-cm Grid



Name_____ Date_____

Number
Unit 5 Line Master 2a

Four in a Row

56	8	60	12	49	99	28	7	77	20
108	32	6	18	36	10	30	15	72	22
9	42	14	5	70	21	35	8	24	40
121	90	24	55	10	120	6	48	16	80
64	110	2	30	12	20	27	132	54	77
10	4	50	15	33	25	144	96	36	18
45	144	21	110	1	84	14	30	44	48
16	36	8	35	72	9	2	24	32	9
88	63	3	27	66	90	20	40	22	10
60	24	28	6	100	16	81	4	42	11

Name_____ Date_____

Number
Unit 5 Line Master 2b

Three in a Row

49	2	7	4	30	6	24
24	6	5	20	14	18	30
9	25	3	6	21	7	3
2	8	42	1	28	4	10
18	15	12	36	10	35	12
12	4	35	14	6	5	20
8	16	21	15	28	12	42

Name_____ Date_____

Number
Unit 5 Line Master 3

12 × 12 Multiplication Chart

×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Name_____ Date_____

Number
Unit 5 Line Master 4

Prime or Composite?

Prime	**Composite**
Prime	**Composite**
Prime	**Composite**
Prime	**Composite**
Prime	**Composite**
Prime	**Composite**
Prime	**Composite**

Number

Activity 20 Assessment

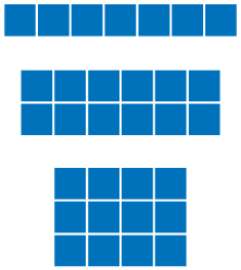
Factors and Multiples, and Prime and Composite Numbers

Determining Multiples and Factors		
Uses skip-counting or repeated addition to find multiples 4, 8, 12, 16, 20, … “To find multiples of 4, I skip counted by 4.”	Uses familiar basic facts to identify some multiples and factors 2 × 4 = 8 3 × 4 = 12 10 × 4 = 40 “I thought of the multiplication facts for 4 that I know.”	Uses efficient strategies to determine multiples and identify all factors “To find factors of 8, I start 8 ÷ 1 = 8 Factors are 1 and 8. 8 ÷ 2 = 4 Factors are 2 and 4. 8 ÷ 3 = X 8 ÷ 4 = 2 So, 1, 2, 4, and 8 are all factors.”
Observations/Documentation		

Number

Activity 20 Assessment

Factors and Multiples, and Prime and Composite Numbers

Determining Multiples and Factors (cont'd)		
Uses concrete materials to identify prime and composite numbers  "7 is prime because it has only 2 factors, 1 and 7. 12 is composite because it has more than 2 factors: 1 and 12, 2 and 6, and 3 and 4."	Identifies common multiples/factors and greatest common factor for a pair of numbers Factors of 24: **1**, **2**, 3, **4**, 6, **8**, 12, 24 Factors of 56: **1**, **2**, **4**, 7, **8**, 14, 28, 56 "The greatest common factor is 8."	Solves problems involving common factors and multiples "Choir practice is every 5th day. Gymnastics is every 3rd day. That means choir and gymnastics both happen every 15th day."
Observations/Documentation		

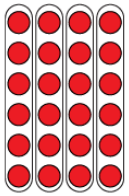
Number

Activity 21 Assessment

Relating Multiplication and Division Facts

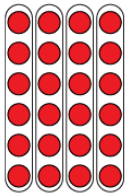
Fluency of Multiplication and Division Facts

Recalls and demonstrates multiplication and divisions facts to 5 × 5



"I know that 4 × 6 = 24
and that 24 ÷ 6 = 4.
The array shows both facts."

Uses inverse operations to solve multiplication and division problems

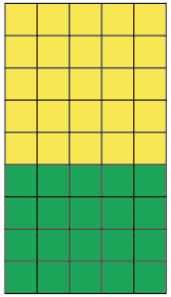


"I can rewrite 24 ÷ 6 = ?
as 6 × ? = 24."

Uses known facts to determine unknown facts

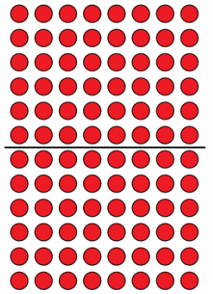
"I can use the distributive property to split the multiplication into facts that I know, then add."

$5 \times 9 = \underline{5 \times 5} + \underline{5 \times 4}$
$25 + 20 = 45$



Fluently creates and solves whole number multiplication problems with factors to 12 and related division problems

There are 96 basketballs with the same number on each of 12 shelves.



12 × □ = 96, so 96 ÷ 12 = □
12 × 8 = 96
Or
12 × 8 = 6 × 8 + 6 × 8
= 48 + 48
= 96

Observations/Documentation

Number

Activity 22 Assessment

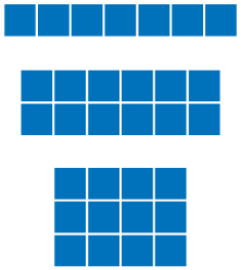
Fluency with Multiplication and Division Consolidation

Determining Multiples and Factors		
Uses skip-counting or repeated addition to find multiples 4, 8, 12, 16, 20, … “To find multiples of 4, I skip counted by 4.”	Uses familiar basic facts to identify some multiples and factors 2 × 4 = 8 3 × 4 = 12 10 × 4 = 40 “I thought of the multiplication facts for 4 that I know.”	Uses efficient strategies to determine multiples and identify all factors “To find factors of 8, I start 8 ÷ 1 = 8 Factors are 1 and 8. 8 ÷ 2 = 4 Factors are 2 and 4. 8 ÷ 3 = X 8 ÷ 4 = 2 So, 1, 2, 4, and 8 are all factors.”
Observations/Documentation		

Number

Activity 22 Assessment

Fluency with Multiplication and Division Consolidation

Determining Multiples and Factors (cont'd)		
Uses concrete materials to identify prime and composite numbers  "7 is prime because it has only 2 factors, 1 and 7. 12 is composite because it has more than 2 factors: 1 and 12, 2 and 6, and 3 and 4."	Identifies common multiples/factors and greatest common factor for a pair of numbers Factors of 24: **1**, **2**, 3, **4**, 6, **8**, 12, 24 Factors of 56: **1**, **2**, **4**, 7, **8**, 14, 28, 56 "The greatest common factor is 8."	Solves problems involving common factors and multiples "Choir practice is every 5th day. Gymnastics is every 3rd day. That means choir and gymnastics both happen every 15th day."
Observations/Documentation		

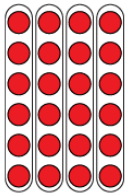
Number

Activity 22 Assessment

Fluency with Multiplication and Division Consolidation

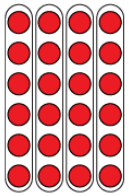
Fluency of Multiplication and Division Facts

Recalls and demonstrates multiplication and divisions facts to 5 × 5



"I know that 4 × 6 = 24
and that 24 ÷ 6 = 4.
The array shows both facts."

Uses inverse operations to solve multiplication and division problems

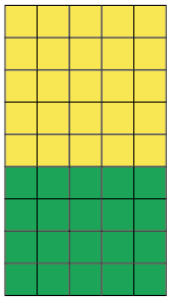


"I can rewrite 24 ÷ 6 = ?
as 6 × ? = 24."

Uses known facts to determine unknown facts

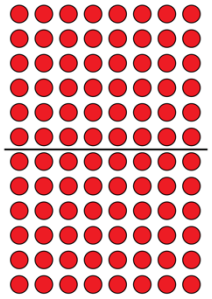
"I can use the distributive property to split the multiplication into facts that I know, then add."

$5 \times 9 = \underline{5 \times 5} + \underline{5 \times 4}$
$25 + 20 = 45$



Fluently creates and solves whole number multiplication problems with factors to 12 and related division problems

There are 96 basketballs with the same number on each of 12 shelves.



12 × □ = 96, so 96 ÷ 12 = □
12 × 8 = 96
Or
12 × 8 = 6 × 8 + 6 × 8
= 48 + 48
= 96

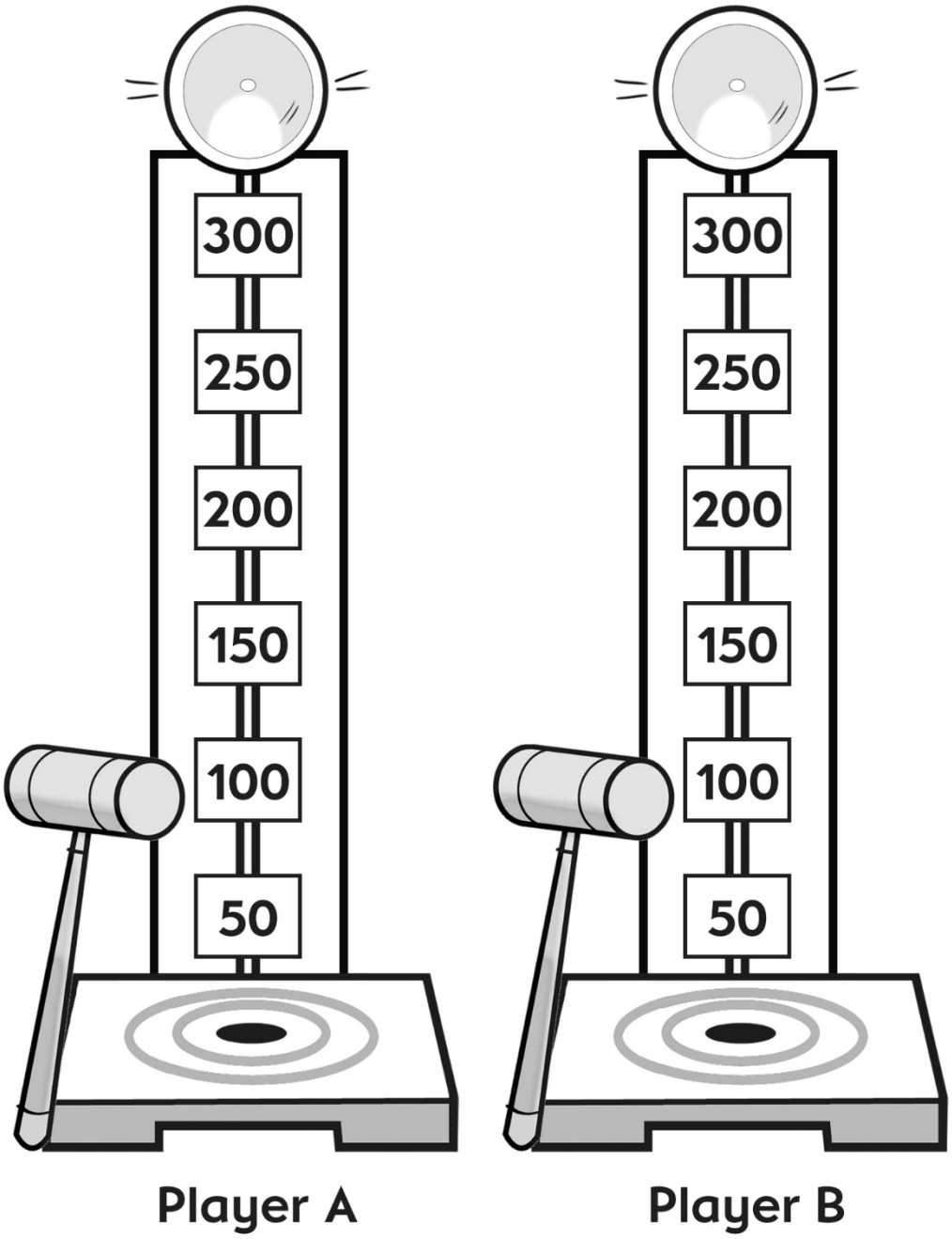
Observations/Documentation

Name_____ Date_____

Number
Unit 6 Line Master 1a

Ring the Bell!

Gameboard

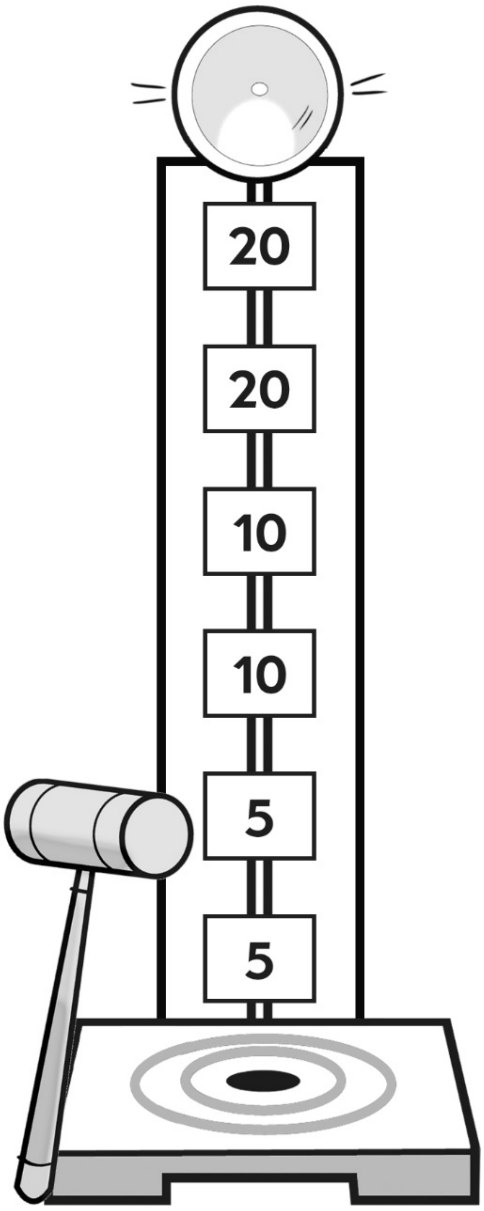


Name_____ Date_____

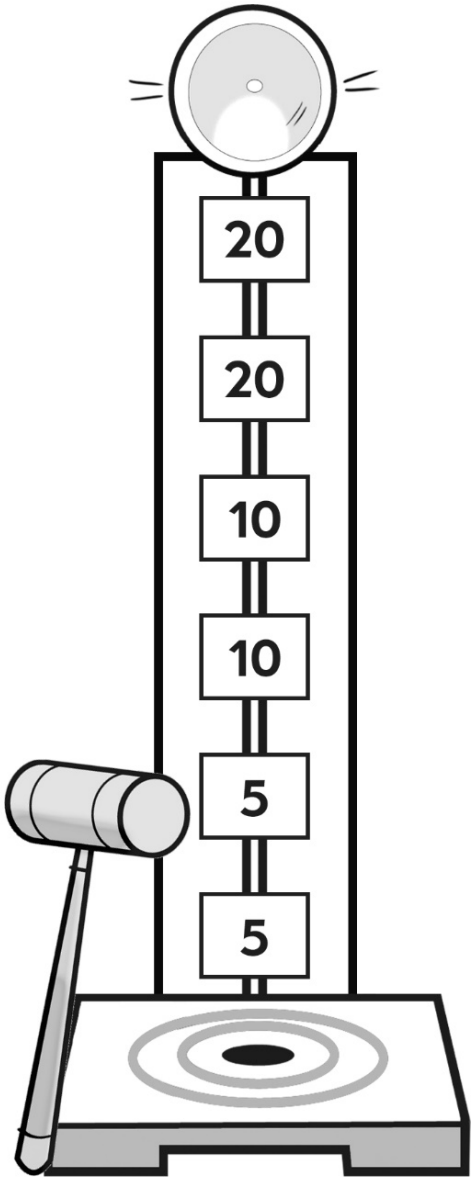
Number
Unit 6 Line Master 1b

Ring the Bell! (cont'd)

Gameboard



Player A



Player B

Name_____ Date_____

Number
Unit 6 Line Master 2a

Ring the Bell!

Game Cards

320 ÷ 6	768 ÷ 5	900 ÷ 4
981 ÷ 3	410 ÷ 8	629 ÷ 6
550 ÷ 3	808 ÷ 8	987 ÷ 4
535 ÷ 4	590 ÷ 2	891 ÷ 6
483 ÷ 9	877 ÷ 9	622 ÷ 2
518 ÷ 2	417 ÷ 2	768 ÷ 3

Name_____ Date_____

Number
Unit 6 Line Master 2b

Ring the Bell! (cont'd)

Game Cards

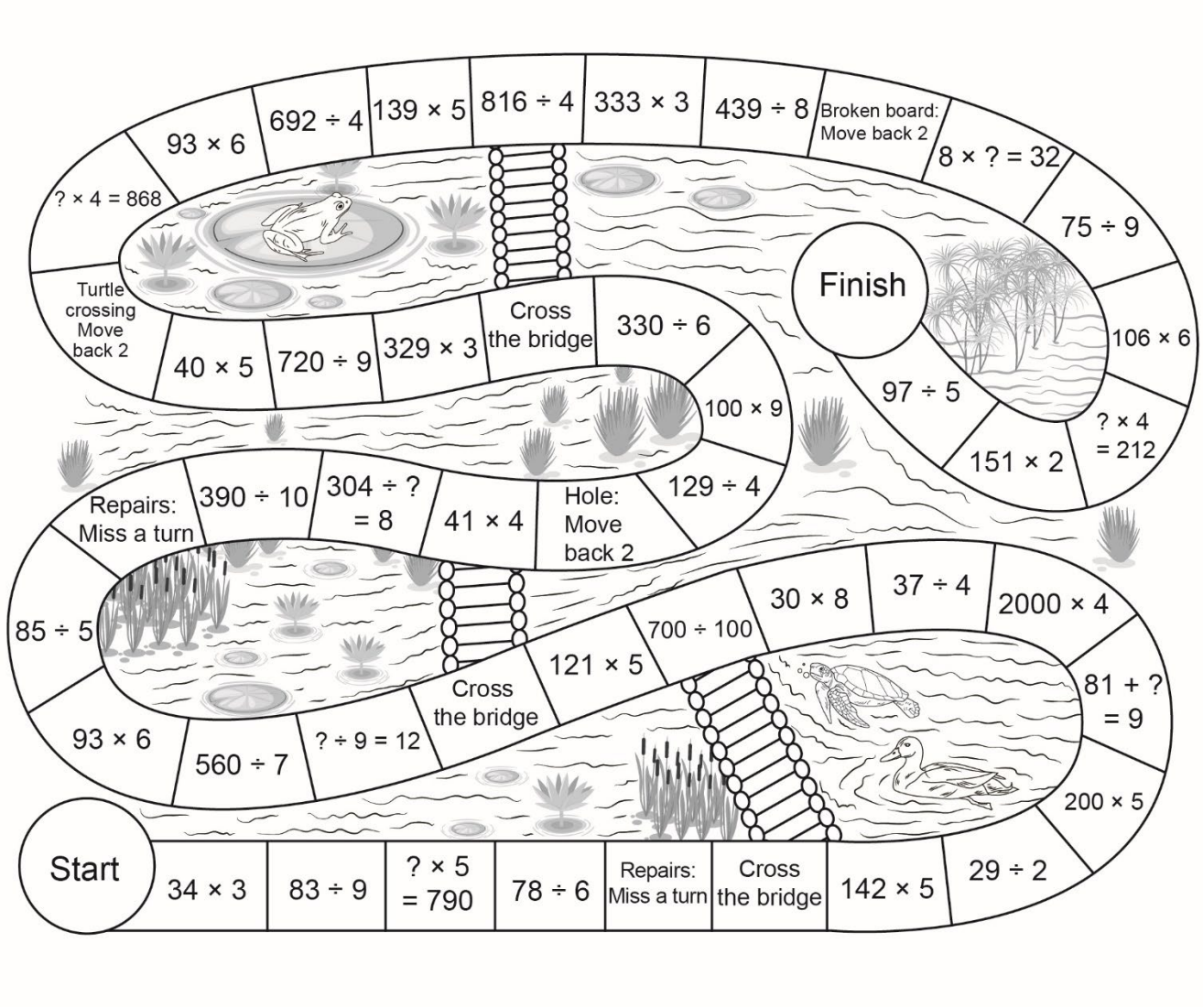
32 ÷ 6	48 ÷ 5	78 ÷ 4
61 ÷ 3	41 ÷ 8	63 ÷ 6
44 ÷ 4	81 ÷ 8	9 ÷ 2
59 ÷ 3	42 ÷ 2	39 ÷ 8

Name_____ Date_____

Number
Unit 6 Line Master 3a

Marsh Dash!

Gameboard A

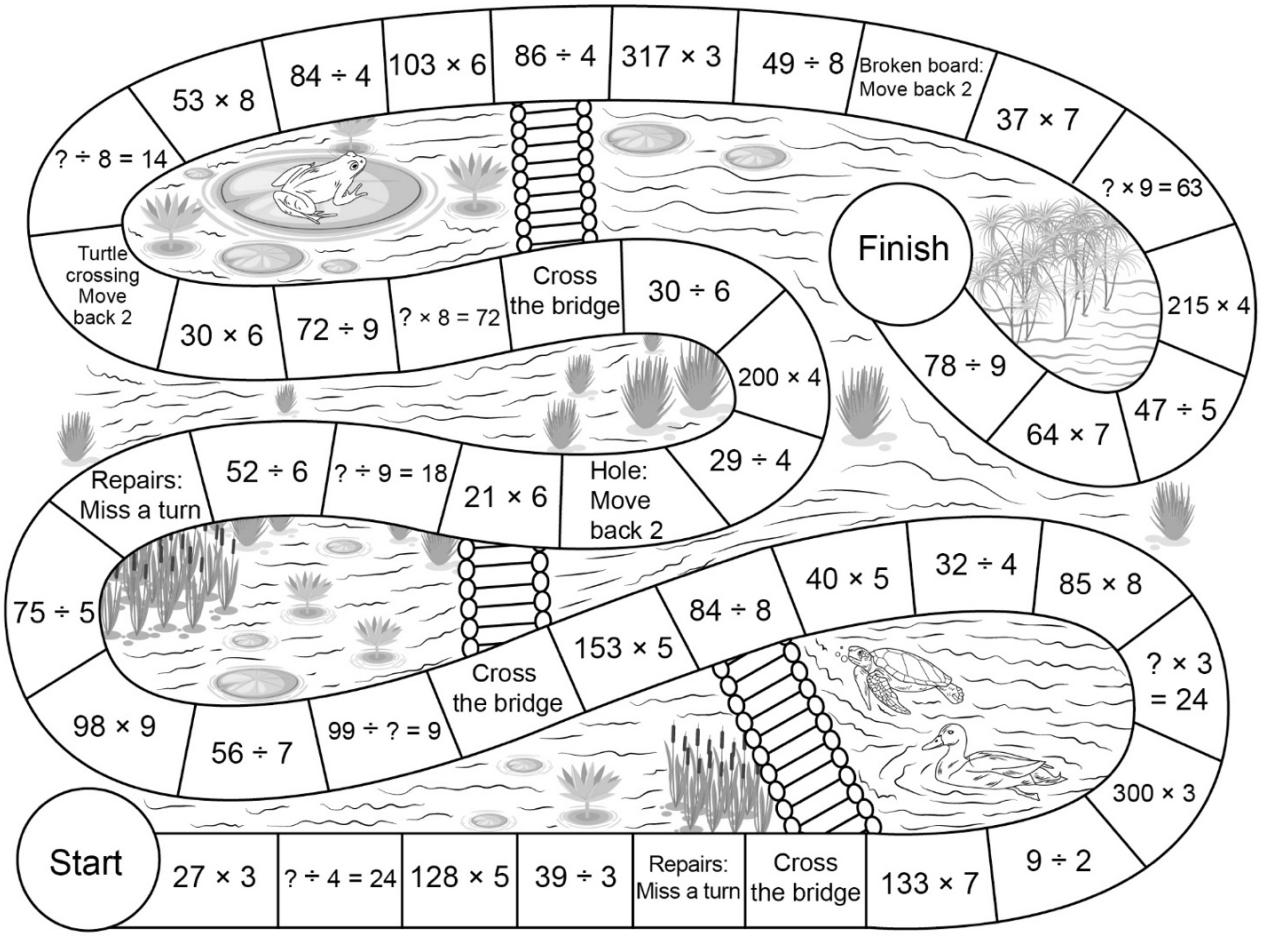


Name_____ Date_____

Number
Unit 6 Line Master 3b

Marsh Dash!

Gameboard B

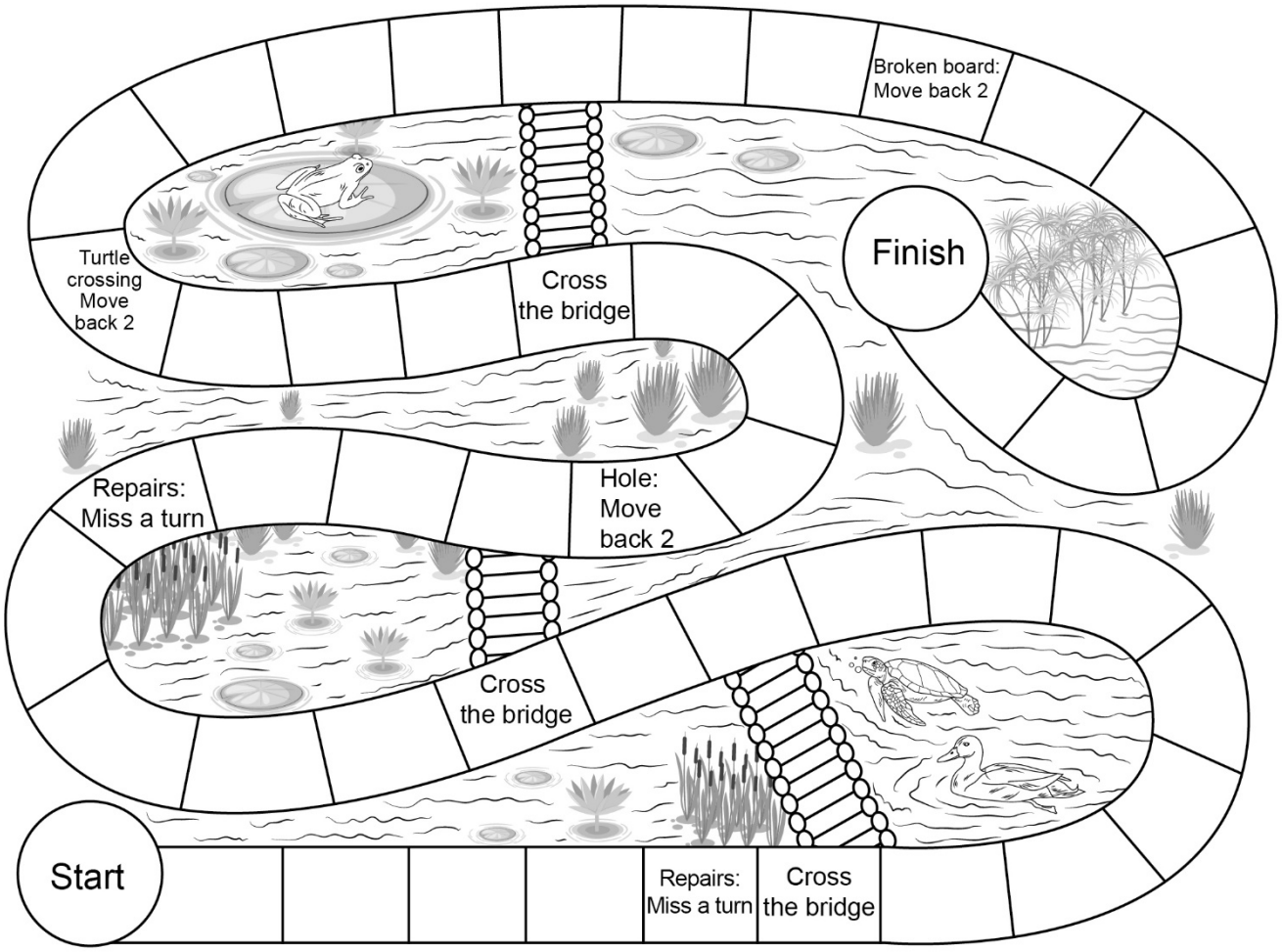


Name_____ Date_____

Number
Unit 6 Line Master 3c

Marsh Dash!

Blank Gameboard



Number

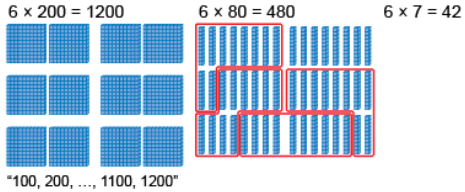
Activity 23 Assessment

Exploring Strategies for Multiplying

Conceptual Meaning of Multiplication and Division with Larger Numbers

Models multiplication and division situations concretely and pictorially

6 × 287 = ?

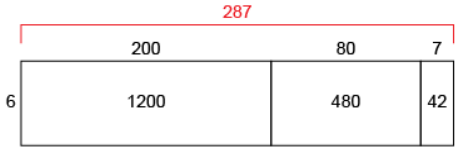


1200 + 480 + 42 = 1722

"I traded groups of 10 rods for a flat."

Models multiplication and division situations using an open array

6 × 287 = ?



"I can use an open array to help me multiply."

Uses place value to multiply and divide natural numbers by 10, 100, and 1000

34 × 200 = 34 × 2 × 100
= 68 × 100
= 6800

"I used the associative property to make friendly numbers."

Observations/Documentation

Number

Activity 23 Assessment

Exploring Strategies for Multiplying

Conceptual Meaning of Multiplication and Division with Larger Numbers (cont'd)

Decomposes numbers and uses standard algorithm to multiply and divide	Estimates to determine if answer to multiplication or division problem is reasonable	Creates and solves multiplication and division problems flexibly using a variety of strategies
6 × 287 = ? $\begin{array}{r} {\scriptstyle 5\ 4}\\ 287\\ \times\quad 6\\ \hline 1722 \end{array}$ "I used the standard algorithm to multiply the numbers."	6 × 287 = 1722 287 is close to 300. 6 × 300 = 1800 "1800 is close to the answer I calculate, 1722. So, my answer is reasonable."	123 ÷ 6 =? "I counted 123 photographs to put in an album. Each page can hold 6 photographs. How many pages will I need?" $\begin{array}{r} 20\ \text{R3}\\ 6\overline{)123}\\ \underline{120}\\ 3 \end{array}$ "I round up to 21 pages to be sure all photos will fit."

Observations/Documentation

Number

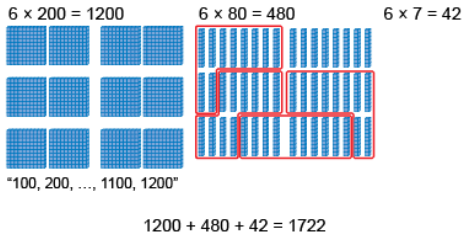
Activity 24 Assessment

Estimating Products

Conceptual Meaning of Multiplication and Division with Larger Numbers

Models multiplication and division situations concretely and pictorially

6 × 287 = ?

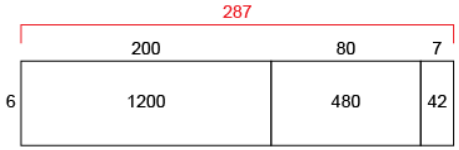


1200 + 480 + 42 = 1722

"I traded groups of 10 rods for a flat."

Models multiplication and division situations using an open array

6 × 287 = ?



"I can use an open array to help me multiply."

Uses place value to multiply and divide natural numbers by 10, 100, and 1000

34 × 200 = 34 × 2 × 100
= 68 × 100
= 6800

"I used the associative property to make friendly numbers."

Observations/Documentation

Number

Activity 24 Assessment

Estimating Products

Conceptual Meaning of Multiplication and Division with Larger Numbers (cont'd)		
Decomposes numbers and uses standard algorithm to multiply and divide 6 × 287 = ? $\begin{array}{r} {\scriptstyle 5\ 4}\\ 287\\ \times\quad 6\\ \hline 1722 \end{array}$ "I used the standard algorithm to multiply the numbers."	Estimates to determine if answer to multiplication or division problem is reasonable 6 × 287 = 1722 287 is close to 300. 6 × 300 = 1800 "1800 is close to the answer I calculate, 1722. So, my answer is reasonable."	Creates and solves multiplication and division problems flexibly using a variety of strategies 123 ÷ 6 =? "I counted 123 photographs to put in an album. Each page can hold 6 photographs. How many pages will I need?" $\begin{array}{r} 20\ \text{R3}\\ 6\overline{)123}\\ \underline{120}\\ 3 \end{array}$ "I round up to 21 pages to be sure all photos will fit."
Observations/Documentation		

Number

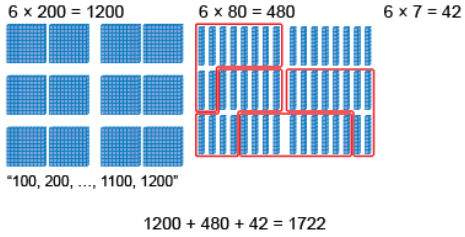
Activity 25 Assessment

Exploring Strategies for Dividing

Conceptual Meaning of Multiplication and Division with Larger Numbers

Models multiplication and division situations concretely and pictorially

6 × 287 = ?

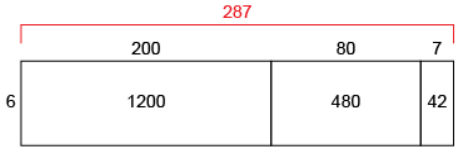


1200 + 480 + 42 = 1722

"I traded groups of 10 rods for a flat."

Models multiplication and division situations using an open array

6 × 287 = ?



"I can use an open array to help me multiply."

Uses place value to multiply and divide natural numbers by 10, 100, and 1000

34 × 200 = 34 × 2 × 100
= 68 × 100
= 6800

"I used the associative property to make friendly numbers."

Observations/Documentation

Number

Activity 25 Assessment

Exploring Strategies for Dividing

Conceptual Meaning of Multiplication and Division with Larger Numbers (cont'd)		
Decomposes numbers and uses standard algorithm to multiply and divide 6 × 287 = ? $\begin{array}{r} {\scriptstyle 5\ 4} \\ 287 \\ \times\quad 6 \\ \hline 1722 \end{array}$ "I used the standard algorithm to multiply the numbers."	Estimates to determine if answer to multiplication or division problem is reasonable 6 × 287 = 1722 287 is close to 300. 6 × 300 = 1800 "1800 is close to the answer I calculate, 1722. So, my answer is reasonable."	Creates and solves multiplication and division problems flexibly using a variety of strategies 123 ÷ 6 =? "I counted 123 photographs to put in an album. Each page can hold 6 photographs. How many pages will I need?" $\begin{array}{r} 20\ \text{R3} \\ 6\overline{)123} \\ \underline{120} \\ 3 \end{array}$ "I round up to 21 pages to be sure all photos will fit."
Observations/Documentation		

Number

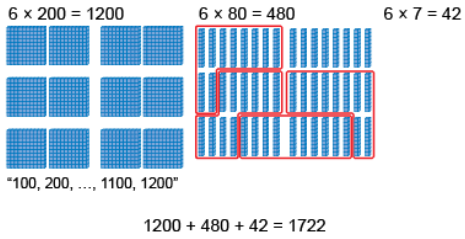
Activity 26 Assessment

Estimating Quotients

Conceptual Meaning of Multiplication and Division with Larger Numbers

Models multiplication and division situations concretely and pictorially

6 × 287 = ?

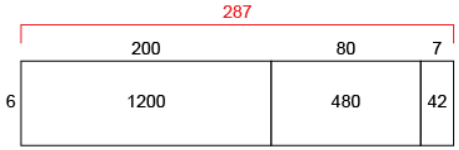


1200 + 480 + 42 = 1722

"I traded groups of 10 rods for a flat."

Models multiplication and division situations using an open array

6 × 287 = ?



"I can use an open array to help me multiply."

Uses place value to multiply and divide natural numbers by 10, 100, and 1000

34 × 200 = 34 × 2 × 100
= 68 × 100
= 6800

"I used the associative property to make friendly numbers."

Observations/Documentation

Number

Activity 26 Assessment

Estimating Quotients

Conceptual Meaning of Multiplication and Division with Larger Numbers (cont'd)		
Decomposes numbers and uses standard algorithm to multiply and divide 6 × 287 = ? $\begin{array}{r} {\scriptstyle 5\ 4}\\ 287\\ \times\quad 6\\ \hline 1722 \end{array}$ "I used the standard algorithm to multiply the numbers."	Estimates to determine if answer to multiplication or division problem is reasonable 6 × 287 = 1722 287 is close to 300. 6 × 300 = 1800 "1800 is close to the answer I calculate, 1722. So, my answer is reasonable."	Creates and solves multiplication and division problems flexibly using a variety of strategies 123 ÷ 6 =? "I counted 123 photographs to put in an album. Each page can hold 6 photographs. How many pages will I need?" $\begin{array}{r} 20\ \text{R3}\\ 6\overline{)123}\\ \underline{120}\\ 3 \end{array}$ "I round up to 21 pages to be sure all photos will fit."
Observations/Documentation		

Number

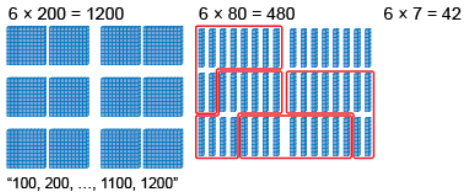
Activity 27 Assessment

Dividing with Remainders

Conceptual Meaning of Multiplication and Division with Larger Numbers

Models multiplication and division situations concretely and pictorially

6 × 287 = ?

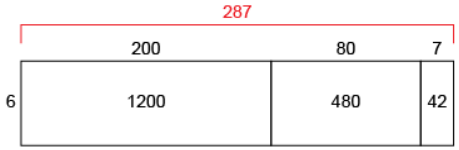


1200 + 480 + 42 = 1722

"I traded groups of 10 rods for a flat."

Models multiplication and division situations using an open array

6 × 287 = ?



"I can use an open array to help me multiply."

Uses place value to multiply and divide natural numbers by 10, 100, and 1000

34 × 200 = 34 × 2 × 100
= 68 × 100
= 6800

"I used the associative property to make friendly numbers."

Observations/Documentation

Number

Activity 27 Assessment

Dividing with Remainders

Conceptual Meaning of Multiplication and Division with Larger Numbers (cont'd)		
Decomposes numbers and uses standard algorithm to multiply and divide 6 × 287 = ? $\begin{array}{r} {\scriptstyle 5\ 4} \\ 287 \\ \times\quad 6 \\ \hline 1722 \end{array}$ "I used the standard algorithm to multiply the numbers."	Estimates to determine if answer to multiplication or division problem is reasonable 6 × 287 = 1722 287 is close to 300. 6 × 300 = 1800 "1800 is close to the answer I calculate, 1722. So, my answer is reasonable."	Creates and solves multiplication and division problems flexibly using a variety of strategies 123 ÷ 6 =? "I counted 123 photographs to put in an album. Each page can hold 6 photographs. How many pages will I need?" $\begin{array}{r} 20\ \text{R3} \\ 6\overline{)123} \\ \underline{120} \\ 3 \end{array}$ "I round up to 21 pages to be sure all photos will fit."
Observations/Documentation		

Number

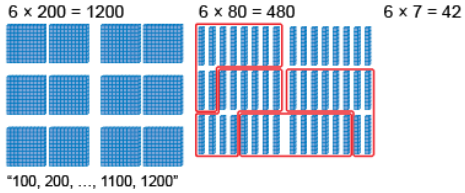
Activity 28 Assessment

Consolidating Multiplying and Dividing Larger Numbers

Conceptual Meaning of Multiplication and Division with Larger Numbers

Models multiplication and division situations concretely and pictorially

6 × 287 = ?

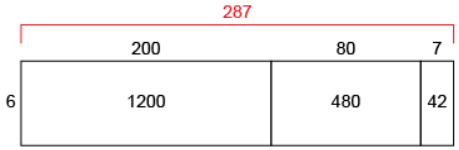


1200 + 480 + 42 = 1722

"I traded groups of 10 rods for a flat."

Models multiplication and division situations using an open array

6 × 287 = ?



"I can use an open array to help me multiply."

Uses place value to multiply and divide natural numbers by 10, 100, and 1000

34 × 200 = 34 × 2 × 100
= 68 × 100
= 6800

"I used the associative property to make friendly numbers."

Observations/Documentation

Number

Activity 28 Assessment

Consolidating Multiplying and Dividing Larger Numbers

Conceptual Meaning of Multiplication and Division with Larger Numbers (cont'd)

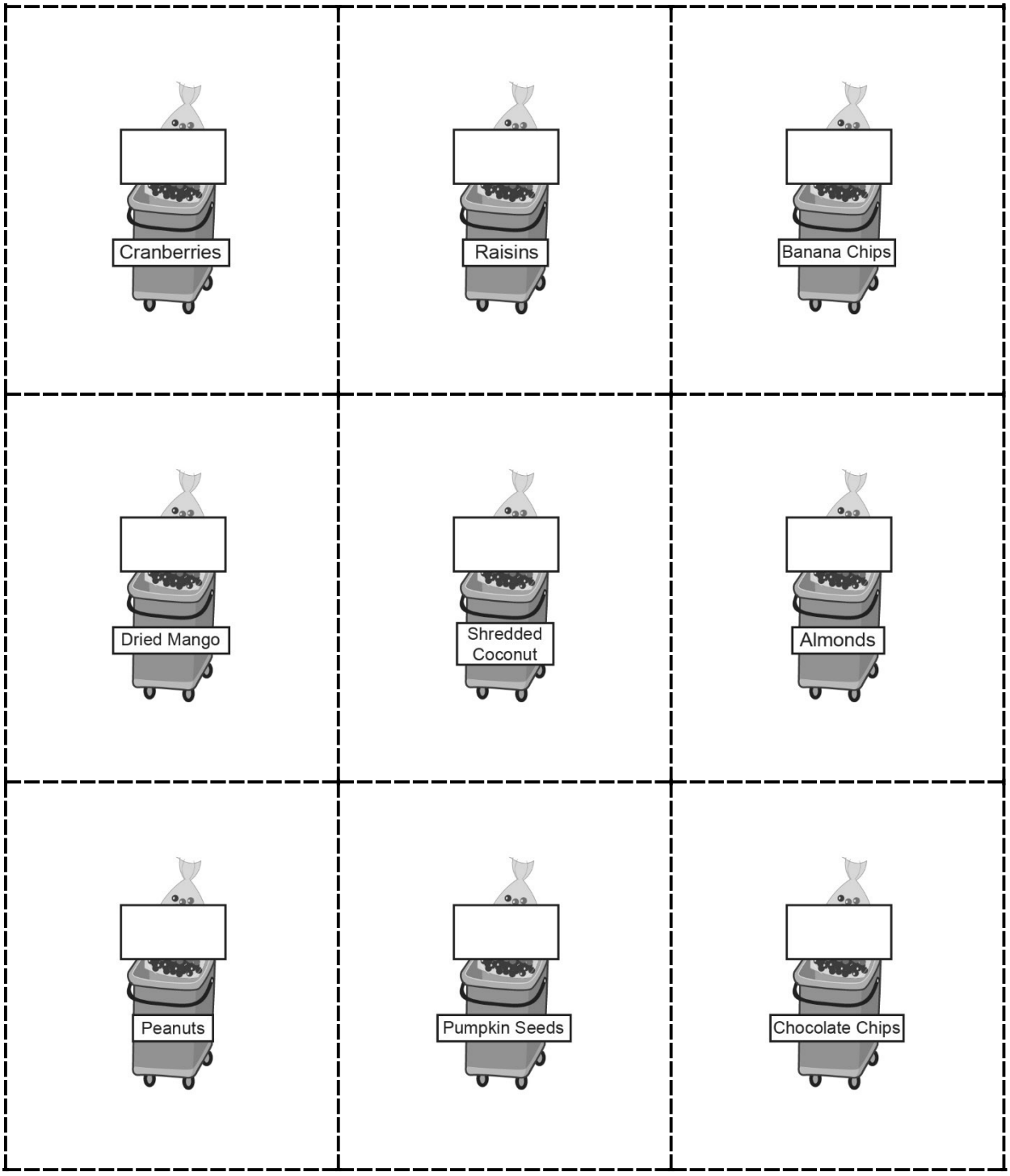
Decomposes numbers and uses standard algorithm to multiply and divide 6 × 287 = ? $\begin{array}{r} {\scriptstyle 5\ 4} \\ 287 \\ \times\ \ 6 \\ \hline 1722 \end{array}$ "I used the standard algorithm to multiply the numbers."	Estimates to determine if answer to multiplication or division problem is reasonable 6 × 287 = 1722 287 is close to 300. 6 × 300 = 1800 "1800 is close to the answer I calculate, 1722. So, my answer is reasonable."	Creates and solves multiplication and division problems flexibly using a variety of strategies 123 ÷ 6 =? "I counted 123 photographs to put in an album. Each page can hold 6 photographs. How many pages will I need?" $\begin{array}{r} 20\ \text{R3} \\ 6\overline{)123} \\ \underline{120} \\ 3 \end{array}$ "I round up to 21 pages to be sure all photos will fit."

Observations/Documentation

Name_____ Date_____

Number
Unit 7 Line Master 1

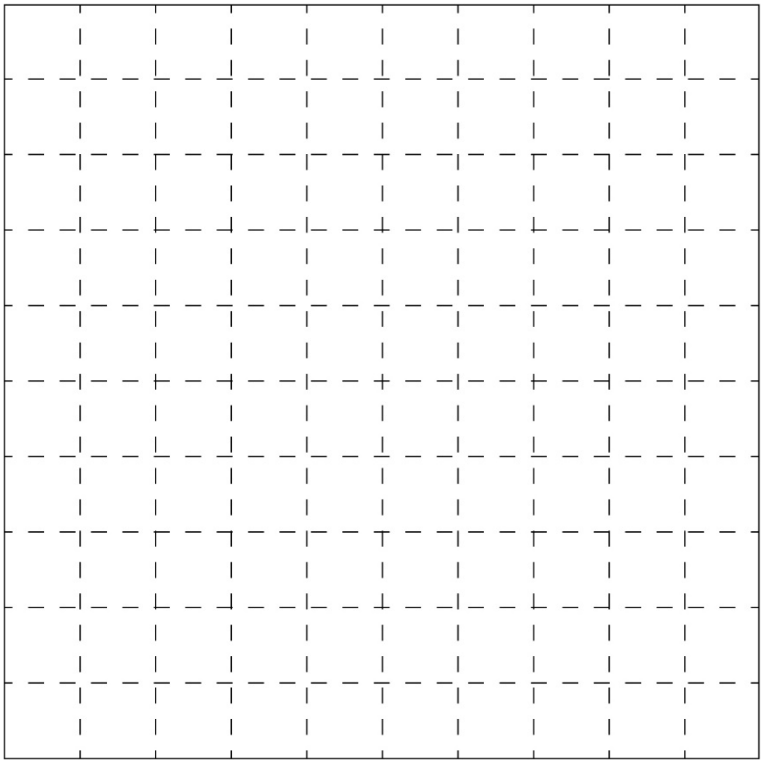
Trail Mix Shopping!

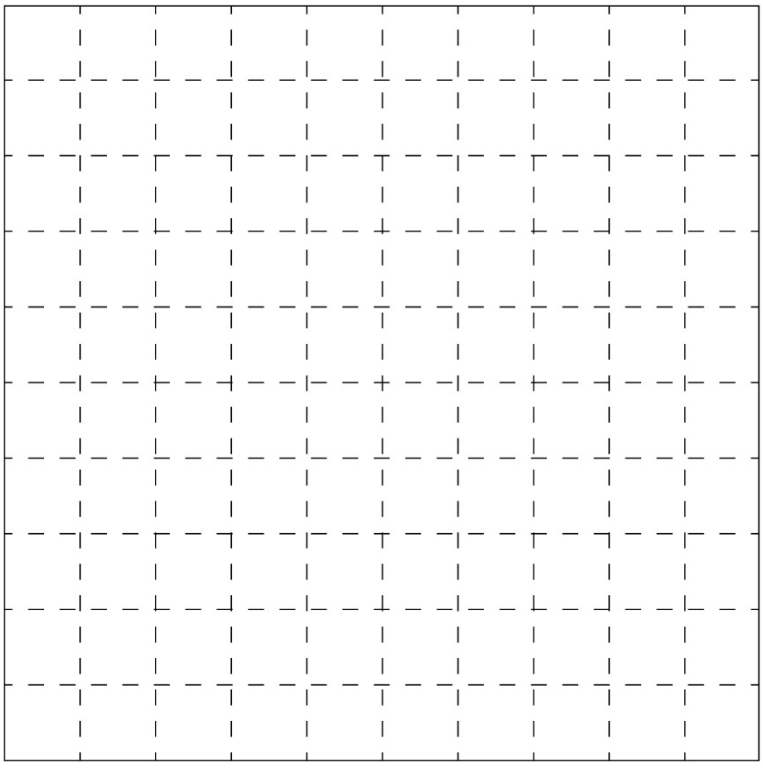


Name_____ Date_____

Number
Unit 7 Line Master 2

Hundredths Grids





Number

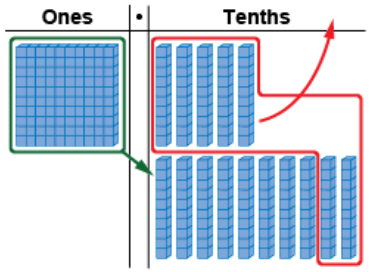
Activity 29 Assessment

Estimating Sums and Differences with Decimals

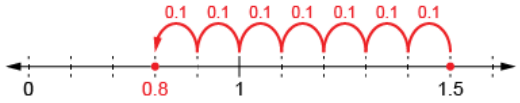
Conceptual Meaning of Addition and Subtraction of Decimals

Recognizes addition and subtraction situations and models concretely or pictorially to add or subtract to tenths

1.5 – 0.7 = ?



"15 tenths – 7 tenths = 8 tenths"



1.5 – 0.7 = 0.8

Uses an understanding of place value to add or subtract decimals with tenths (using standard algorithm)

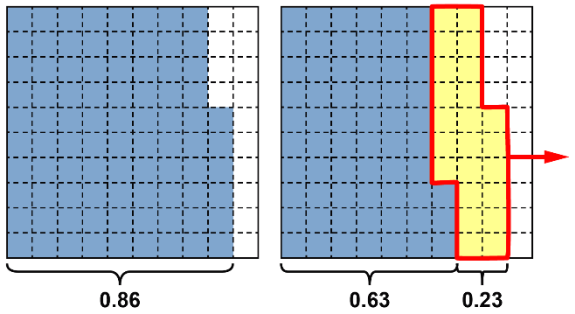
14.6 + 27.8 = ?

$$\begin{array}{r} {\scriptstyle 1\ 1\ \ } \\ 14.6 \\ +\ 27.8 \\ \hline 42.4 \end{array}$$

"I used the standard algorithm, adding the tenths, then the whole numbers."

Models concretely or pictorially to add or subtract decimals with hundredths (e.g., using hundredths grids or Base Ten Blocks)

25.86 – 17.23 = ?



"86 hundredths – 23 hundredths = 63 hundredths
25 – 17 = 8"

25.86 – 17.23 = 8.63

Observations/Documentation

Number

Activity 29 Assessment

Estimating Sums and Differences with Decimals

Conceptual Meaning of Addition and Subtraction of Decimals (cont'd)

Uses an understanding of place value to add or subtract decimals with hundredths (e.g., using standard algorithm)	Uses estimation and mental math strategies to check reasonableness of solutions	Solves addition and subtraction problems flexibly, using a variety of strategies
$$\begin{array}{r} {\scriptstyle 1\ 1\ \ \ \ } \\ 25.86 \\ -\ 17.23 \\ \hline 8.63 \end{array}$$ "I used the standard algorithm to subtract the hundredths, then the tenths, and then the whole numbers."	25.86 – 17.23 = 8.63 26 – 17 = 9 "8.63 is the answer I calculated, and it is close to 9, so my answer is reasonable."	A yoyo costs $7.35. Jesse paid for it with $10. How much change did Jesse get back? $7.35 + $0.15 = $7.50 $7.50 + $0.50 = $8.00 $8.00 + $2.00 = $10.00 $2.00 + $0.50 + $0.15 = $2.65 $$\begin{array}{r} {\scriptstyle 9\ 9\ 1\ \ } \\ 10.00 \\ -\ 7.35 \\ \hline 2.65 \end{array}$$ "Jesse got $2.65 back."

Observations/Documentation

Number

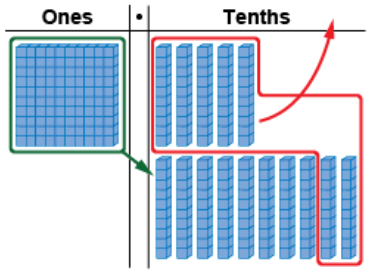
Activity 30 Assessment

Adding and Subtracting Decimals

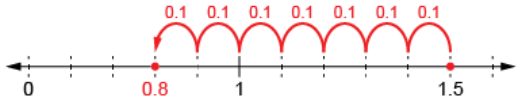
Conceptual Meaning of Addition and Subtraction of Decimals

Recognizes addition and subtraction situations and models concretely or pictorially to add or subtract to tenths

1.5 – 0.7 = ?



"15 tenths – 7 tenths = 8 tenths"



1.5 – 0.7 = 0.8

Uses an understanding of place value to add or subtract decimals with tenths (using standard algorithm)

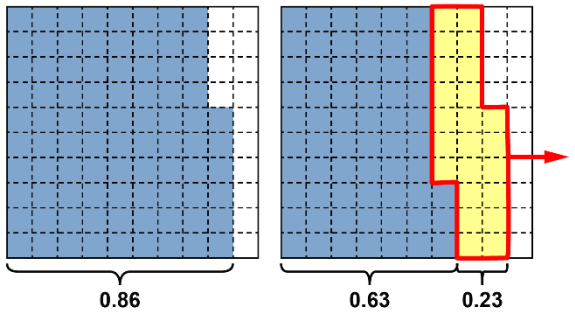
14.6 + 27.8 = ?

$$\begin{array}{r} {\scriptstyle 1\ 1\ \ } \\ 14.6 \\ +\ 27.8 \\ \hline 42.4 \end{array}$$

"I used the standard algorithm, adding the tenths, then the whole numbers."

Models concretely or pictorially to add or subtract decimals with hundredths (e.g., using hundredths grids or Base Ten Blocks)

25.86 – 17.23 = ?



"86 hundredths – 23 hundredths = 63 hundredths
25 – 17 = 8"

25.86 – 17.23 = 8.63

Observations/Documentation

Number

Activity 30 Assessment

Adding and Subtracting Decimals

Conceptual Meaning of Addition and Subtraction of Decimals (cont'd)

Uses an understanding of place value to add or subtract decimals with hundredths (e.g., using standard algorithm)	Uses estimation and mental math strategies to check reasonableness of solutions	Solves addition and subtraction problems flexibly, using a variety of strategies
$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 25.86 \\ -\ 17.23 \\ \hline 8.63 \end{array}$$ "I used the standard algorithm to subtract the hundredths, then the tenths, and then the whole numbers."	25.86 – 17.23 = 8.63 26 – 17 = 9 "8.63 is the answer I calculated, and it is close to 9, so my answer is reasonable."	A yoyo costs $7.35. Jesse paid for it with $10. How much change did Jesse get back? $7.35 + $0.15 = $7.50 $7.50 + $0.50 = $8.00 $8.00 + $2.00 = $10.00 $2.00 + $0.50 + $0.15 = $2.65 $$\begin{array}{r} {\scriptstyle 9\ 9\ 1} \\ 10.00 \\ -\ 7.35 \\ \hline 2.65 \end{array}$$ "Jesse got $2.65 back."

Observations/Documentation

Number

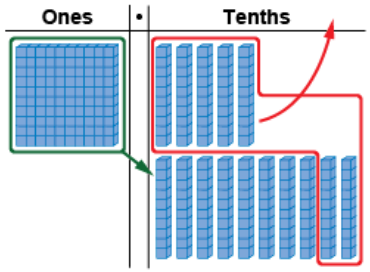
Activity 31 Assessment

Operations with Decimals Consolidation

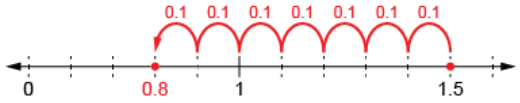
Conceptual Meaning of Addition and Subtraction of Decimals

Recognizes addition and subtraction situations and models concretely or pictorially to add or subtract to tenths

1.5 – 0.7 = ?



"15 tenths – 7 tenths = 8 tenths"



1.5 – 0.7 = 0.8

Uses an understanding of place value to add or subtract decimals with tenths (using standard algorithm)

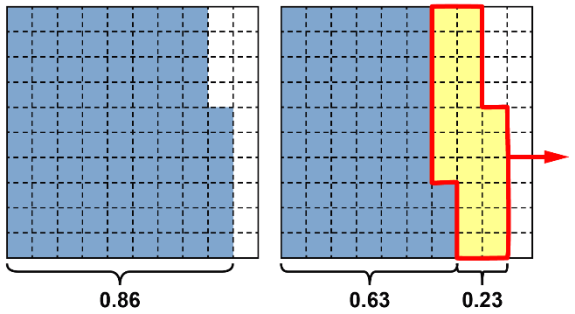
14.6 + 27.8 = ?

$$\begin{array}{r} {\scriptstyle 1\ 1\ \ } \\ 14.6 \\ +\ 27.8 \\ \hline 42.4 \end{array}$$

"I used the standard algorithm, adding the tenths, then the whole numbers."

Models concretely or pictorially to add or subtract decimals with hundredths (e.g., using hundredths grids or Base Ten Blocks)

25.86 – 17.23 = ?



"86 hundredths – 23 hundredths = 63 hundredths
25 – 17 = 8"

25.86 – 17.23 = 8.63

Observations/Documentation

Number

Activity 31 Assessment

Operations with Decimals Consolidation

Conceptual Meaning of Addition and Subtraction of Decimals (cont'd)

Uses an understanding of place value to add or subtract decimals with hundredths (e.g., using standard algorithm)

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 25.86 \\ -\ 17.23 \\ \hline 8.63 \end{array}$$

"I used the standard algorithm to subtract the hundredths, then the tenths, and then the whole numbers."

Uses estimation and mental math strategies to check reasonableness of solutions

25.86 – 17.23 = 8.63
26 – 17 = 9

"8.63 is the answer I calculated, and it is close to 9, so my answer is reasonable."

Solves addition and subtraction problems flexibly, using a variety of strategies

A yoyo costs $7.35.
Jesse paid for it with $10.
How much change did Jesse get back?

$7.35 + $0.15 = $7.50
$7.50 + $0.50 = $8.00
$8.00 + $2.00 = $10.00
$2.00 + $0.50 + $0.15 = $2.65

$$\begin{array}{r} {\scriptstyle 9\ 9\ 1} \\ 10.00 \\ -\ 7.35 \\ \hline 2.65 \end{array}$$

"Jesse got $2.65 back."

Observations/Documentation

Name_____ Date_____

Number
Unit 8 Line Master 1

Can I Buy It?

Recording Sheet

I chose _____ as a class goal because

_____.

Event from Game	Earnings (Add)	Spending (Subtract)	Savings Balance
			$50
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Final Balance			

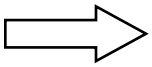
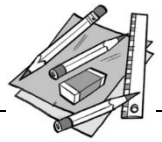
How did the decisions you made affect the amount you save?

Name_____ Date_____

Number
Unit 8 Line Master 2a

Can I Buy It?

Gameboard (Decimal Amounts)

Raked leaves: earned $10	Bought supplies for class pet: $15.60	Replaced lost book: $9.78	Recycled cans and bottles: $11.80 	Earned $25 delivering newspapers
Paid library fine: $4.90				Traded video game: received $12.35
Garage sale: earned $27.80				Donated to animal shelter: $12.75
Your choice: 1 loaf of bread for $2.25 3 loaves of bread for $5.75 				Bought present to cheer up sick student: $18.66
Bought used sled to deliver newspapers: $10.50				Won $20 in a raffle
START 	Volunteered at seniors' home: $0	Received gift card: $14.60	Bought classroom supplies: $12.38 	Cleaned out garage: earned $10

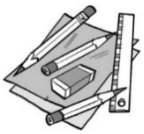
Name_____ Date_____

Number
Unit 8 Line Master 2b

Can I Buy It? (cont'd)

Gameboard (Whole-Dollar Amounts)

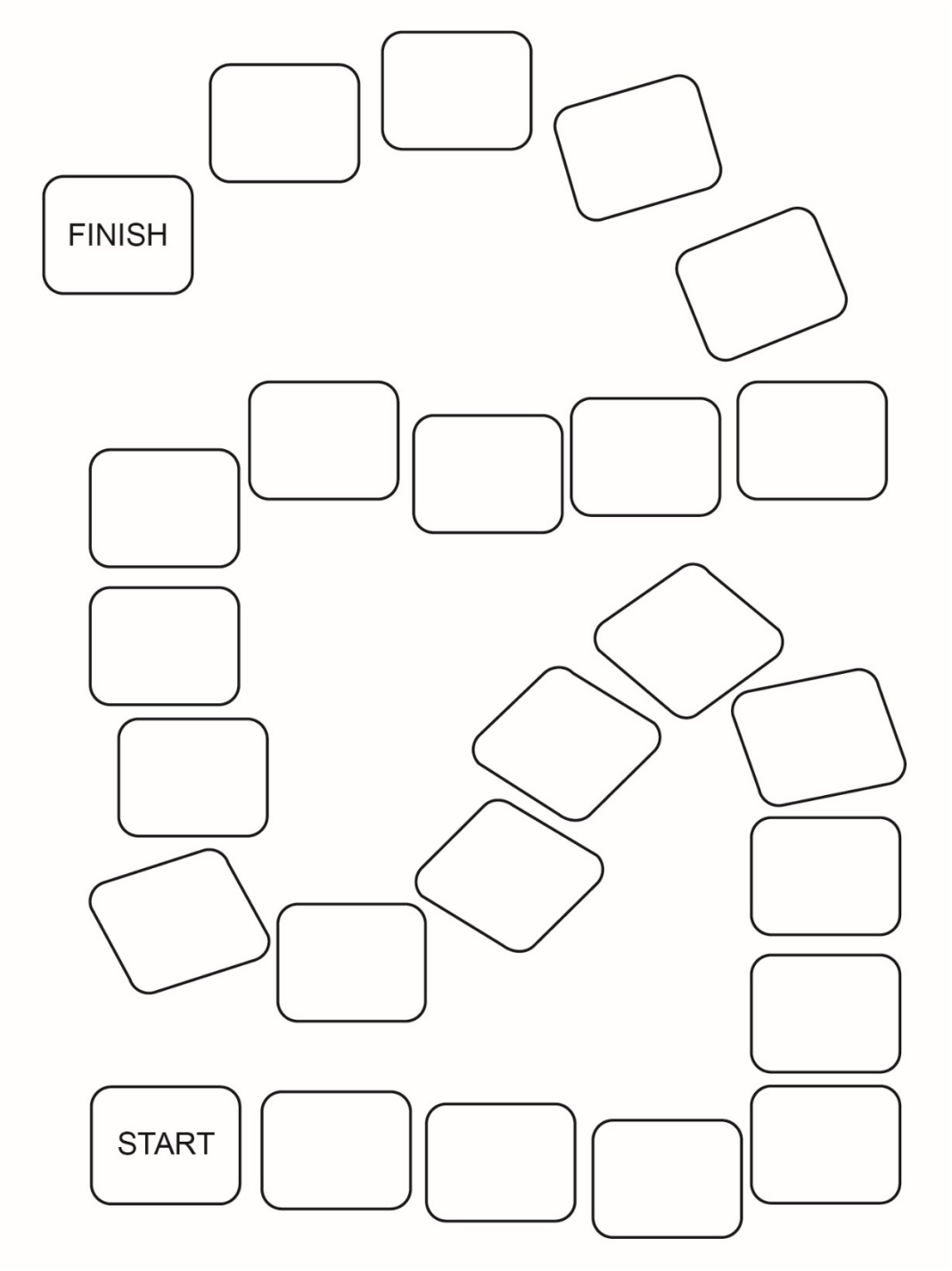
Bought movie tickets: $16	Raked leaves: earned $10	Shovelled snow: earned $25	Recycled cans and bottles: $12	Paid library fine: $5
Volunteered at seniors' home: $0				Received gift card: $15
Your choice: 1 loaf of bread for $2 5 loaves of bread for $8				Replaced lost book: $10
Bought used sled: $10				Traded video game: received $12
Cleaned out garage: earned $13				Bought classroom supplies: $14
START	Bought present for sick student: $19	Donated to food bank: $13	Garage sale: earned $28	Won $25 in a raffle



Name _____ Date _____

Number
Unit 8 Line Master 3

Money Adventure Gameboard



Name_____ Date _____

Number
Unit 8 Line Master 4a

Money Adventures Game Cards

Receive a gift of $25 for your birthday. Add it to your bank account or pay off credit?	Purchase a TV for $875. Would you use debit or credit?
Mow your neighbors lawn and receive $20. Add it to your bank account or pay off credit?	Purchase a sofa for $655. Would you use debit or credit?
Purchase a $12 lunch at the mall. Would you use debit or credit?	Receive an e-transfer for selling a bike at a garage sale for $55.
Receive an e-transfer of $35 for your allowance.	Purchase $45 jeans from an online store. Add it to your bank account or pay off credit?
Take the bottles to the Bottle Depot and receive $18. Add it to your bank account or pay off credit?	Receive a $40 refund on your credit card for returning an online purchase.
Pay $85 for groceries. Would you use debit or credit?	Make a cash withdrawal of $50. Would you use debit or credit?

Name_____ Date _____

Number
Unit 8 Line Master 4b

Money Adventures Game Cards

Pay $35 for new bicycle tire. Would you use debit or credit?	Receive $30 in cash for shovelling the driveway. Add it to your bank account or pay off credit?
Oh no! Your credit card is past due. Pay the bank $10 for every $100 currently on your card. **Add this amount to your debt.**	It's the first of the month. Pay the bank $15 dollars as your monthly service fee. **Subtract $15 from your bank account balance.**
Hurray! You earn $20 interest for every hundred dollars in your bank account. **Add this amount to your bank account balance.**	**Check your balance.** If your credit card balance is $0, move ahead two spaces!
Debt Alert! If you have money owing on your credit card, pay at least half of it using your bank account.	**Check your balance.** If you owe more than $500 on your credit card, move back two spaces!
Donate $20 to a charity of your choice. **Subtract this amount from your bank account balance.**	**Check your balance.** If you want, you can pay off any amount owing on your credit card from your bank account.
Check your balance. If you owe more than $500 on your credit card, move back two spaces!	Donate $15 to a charity of your choice. **Subtract this amount from your bank account balance.**

Name_____ Date _____

Number
Unit 8 Line Master 4c

Money Adventures Game Cards (Blank)

Number

Activity 32 Assessment

Using Currency for Financial Transactions

Factors That Influence Spending		
Recognizes currency as one of the various forms of money "Currency is money in the form of paper and coins issued by a government. The currency used in different countries may vary."	Considers factors influencing spending "I am saving for a new bicycle, so I am trying not to spend money unless it is really necessary."	Recognizes the difference between credit and debit (and their implications) "Using debit, the money comes out of an account right away. Using credit, you borrow money and pay back later. If you don't pay back on time, interest is charged."
Observations/Documentation		

Number

Activity 32 Assessment

Using Currency for Financial Transactions

Factors That Influence Spending (cont'd)		
Makes informed decisions regarding purchases "I like both pairs of shoes. I will purchase the ones that are a little more expensive because they are of better quality and will last longer."	Identifies different banking practices and their purposes "There are two types of accounts: savings and chequing. Money is deposited into a savings account and interest is paid. Money can be put into and taken out of a chequing account and no interest is paid."	Flexibly applies various banking practices in different contexts "I would want a bank account that has unlimited transactions and no monthly fees. It would be good if it also paid interest."
Observations/Documentation		

Number

Activity 33 Assessment

Making Good Purchases

Factors That Influence Spending		
Recognizes currency as one of the various forms of money "Currency is money in the form of paper and coins issued by a government. The currency used in different countries may vary."	Considers factors influencing spending "I am saving for a new bicycle, so I am trying not to spend money unless it is really necessary."	Recognizes the difference between credit and debit (and their implications) "Using debit, the money comes out of an account right away. Using credit, you borrow money and pay back later. If you don't pay back on time, interest is charged."
Observations/Documentation		

Number

Activity 33 Assessment

Making Good Purchases

Factors That Influence Spending (cont'd)		
Makes informed decisions regarding purchases "I like both pairs of shoes. I will purchase the ones that are a little more expensive because they are of better quality and will last longer."	Identifies different banking practices and their purposes "There are two types of accounts: savings and chequing. Money is deposited into a savings account and interest is paid. Money can be put into and taken out of a chequing account and no interest is paid."	Flexibly applies various banking practices in different contexts "I would want a bank account that has unlimited transactions and no monthly fees. It would be good if it also paid interest."
Observations/Documentation		

Number

Activity 34 Assessment

Exploring Banking Practices

Factors That Influence Spending		
Recognizes currency as one of the various forms of money "Currency is money in the form of paper and coins issued by a government. The currency used in different countries may vary."	Considers factors influencing spending "I am saving for a new bicycle, so I am trying not to spend money unless it is really necessary."	Recognizes the difference between credit and debit (and their implications) "Using debit, the money comes out of an account right away. Using credit, you borrow money and pay back later. If you don't pay back on time, interest is charged."
Observations/Documentation		

Number

Activity 34 Assessment

Exploring Banking Practices

Factors That Influence Spending (cont'd)		
Makes informed decisions regarding purchases "I like both pairs of shoes. I will purchase the ones that are a little more expensive because they are of better quality and will last longer."	Identifies different banking practices and their purposes "There are two types of accounts: savings and chequing. Money is deposited into a savings account and interest is paid. Money can be put into and taken out of a chequing account and no interest is paid."	Flexibly applies various banking practices in different contexts "I would want a bank account that has unlimited transactions and no monthly fees. It would be good if it also paid interest."
Observations/Documentation		

Number

Activity 35 Assessment

Consolidation

Factors That Influence Spending		
Recognizes currency as one of the various forms of money "Currency is money in the form of paper and coins issued by a government. The currency used in different countries may vary."	Considers factors influencing spending "I am saving for a new bicycle, so I am trying not to spend money unless it is really necessary."	Recognizes the difference between credit and debit (and their implications) "Using debit, the money comes out of an account right away. Using credit, you borrow money and pay back later. If you don't pay back on time, interest is charged."
Observations/Documentation		

Number

Activity 35 Assessment
Consolidation

Factors That Influence Spending (cont'd)		
Makes informed decisions regarding purchases "I like both pairs of shoes. I will purchase the ones that are a little more expensive because they are of better quality and will last longer."	Identifies different banking practices and their purposes "There are two types of accounts: savings and chequing. Money is deposited into a savings account and interest is paid. Money can be put into and taken out of a chequing account and no interest is paid."	Flexibly applies various banking practices in different contexts "I would want a bank account that has unlimited transactions and no monthly fees. It would be good if it also paid interest."
Observations/Documentation		

Name_____ Date_____

Patterning and Algebra
Unit 1 Line Master 1

Flower Patterns

Number of Flowers	Number of _____ Blocks Used	Number of _____ Blocks Used
1		
2		
3		
4		
5		

Name_____ Date_____

Patterning and Algebra
Unit 1 Line Master 2

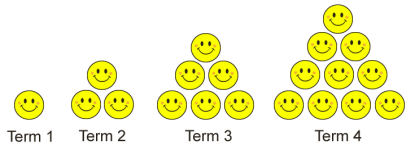
Roll a Sequence! Game Cards

Arithmetic Sequence	Arithmetic Sequence
Arithmetic Sequence	Arithmetic Sequence
Arithmetic Sequence	Geometric Sequence
Geometric Sequence	Geometric Sequence
Geometric Sequence	Geometric Sequence

Patterning and Algebra

Activity 1 Assessment

Investigating Unique Sequences

Investigating Increasing and Decreasing Sequences			
Recognizes increasing and decreasing sequences in multiple representations.  "That is an increasing sequence because the number of happy faces increases with each term."	Creates and explains increasing and decreasing sequences, including numerical sequences. "The happy faces form equilateral triangles. We start with 1 happy face, add 2 happy faces, then increase the number added by 1 each time."	Expresses a concrete or pictorial sequence as a number sequence. "The number sequence is: 1, 3, 6, 10, …"	Recognizes and describes increasing and decreasing arithmetic sequences. 1, 3, 5, 7, … "This is an increasing arithmetic sequence as 2 is added each time. Initial term: 1. Constant change: Add 2."
Observations/Documentation			

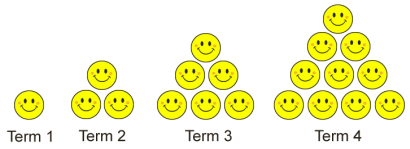
Activity 1 Assessment
Investigating Unique Sequences

Investigating Increasing and Decreasing Sequences (cont'd)			
Writes the first 5 terms of an arithmetic sequence given the initial term and constant change. "Initial term: 30. Constant change: Subtract 3. 30, 27, 24, 21, 18, …"	Recognizes and describes increasing and decreasing geometric sequences. 2, 4, 8, 16, 32, … "This is an increasing geometric sequence as a term is multiplied by 2 to get the next term. Initial term: 2. Constant change: Multiply by 2."	Writes the first 5 terms of a geometric sequence given the initial term and constant change. "Initial term: 2. Constant change: Multiply by 3. 2, 6, 18, 54, 162, …"	Fluently recognizes and describes different increasing and decreasing sequences and uses them to solve problems. It takes Sami 40 min to make 1 bracelet. How many bracelets can Sami make in 4 h? "This is an increasing arithmetic sequence. Initial term: 40. Constant change: + 40. 40, 80, 120, 160, 200, 240 4 h = 240 min Sami can make 6 bracelets. "
Observations/Documentation			

Patterning and Algebra

Activity 2 Assessment

Investigating Increasing and Decreasing Arithmetic Sequences

Investigating Increasing and Decreasing Sequences			
Recognizes increasing and decreasing sequences in multiple representations.  "That is an increasing sequence because the number of happy faces increases with each term."	Creates and explains increasing and decreasing sequences, including numerical sequences. "The happy faces form equilateral triangles. We start with 1 happy face, add 2 happy faces, then increase the number added by 1 each time."	Expresses a concrete or pictorial sequence as a number sequence. "The number sequence is: 1, 3, 6, 10, …"	Recognizes and describes increasing and decreasing arithmetic sequences. 1, 3, 5, 7, … "This is an increasing arithmetic sequence as 2 is added each time. Initial term: 1. Constant change: Add 2."
Observations/Documentation			

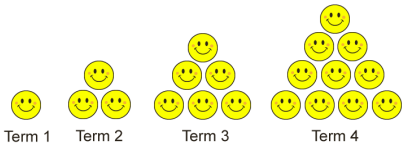
Activity 2 Assessment

Investigating Increasing and Decreasing Arithmetic Sequences

Investigating Increasing and Decreasing Sequences (cont'd)			
Writes the first 5 terms of an arithmetic sequence given the initial term and constant change. "Initial term: 30. Constant change: Subtract 3. 30, 27, 24, 21, 18, …"	Recognizes and describes increasing and decreasing geometric sequences. 2, 4, 8, 16, 32, … "This is an increasing geometric sequence as a term is multiplied by 2 to get the next term. Initial term: 2. Constant change: Multiply by 2."	Writes the first 5 terms of a geometric sequence given the initial term and constant change. "Initial term: 2. Constant change: Multiply by 3. 2, 6, 18, 54, 162, …"	Fluently recognizes and describes different increasing and decreasing sequences and uses them to solve problems. It takes Sami 40 min to make 1 bracelet. How many bracelets can Sami make in 4 h? "This is an increasing arithmetic sequence. Initial term: 40. Constant change: + 40. 40, 80, 120, 160, 200, 240 4 h = 240 min Sami can make 6 bracelets. "
Observations/Documentation			

Patterning and Algebra

Activity 3 Assessment
Representing Arithmetic Sequences

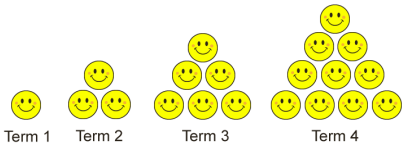
Investigating Increasing and Decreasing Sequences			
Recognizes increasing and decreasing sequences in multiple representations.  "That is an increasing sequence because the number of happy faces increases with each term."	Creates and explains increasing and decreasing sequences, including numerical sequences. "The happy faces form equilateral triangles. We start with 1 happy face, add 2 happy faces, then increase the number added by 1 each time."	Expresses a concrete or pictorial sequence as a number sequence. "The number sequence is: 1, 3, 6, 10, …"	Recognizes and describes increasing and decreasing arithmetic sequences. 1, 3, 5, 7, … "This is an increasing arithmetic sequence as 2 is added each time. Initial term: 1. Constant change: Add 2."
Observations/Documentation			

Activity 3 Assessment
Representing Arithmetic Sequences

Investigating Increasing and Decreasing Sequences (cont'd)			
Writes the first 5 terms of an arithmetic sequence given the initial term and constant change. "Initial term: 30. Constant change: Subtract 3. 30, 27, 24, 21, 18, …"	Recognizes and describes increasing and decreasing geometric sequences. 2, 4, 8, 16, 32, … "This is an increasing geometric sequence as a term is multiplied by 2 to get the next term. Initial term: 2. Constant change: Multiply by 2."	Writes the first 5 terms of a geometric sequence given the initial term and constant change. "Initial term: 2. Constant change: Multiply by 3. 2, 6, 18, 54, 162, …"	Fluently recognizes and describes different increasing and decreasing sequences and uses them to solve problems. It takes Sami 40 min to make 1 bracelet. How many bracelets can Sami make in 4 h? "This is an increasing arithmetic sequence. Initial term: 40. Constant change: + 40. 40, 80, 120, 160, 200, 240 4 h = 240 min Sami can make 6 bracelets. "
Observations/Documentation			

Patterning and Algebra

Activity 4 Assessment
Investigating Increasing and Decreasing Geometric Sequences

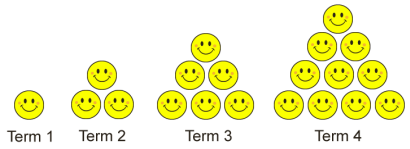
Investigating Increasing and Decreasing Sequences			
Recognizes increasing and decreasing sequences in multiple representations.  "That is an increasing sequence because the number of happy faces increases with each term."	Creates and explains increasing and decreasing sequences, including numerical sequences. "The happy faces form equilateral triangles. We start with 1 happy face, add 2 happy faces, then increase the number added by 1 each time."	Expresses a concrete or pictorial sequence as a number sequence. "The number sequence is: 1, 3, 6, 10, …"	Recognizes and describes increasing and decreasing arithmetic sequences. 1, 3, 5, 7, … "This is an increasing arithmetic sequence as 2 is added each time. Initial term: 1. Constant change: Add 2."
Observations/Documentation			

Activity 4 Assessment
Investigating Increasing and Decreasing Geometric Sequences

Investigating Increasing and Decreasing Sequences (cont'd)			
Writes the first 5 terms of an arithmetic sequence given the initial term and constant change. "Initial term: 30. Constant change: Subtract 3. 30, 27, 24, 21, 18, …"	Recognizes and describes increasing and decreasing geometric sequences. 2, 4, 8, 16, 32, … "This is an increasing geometric sequence as a term is multiplied by 2 to get the next term. Initial term: 2. Constant change: Multiply by 2."	Writes the first 5 terms of a geometric sequence given the initial term and constant change. "Initial term: 2. Constant change: Multiply by 3. 2, 6, 18, 54, 162, …"	Fluently recognizes and describes different increasing and decreasing sequences and uses them to solve problems. It takes Sami 40 min to make 1 bracelet. How many bracelets can Sami make in 4 h? "This is an increasing arithmetic sequence. Initial term: 40. Constant change: + 40. 40, 80, 120, 160, 200, 240 4 h = 240 min Sami can make 6 bracelets. "
Observations/Documentation			

Patterning and Algebra

Activity 5 Assessment Consolidation

Investigating Increasing and Decreasing Sequences			
Recognizes increasing and decreasing sequences in multiple representations.  "That is an increasing sequence because the number of happy faces increases with each term."	Creates and explains increasing and decreasing sequences, including numerical sequences. "The happy faces form equilateral triangles. We start with 1 happy face, add 2 happy faces, then increase the number added by 1 each time."	Expresses a concrete or pictorial sequence as a number sequence. "The number sequence is: 1, 3, 6, 10, …"	Recognizes and describes increasing and decreasing arithmetic sequences. 1, 3, 5, 7, … "This is an increasing arithmetic sequence as 2 is added each time. Initial term: 1. Constant change: Add 2."
Observations/Documentation			

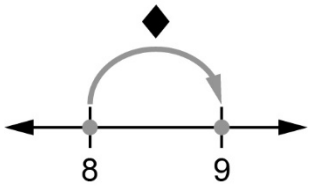
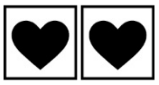
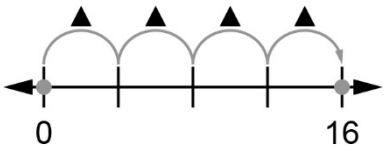
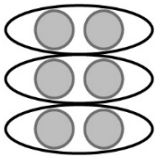
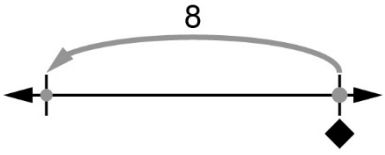
Activity 5 Assessment Consolidation

Investigating Increasing and Decreasing Sequences (cont'd)			
Writes the first 5 terms of an arithmetic sequence given the initial term and constant change. "Initial term: 30. Constant change: Subtract 3. 30, 27, 24, 21, 18, …"	Recognizes and describes increasing and decreasing geometric sequences. 2, 4, 8, 16, 32, … "This is an increasing geometric sequence as a term is multiplied by 2 to get the next term. Initial term: 2. Constant change: Multiply by 2."	Writes the first 5 terms of a geometric sequence given the initial term and constant change. "Initial term: 2. Constant change: Multiply by 3. 2, 6, 18, 54, 162, …"	Fluently recognizes and describes different increasing and decreasing sequences and uses them to solve problems. It takes Sami 40 min to make 1 bracelet. How many bracelets can Sami make in 4 h? "This is an increasing arithmetic sequence. Initial term: 40. Constant change: + 40. 40, 80, 120, 160, 200, 240 4 h = 240 min Sami can make 6 bracelets. "
Observations/Documentation			

Name_____ Date_____

Patterning and Algebra
Unit 2 Line Master 1

Make a Match!

Picture	Statement	Expression or Equation
	8 plus a number is equal to 9	
	2 times a number	
	4 times a number is equal to 16	
	6 divided by a number is equal to 2	
	A number plus 3	
	A number minus 8	

Name_____ Date_____

Patterning and Algebra
Unit 2 Line Master 2

Solving Equations

$\square + 3 = 11$	$8 - \square = 2$
$3 = \square - 7$	$12 = \square + 5$
8 added to a number is equal to 15. What is the number?	12 minus a number is equal to 8. What is the number?
9 is equal to 4 plus a number. What is the number?	5 is equal to 12 minus a number. What is the number?

Name_____ Date_____

Patterning and Algebra
Unit 2 Line Master 3

Equation Cards

$\square \times 2 = 24$	$5 \times \square = 50$	$4 = \square \times 1$	$56 = 7 \times \square$
$\square \div 7 = 3$	$20 \div \square = 4$	$6 = \square \div 6$	$10 = 40 \div \square$
$\square \times 17 = 17$	$\square \div 6 = 7$	$12 = 24 \div \square$	$30 = 5 \times \square$
A number multiplied by two is equal to fourteen. What is the number?	A number divided by five is equal to five. What is the number?	Twenty-seven divided by a number is equal to three. What is the number?	Three multiplied by a number is equal to 33. What is the number?

Name_____ Date_____

Patterning and Algebra
Unit 2 Line Master 4

Three in a Row Gameboard

7	9	42	2
5	25	8	11
36	1	10	4
12	3	21	6

Name_____ Date_____

Patterning and Algebra
Unit 2 Line Master 5

Consolidation Chart

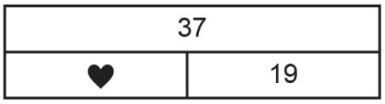
Representation	
Statement	
Equation 1	Equation 2 (inverse operation)
Solution	Verify Solution
Story Problem	

Name_____ Date_____

Patterning and Algebra
Unit 2 Line Master 6

Representations

1



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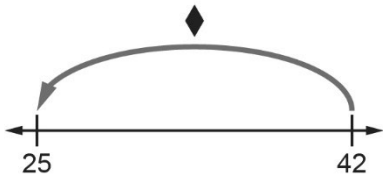

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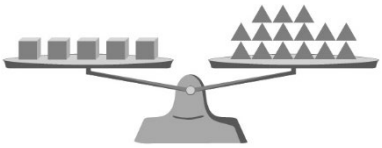
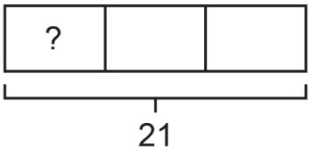


4



Patterning and Algebra

Activity 6 Assessment

Investigating Equality and the Order of Operations

Variables and Equations

Evaluates a given expression (using the order of operations)

$$9 \times 8 - 3 + 16 \div 4 = 72 - 3 + 4$$
$$= 73$$

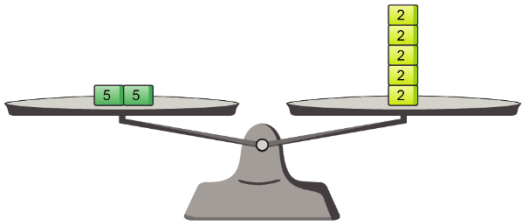
"I have to do multiplication and division first. If the order isn't followed and I perform the operations in the order in which they appear, I get 21 R1."

Writes equivalent expressions (for the same number)

$$5 \times 5,\ 30 \div 2 + 10,\ 3 \times 5 + 2 \times 6 - 2$$

"All of these expressions have value 25."

Represents balance using concrete materials



"The expressions 5 + 5 and 2 × 5 are equivalent because the pans are balanced.
Both have value 10."

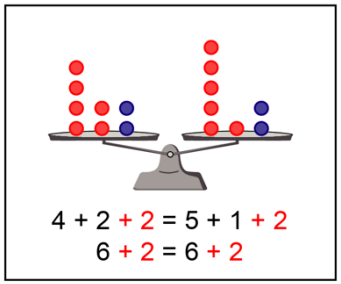
Observations/Documentation

Patterning and Algebra

Activity 6 Assessment

Investigating Equality and the Order of Operations

Variables and Equations (cont'd)

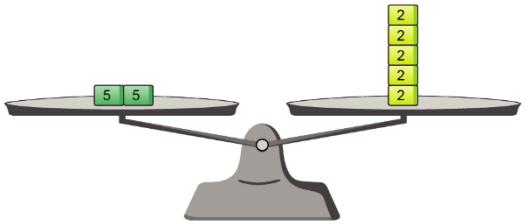
Represents preservation of equality symbolically (with or without an unknown) $4 + 2 = 5 + 1$  $4 + 2 + 2 = 5 + 1 + 2$ $6 + 2 = 6 + 2$ "I added 2 to each side to keep the balance."	Finds the unknown value in an equation representing a situation $\blacklozenge - 8 = 6$ $\blacklozenge + 8 - 8 = 6 + 8$ $\blacklozenge = 14$ "I added 8 to each side to preserve equality and to isolate ♦."	Solves problems using equations "I have 2 sets of cards, with the same number of cards in each set. I have 24 cards. How many cards are in each set?" "Let ■ represent the number of cards in each set." $2 \blacksquare = 24$ $2 \blacksquare \div 2 = 24 \div 2$ $\blacksquare = 12$ "There are 12 cards in each set."

Observations/Documentation

Patterning and Algebra

Activity 7 Assessment
Using Symbols

Variables and Equations

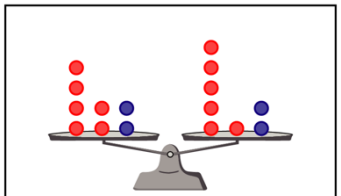
Evaluates a given expression (using the order of operations) $9 \times 8 - 3 + 16 \div 4 = 72 - 3 + 4$ $= 73$ "I have to do multiplication and division first. If the order isn't followed and I perform the operations in the order in which they appear, I get 21 R1."	Writes equivalent expressions (for the same number) 5×5, $30 \div 2 + 10$, $3 \times 5 + 2 \times 6 - 2$ "All of these expressions have value 25."	Represents balance using concrete materials  "The expressions 5 + 5 and 2 × 5 are equivalent because the pans are balanced. Both have value 10."

Observations/Documentation

Patterning and Algebra

Activity 7 Assessment
Using Symbols

Variables and Equations (cont'd)

Represents preservation of equality symbolically (with or without an unknown) 4 + 2 = 5 + 1  4 + 2 + 2 = 5 + 1 + 2 6 + 2 = 6 + 2 "I added 2 to each side to keep the balance."	Finds the unknown value in an equation representing a situation ♦ – 8 = 6 ♦ + 8 – 8 = 6 + 8 ♦ = 14 "I added 8 to each side to preserve equality and to isolate ♦."	Solves problems using equations "I have 2 sets of cards, with the same number of cards in each set. I have 24 cards. How many cards are in each set?" "Let ■ represent the number of cards in each set." 2 ■ = 24 2 ■ ÷ 2 = 24 ÷ 2 ■ = 12 "There are 12 cards in each set."

Observations/Documentation

Patterning and Algebra

Activity 8 Assessment
Solving Equations Concretely

Variables and Equations

Evaluates a given expression (using the order of operations)

$$9 \times 8 - 3 + 16 \div 4 = 72 - 3 + 4$$
$$= 73$$

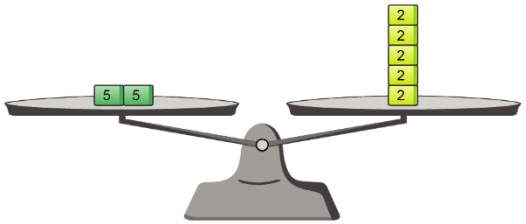
"I have to do multiplication and division first. If the order isn't followed and I perform the operations in the order in which they appear, I get 21 R1."

Writes equivalent expressions (for the same number)

$$5 \times 5,\ 30 \div 2 + 10,\ 3 \times 5 + 2 \times 6 - 2$$

"All of these expressions have value 25."

Represents balance using concrete materials



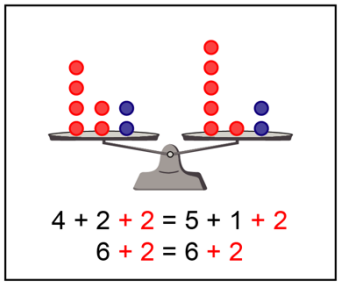
"The expressions 5 + 5 and 2 × 5 are equivalent because the pans are balanced.
Both have value 10."

Observations/Documentation

Patterning and Algebra

Activity 8 Assessment
Solving Equations Concretely

Variables and Equations (cont'd)

Represents preservation of equality symbolically (with or without an unknown) 4 + 2 = 5 + 1  4 + 2 + 2 = 5 + 1 + 2 6 + 2 = 6 + 2 "I added 2 to each side to keep the balance."	Finds the unknown value in an equation representing a situation ♦ – 8 = 6 ♦ + 8 – 8 = 6 + 8 ♦ = 14 "I added 8 to each side to preserve equality and to isolate ♦."	Solves problems using equations "I have 2 sets of cards, with the same number of cards in each set. I have 24 cards. How many cards are in each set?" "Let ■ represent the number of cards in each set." 2 ■ = 24 2 ■ ÷ 2 = 24 ÷ 2 ■ = 12 "There are 12 cards in each set."

Observations/Documentation

Patterning and Algebra

Activity 9 Assessment
Solving Addition and Subtracting Equations

Variables and Equations

Evaluates a given expression (using the order of operations)

$$9 \times 8 - 3 + 16 \div 4 = 72 - 3 + 4$$
$$= 73$$

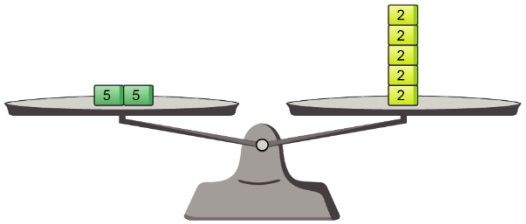
"I have to do multiplication and division first. If the order isn't followed and I perform the operations in the order in which they appear, I get 21 R1."

Writes equivalent expressions (for the same number)

$$5 \times 5,\ 30 \div 2 + 10,\ 3 \times 5 + 2 \times 6 - 2$$

"All of these expressions have value 25."

Represents balance using concrete materials



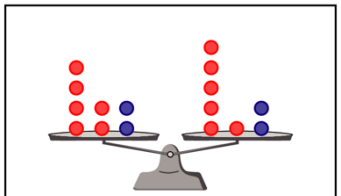
"The expressions 5 + 5 and 2 × 5 are equivalent because the pans are balanced.
Both have value 10."

Observations/Documentation

Patterning and Algebra

Activity 9 Assessment
Solving Addition and Subtracting Equations

Variables and Equations (cont'd)

Represents preservation of equality symbolically (with or without an unknown)	Finds the unknown value in an equation representing a situation	Solves problems using equations
4 + 2 = 5 + 1  4 + 2 + 2 = 5 + 1 + 2 6 + 2 = 6 + 2 "I added 2 to each side to keep the balance."	♦ – 8 = 6 ♦ + 8 – 8 = 6 + 8 ♦ = 14 "I added 8 to each side to preserve equality and to isolate ♦."	"I have 2 sets of cards, with the same number of cards in each set. I have 24 cards. How many cards are in each set?" "Let ■ represent the number of cards in each set." 2 ■ = 24 2 ■ ÷ 2 = 24 ÷ 2 ■ = 12 "There are 12 cards in each set."

Observations/Documentation

Patterning and Algebra

Activity 10 Assessment
Solving Multiplication and Division Equations

Variables and Equations

Evaluates a given expression (using the order of operations)

$$9 \times 8 - 3 + 16 \div 4 = 72 - 3 + 4$$
$$= 73$$

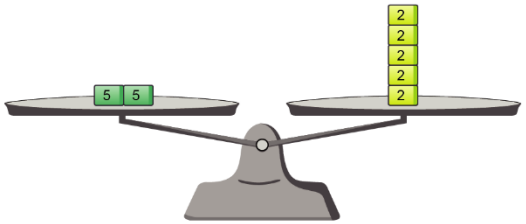
"I have to do multiplication and division first. If the order isn't followed and I perform the operations in the order in which they appear, I get 21 R1."

Writes equivalent expressions (for the same number)

$$5 \times 5,\ 30 \div 2 + 10,\ 3 \times 5 + 2 \times 6 - 2$$

"All of these expressions have value 25."

Represents balance using concrete materials



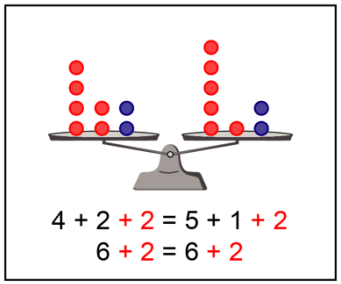
"The expressions 5 + 5 and 2 × 5 are equivalent because the pans are balanced.
Both have value 10."

Observations/Documentation

Patterning and Algebra

Activity 10 Assessment
Solving Multiplication and Division Equations

Variables and Equations (cont'd)

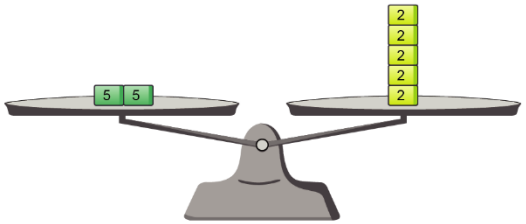
Represents preservation of equality symbolically (with or without an unknown) 4 + 2 = 5 + 1  4 + 2 + 2 = 5 + 1 + 2 6 + 2 = 6 + 2 "I added 2 to each side to keep the balance."	Finds the unknown value in an equation representing a situation ♦ – 8 = 6 ♦ + 8 – 8 = 6 + 8 ♦ = 14 "I added 8 to each side to preserve equality and to isolate ♦."	Solves problems using equations "I have 2 sets of cards, with the same number of cards in each set. I have 24 cards. How many cards are in each set?" "Let ■ represent the number of cards in each set." 2 ■ = 24 2 ■ ÷ 2 = 24 ÷ 2 ■ = 12 "There are 12 cards in each set."

Observations/Documentation

Patterning and Algebra

Activity 11 Assessment
Using Equations to Solve Problems

Variables and Equations

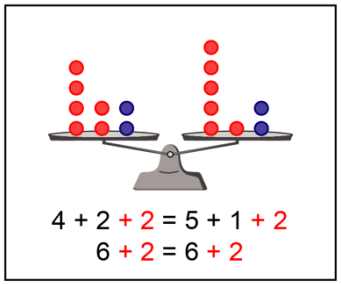
Evaluates a given expression (using the order of operations) $9 \times 8 - 3 + 16 \div 4 = 72 - 3 + 4$ $= 73$ "I have to do multiplication and division first. If the order isn't followed and I perform the operations in the order in which they appear, I get 21 R1."	Writes equivalent expressions (for the same number) 5×5, $30 \div 2 + 10$, $3 \times 5 + 2 \times 6 - 2$ "All of these expressions have value 25."	Represents balance using concrete materials  "The expressions 5 + 5 and 2 × 5 are equivalent because the pans are balanced. Both have value 10."

Observations/Documentation

Patterning and Algebra

Activity 11 Assessment
Using Equations to Solve Problems

Variables and Equations (cont'd)

Represents preservation of equality symbolically (with or without an unknown) $4 + 2 = 5 + 1$  $4 + 2 + 2 = 5 + 1 + 2$ $6 + 2 = 6 + 2$ "I added 2 to each side to keep the balance."	Finds the unknown value in an equation representing a situation $\blacklozenge - 8 = 6$ $\blacklozenge + 8 - 8 = 6 + 8$ $\blacklozenge = 14$ "I added 8 to each side to preserve equality and to isolate ♦."	Solves problems using equations "I have 2 sets of cards, with the same number of cards in each set. I have 24 cards. How many cards are in each set?" "Let ■ represent the number of cards in each set." $2 \blacksquare = 24$ $2 \blacksquare \div 2 = 24 \div 2$ $\blacksquare = 12$ "There are 12 cards in each set."

Observations/Documentation

Patterning and Algebra

Activity 12 Assessment Consolidation

Variables and Equations

Evaluates a given expression (using the order of operations)

$$9 \times 8 - 3 + 16 \div 4 = 72 - 3 + 4$$
$$= 73$$

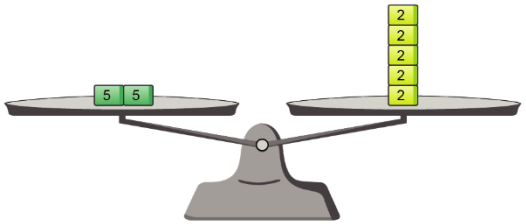
"I have to do multiplication and division first. If the order isn't followed and I perform the operations in the order in which they appear, I get 21 R1."

Writes equivalent expressions (for the same number)

$$5 \times 5,\ 30 \div 2 + 10,\ 3 \times 5 + 2 \times 6 - 2$$

"All of these expressions have value 25."

Represents balance using concrete materials

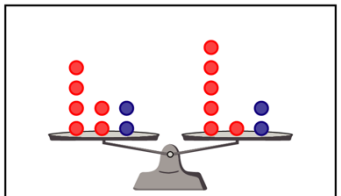


"The expressions 5 + 5 and 2 × 5 are equivalent because the pans are balanced.
Both have value 10."

Observations/Documentation

Activity 12 Assessment Consolidation

Variables and Equations (cont'd)

Represents preservation of equality symbolically (with or without an unknown) 4 + 2 = 5 + 1  4 + 2 + 2 = 5 + 1 + 2 6 + 2 = 6 + 2 "I added 2 to each side to keep the balance."	Finds the unknown value in an equation representing a situation ♦ – 8 = 6 ♦ + 8 – 8 = 6 + 8 ♦ = 14 "I added 8 to each side to preserve equality and to isolate ♦."	Solves problems using equations "I have 2 sets of cards, with the same number of cards in each set. I have 24 cards. How many cards are in each set?" "Let ■ represent the number of cards in each set." 2 ■ = 24 2 ■ ÷ 2 = 24 ÷ 2 ■ = 12 "There are 12 cards in each set."

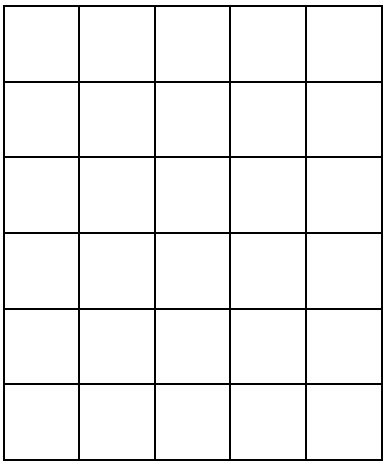
Observations/Documentation

Name_____ Date_____

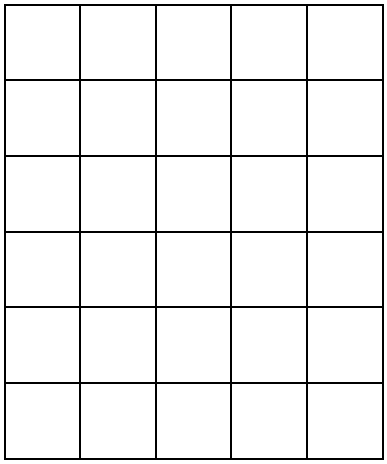
Measurement
Unit 1 Line Master 1

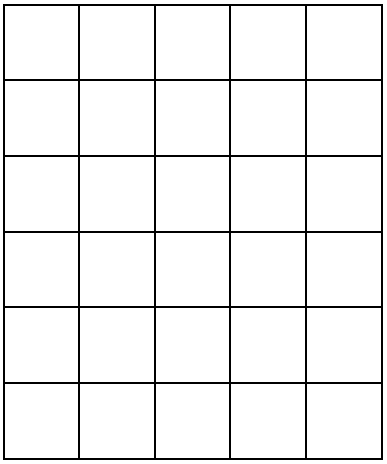
Blank 6-by-5 Loom Templates

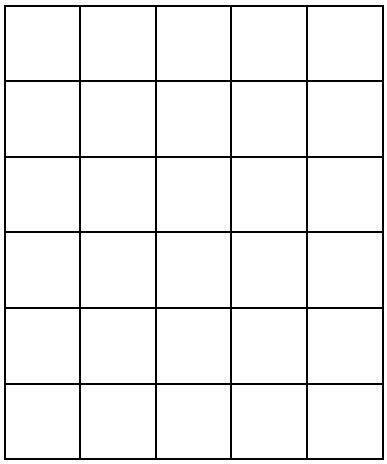
Original Design:

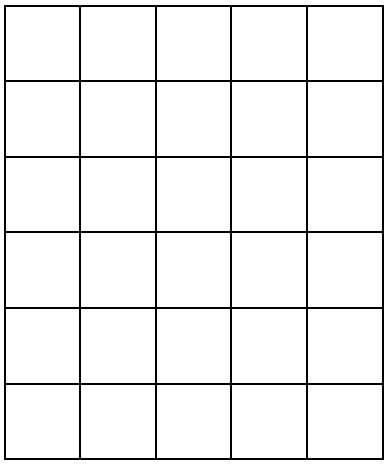


New Designs:





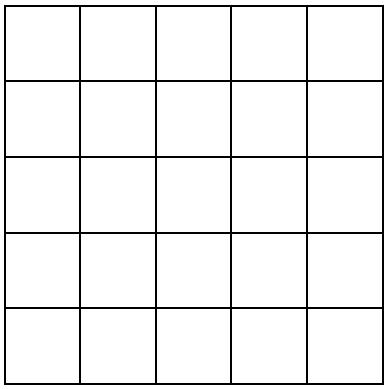


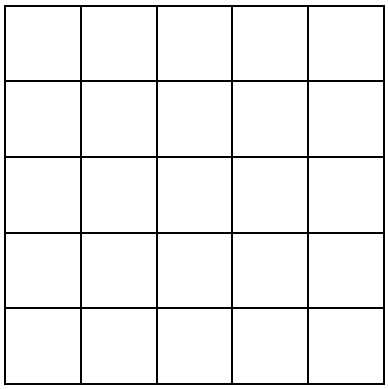


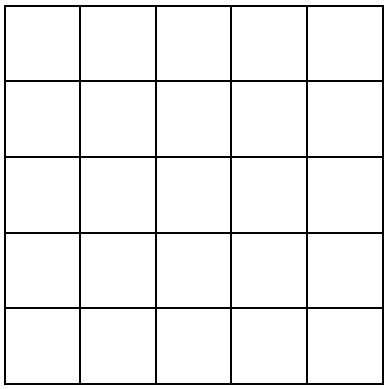
Name_____ Date_____

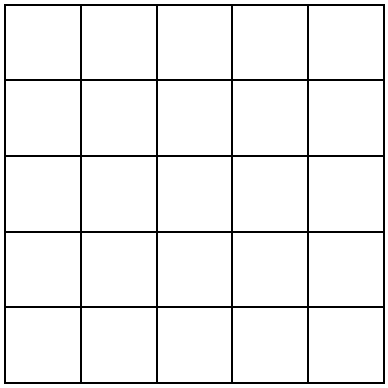
Measurement
Unit 1 Line Master 2

Blank 5-by-5 Loom Templates





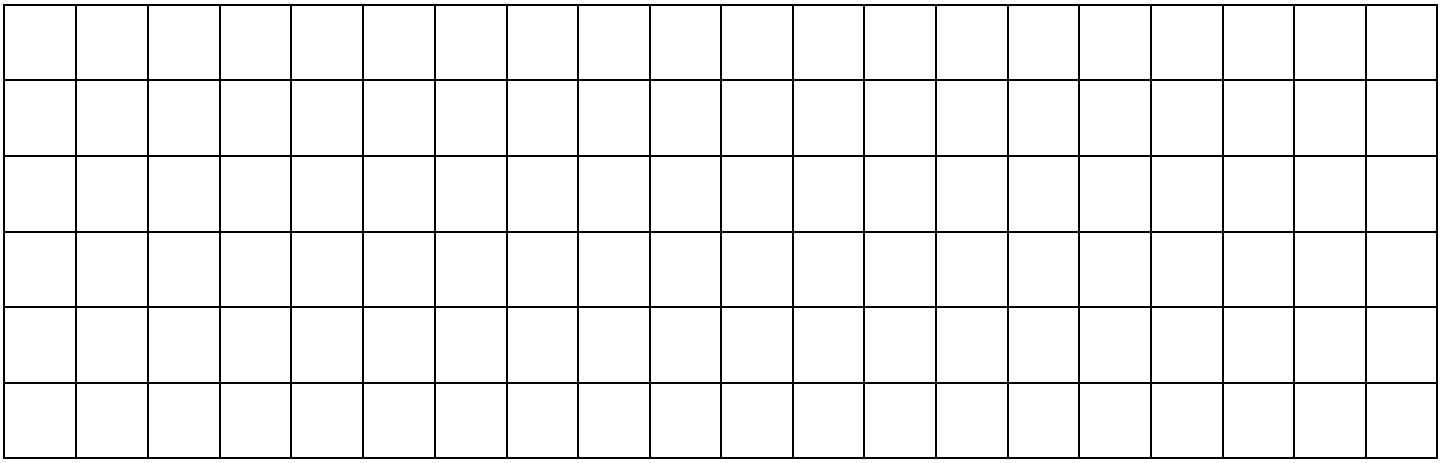


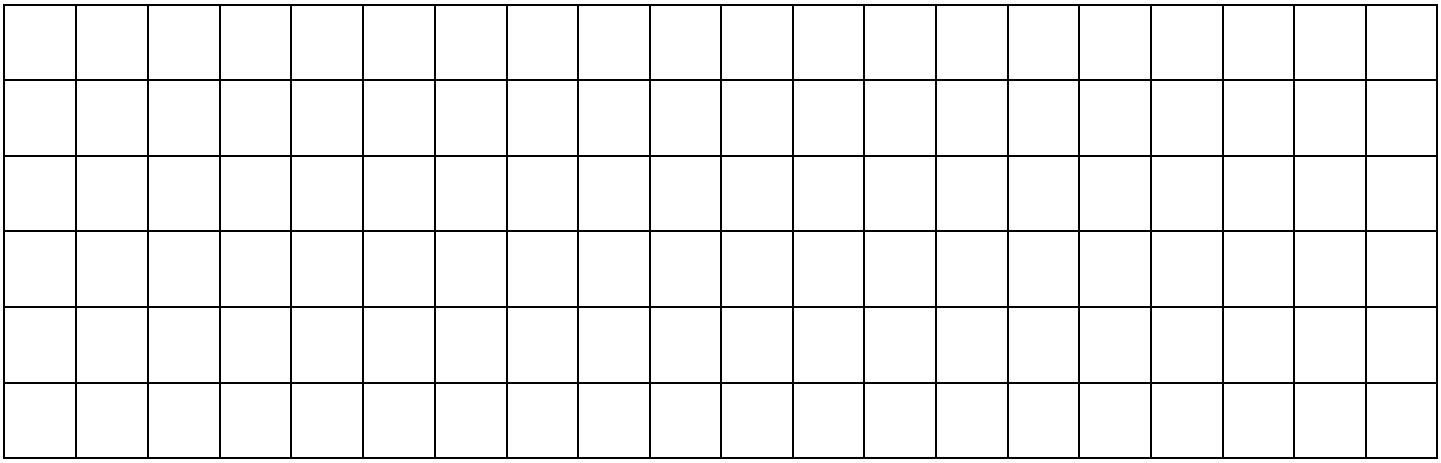


Name_____ Date_____

Measurement
Unit 1 Line Master 3

Blank 6-by-20 Loom Templates

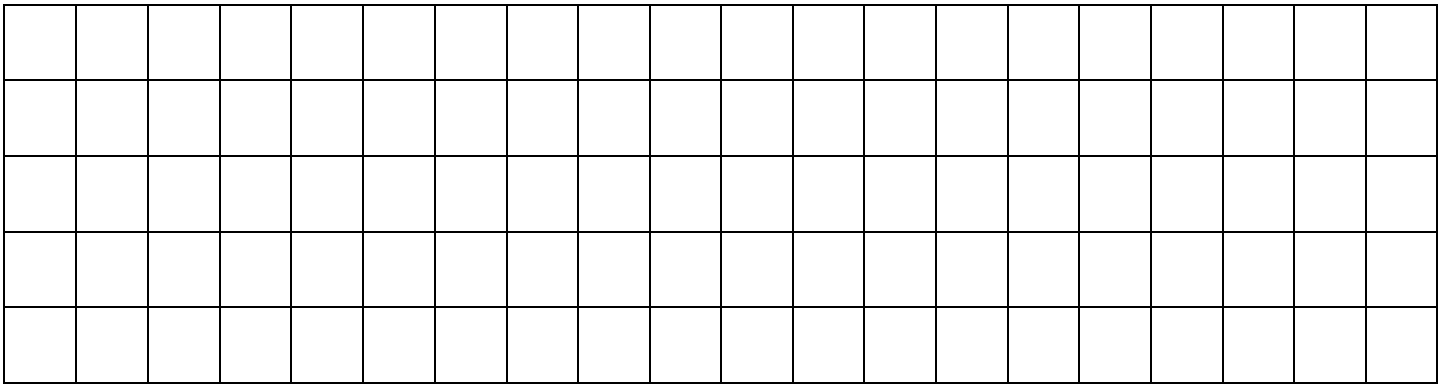


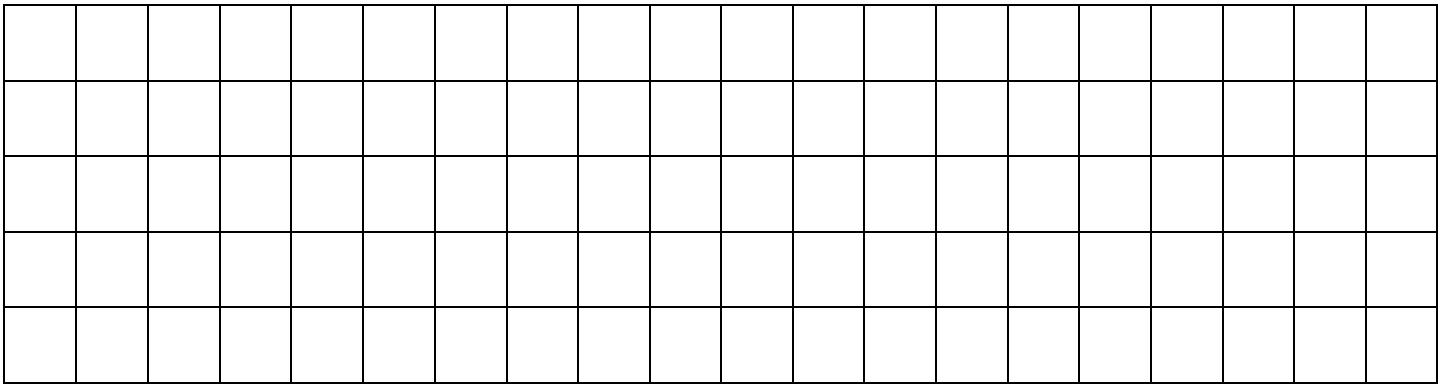


Name_____ Date_____

Measurement
Unit 1 Line Master 4

Blank 5-by-20 Loom Templates

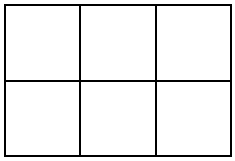


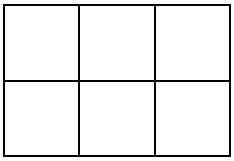


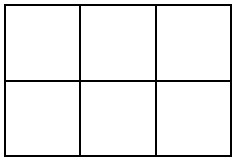
Name_____ Date_____

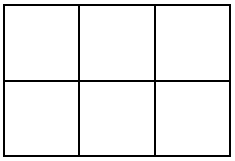
Measurement
Unit 1 Line Master 5a

Blank 2-by-3 Loom Templates





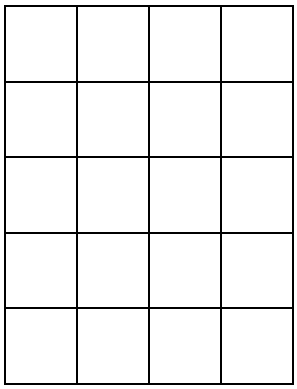


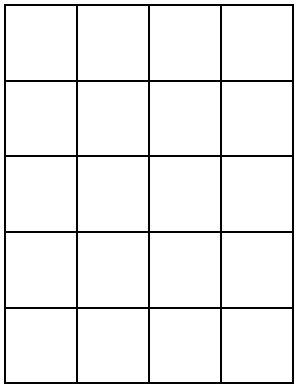


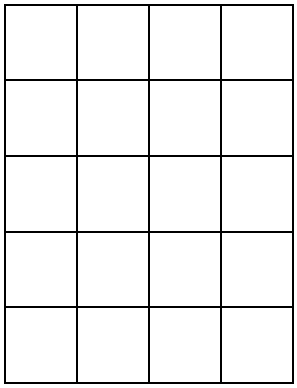
Name_____ Date_____

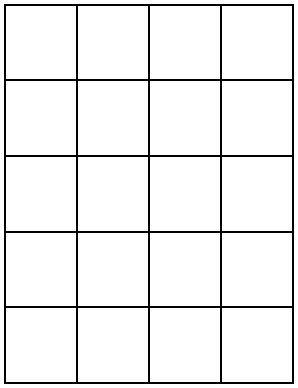
Measurement
Unit 1 Line Master 5b

Blank 5-by-4 Loom Templates







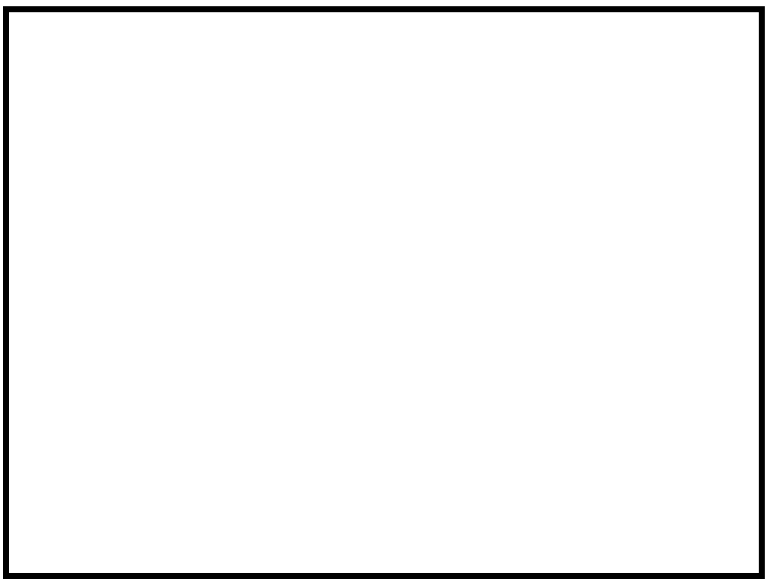


Name_____ Date_____

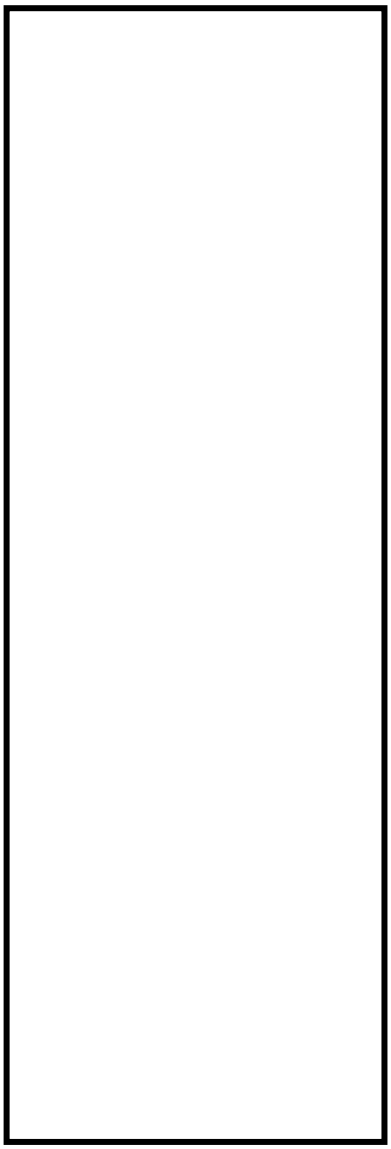
Measurement
Unit 1 Line Master 6

Paper Rectangles

A



B



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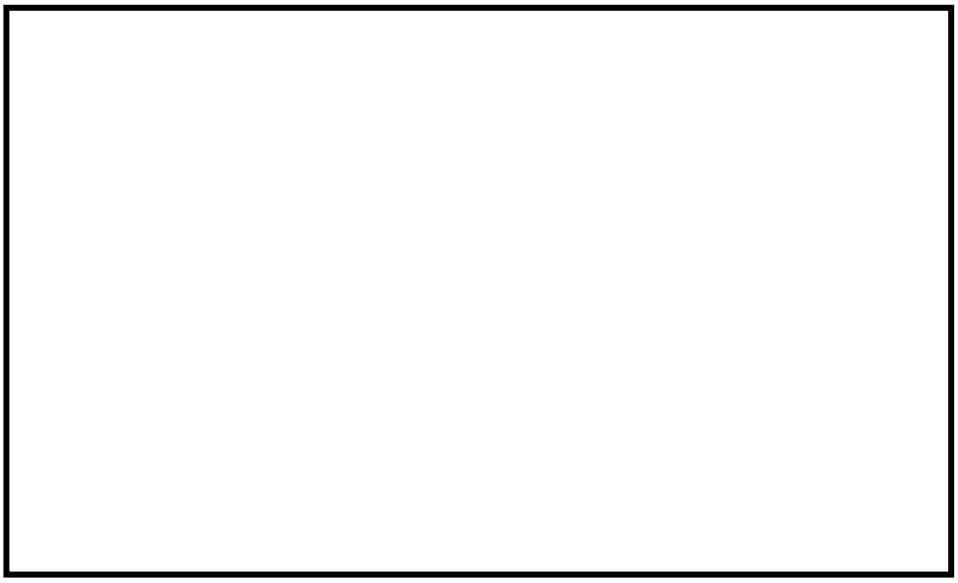


Name _____ Date _____

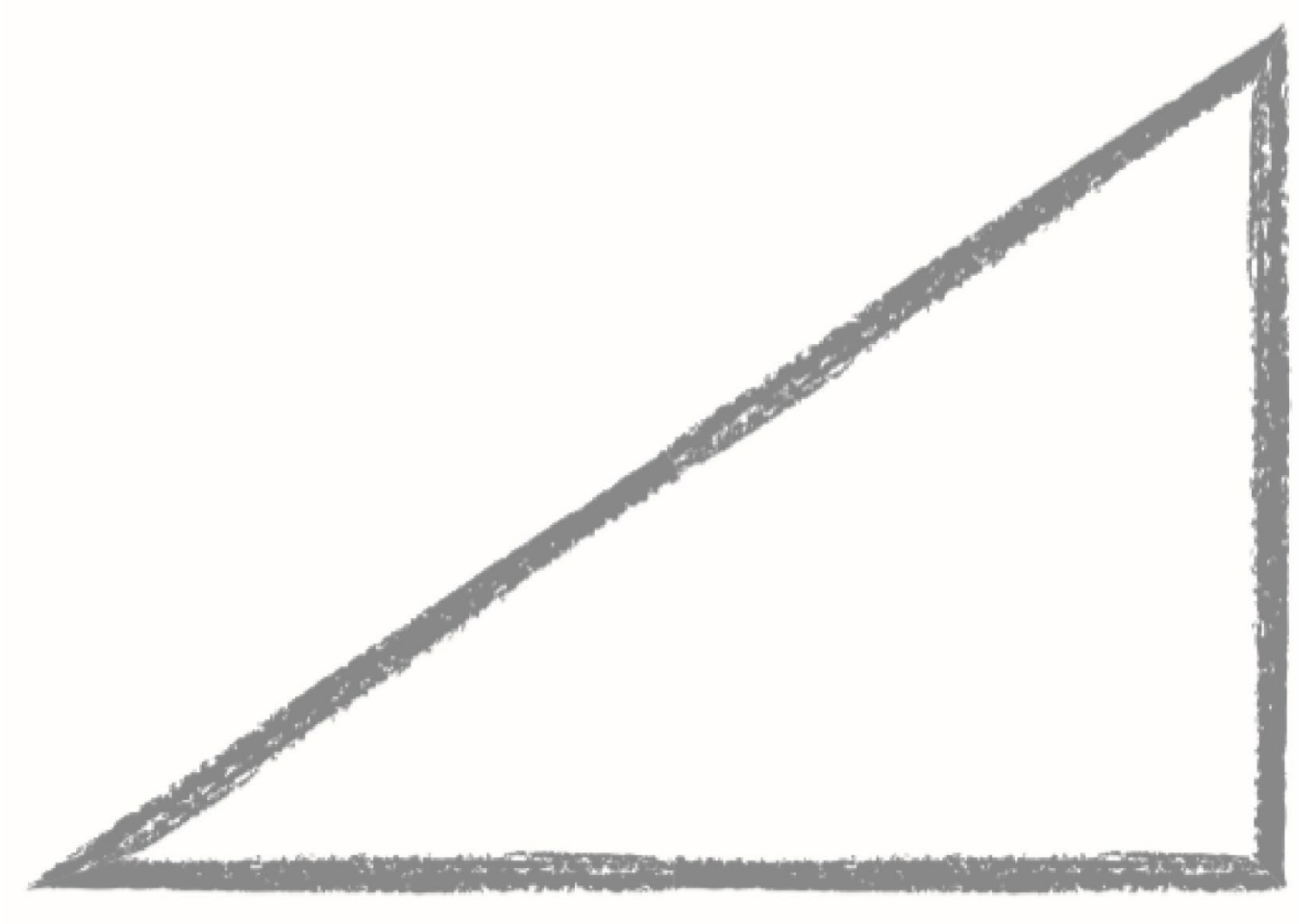
Measurement
Unit 1 Line Master 7a

Cover Me!

Name _____ Date _____

Measurement
Unit 1 Line Master 7b

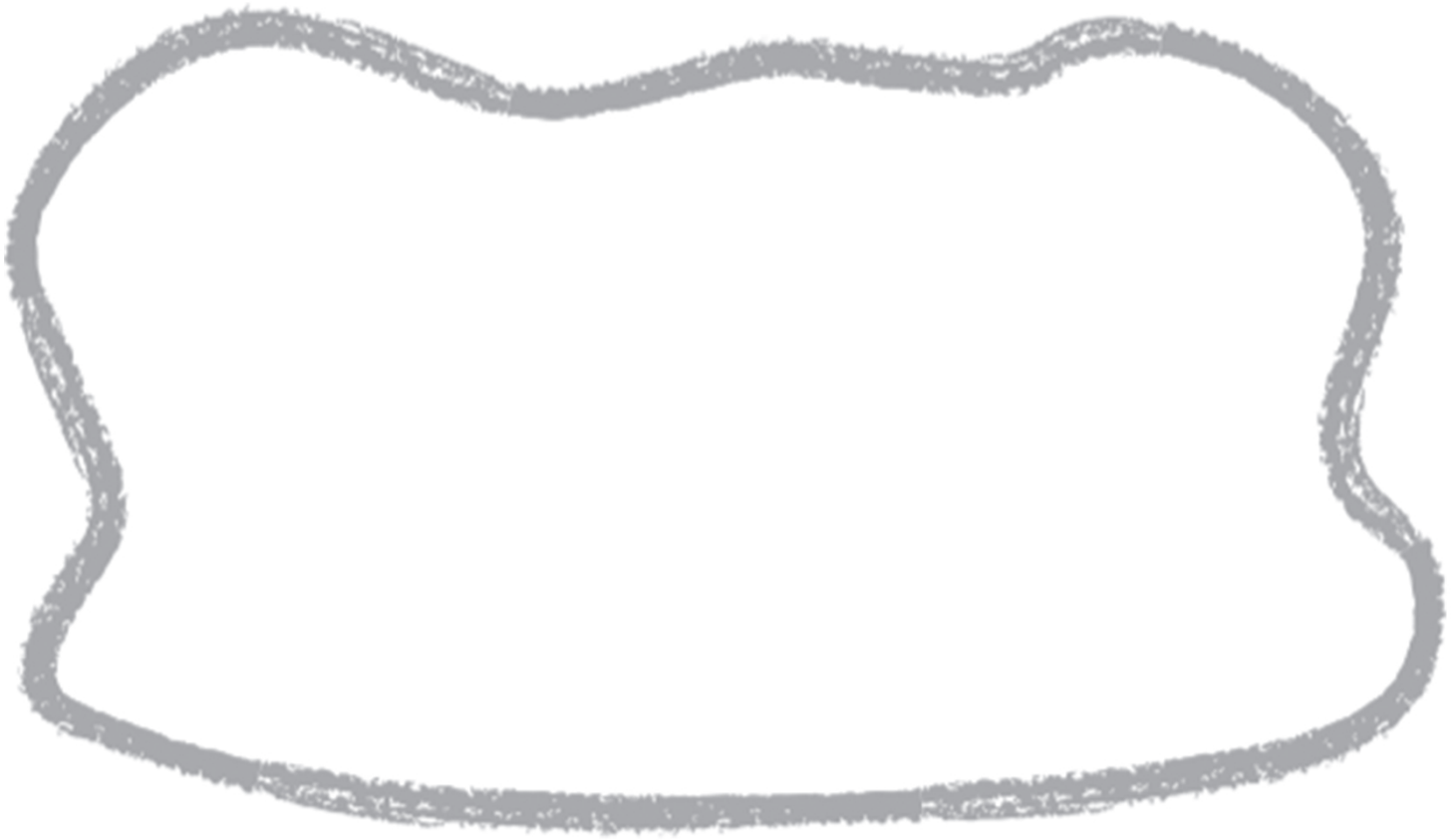
Cover Me!



Name _____ Date _____

Measurement
Unit 1 Line Master 7c

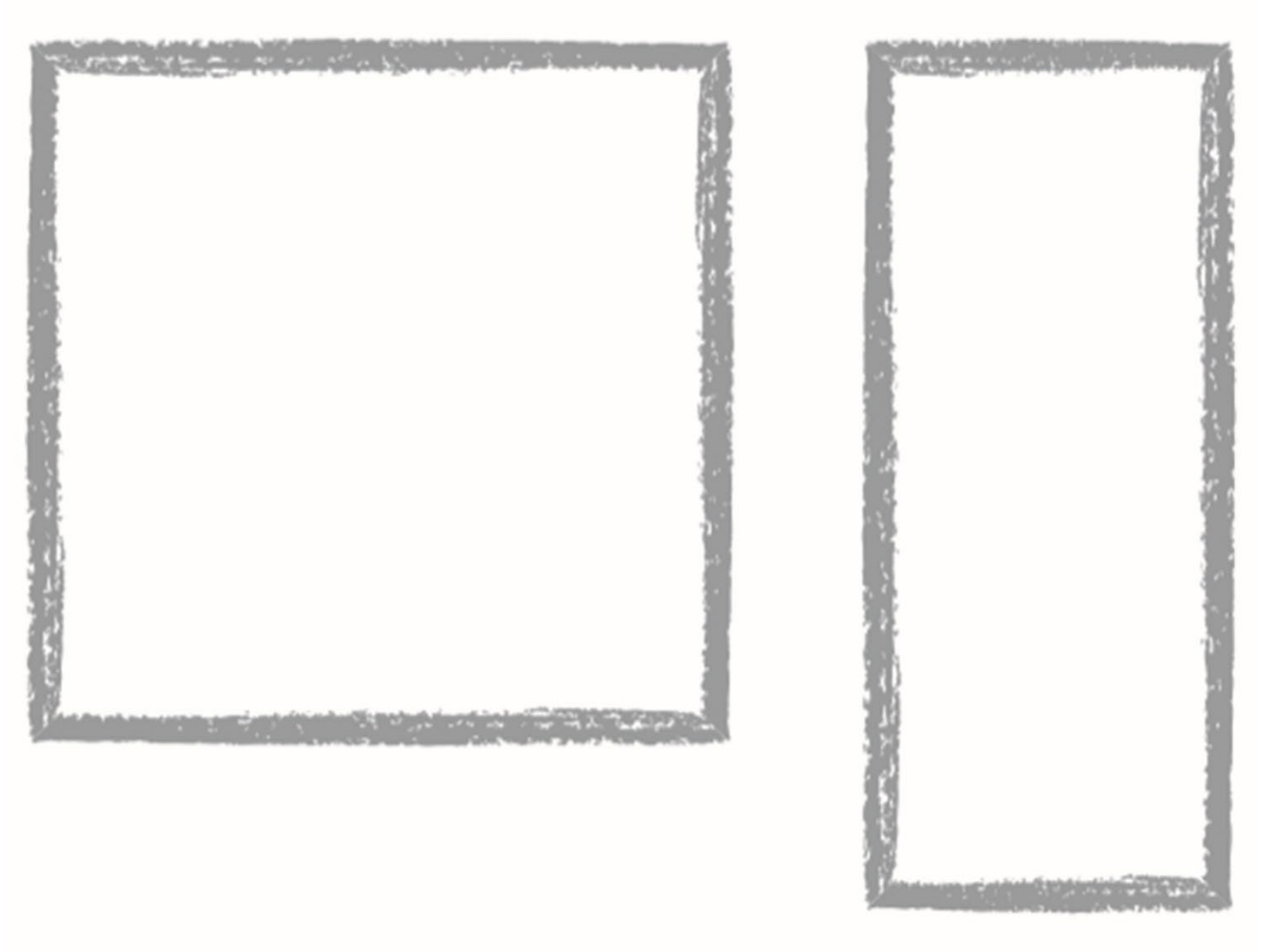
Cover Me!



Name _____ Date _____

Measurement
Unit 1 Line Master 7d

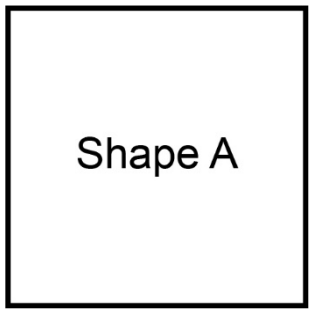
Cover Me!

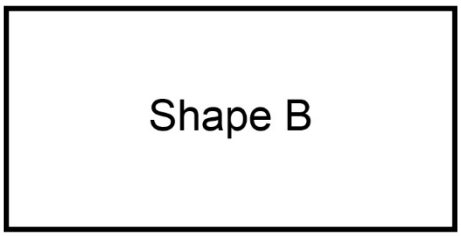


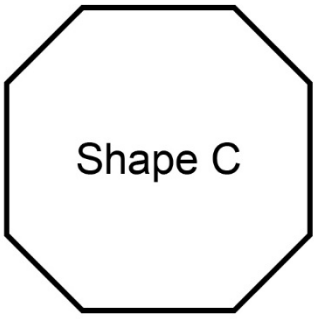
Name_____ Date_____

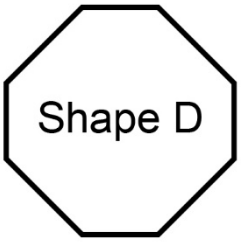
Measurement
Unit 1 Line Master 8a

What's the Area?





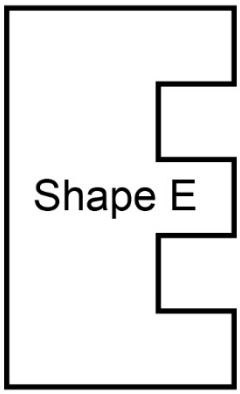


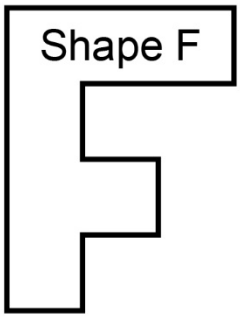


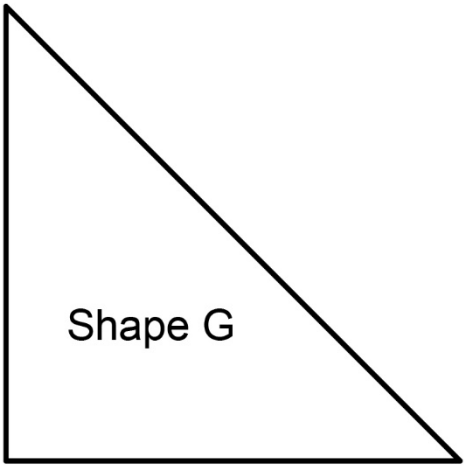
Name_____ Date_____

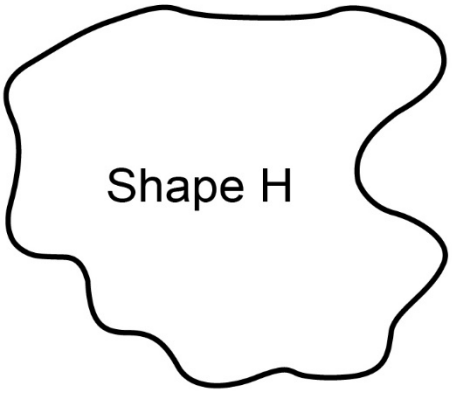
Measurement
Unit 1 Line Master 8b

What's the Area? (cont'd)









Name_____ Date_____

Measurement
Unit 1 Line Master 9

What's the Area?

Recording Sheet

Shape	Estimated Area (cm^2)	Measured Area (cm^2)
A		
B		
C		
D		
E		
F		
G		
H		

Measurement

Activity 1 Assessment

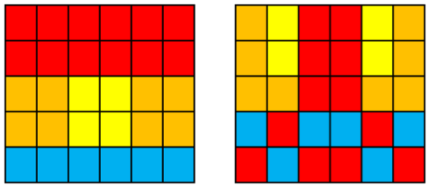
Investigating Area in First Nations, Métis, and Inuit Designs

Investigating Area in First Nations, Métis, and Inuit Designs		
Describes materials used in some First Nations, Métis, and Inuit designs "I see leather, birch bark, beads, fur, and porcupine quills."	Explains how designers might come up with their designs "They might have got ideas from nature, symbols, ceremony, culture, stories, and family."	Understands how the gathering of materials shows respect of animals and the natural world "When gathering materials, thanks is offered to the animal or natural object that will be used."
Observations/Documentation		

Measurement

Activity 1 Assessment

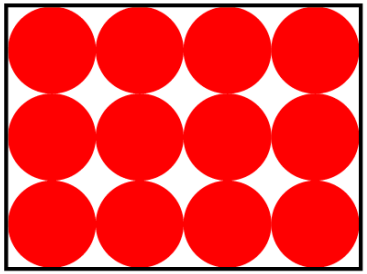
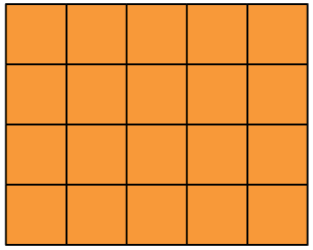
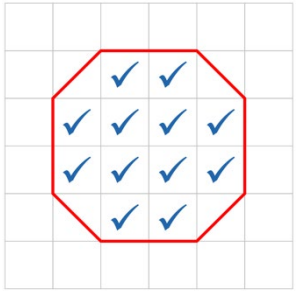
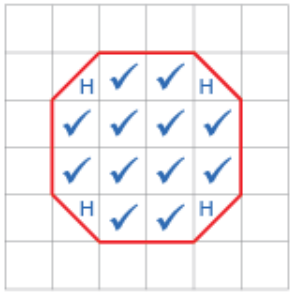
Investigating Area in First Nations, Métis, and Inuit Designs

Investigating Area in First Nations, Métis, and Inuit Designs (cont'd)		
Describes how the use of materials in designs shows respect for animals and the natural world "All parts of the animal are used; for example, for food, clothing, ceremony, shelter."	Describes various types of traditional styles of design "Different styles include bead embroidery, bead stringing, off-loom bead weaving, braiding with beads, and loom beading."	Shows that rearranging beads on a loom template does not change the number of beads needed to complete a design  "They use the same number of each colour of bead."
Observations/Documentation		

Measurement

Activity 2 Assessment

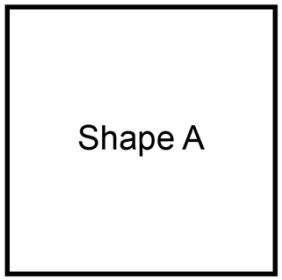
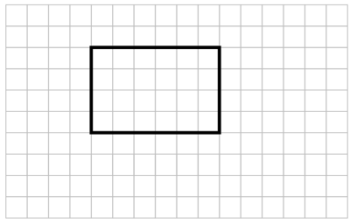
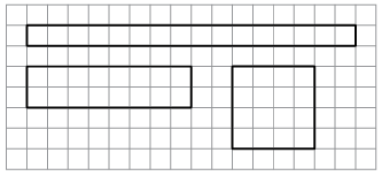
Measuring Area Using Non-Standard Units

Investigating, Estimating, and Measuring Area			
Covers with non-standard units that don't tile to measure area	Recognizes that area is measured using square units	Tiles with square centimetres and determines area by counting squares	Uses partial units to get more precise measure
			
"I covered the rectangle with counters, but there are gaps. Not all the rectangle is covered."	"I covered the rectangle with square tiles and determined the area to be 20 square units."	"I covered the octagon with square centimetres and counted 12 whole squares. So, the area is about 12 square centimetres."	"I counted squares on the 1-cm grid: 12 whole squares and 4 half squares, which make 2 whole squares, so the area is 14 cm^2."
Observations/Documentation			

Measurement

Activity 2 Assessment

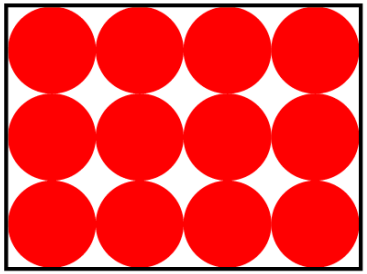
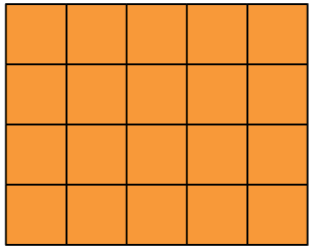
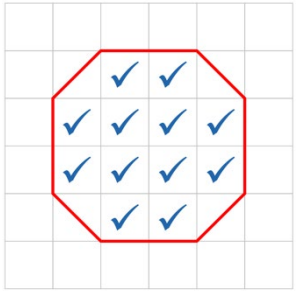
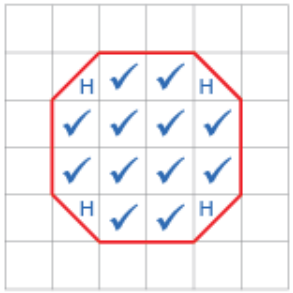
Measuring Area Using Non-Standard Units

Investigating, Estimating, and Measuring Area (cont'd)			
Uses referents to estimate area, then measures to check  "I used my fingernail as a referent for 1 cm^2. I estimated the area of Shape A to be 14 cm^2. Then I measured to check and the area was 16 cm^2."	Uses row and column structure of an array to determine area of a rectangle  "I traced the rectangle on a 1-cm grid where each square represents 1 cm^2. The rectangle forms an array with 4 rows of 6 squares: 4 × 6 = 24; the area of the rectangle is 24 cm^2.	Constructs different rectangles for a given area (square centimetres) Area of rectangle = 16 cm^2  "I constructed 3 different rectangles: A square with side length 4 cm: 4 cm × 4 cm = 16 cm^2. A 2-cm by 8-cm rectangle: 2 cm × 8 cm = 16 cm^2. A 1-cm by 16-cm rectangle: 1 cm × 16 cm = 16 cm^2."	Flexibly determines the area of shapes, including rectangles, and solves problems A baseball ticket has an area of 75 cm^2. The ticket is 5 cm wide. How long is it? "I know $A = l \times w$, so I solved the equation $75 = l \times 5$. I know 15 × 5 = 75, so the ticket is 15 cm long."
Observations/Documentation			

Measurement

Activity 3 Assessment

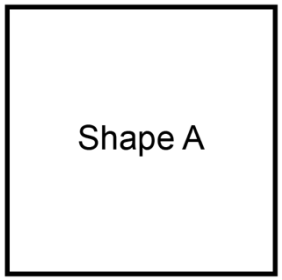
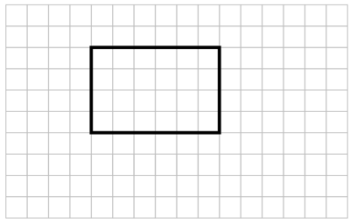
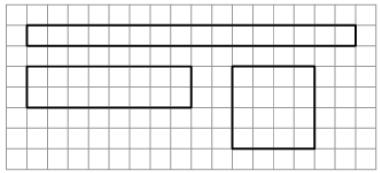
Estimating and Measuring Area in Square Centimetres

Investigating, Estimating, and Measuring Area			
Covers with non-standard units that don't tile to measure area	Recognizes that area is measured using square units	Tiles with square centimetres and determines area by counting squares	Uses partial units to get more precise measure
			
"I covered the rectangle with counters, but there are gaps. Not all the rectangle is covered."	"I covered the rectangle with square tiles and determined the area to be 20 square units."	"I covered the octagon with square centimetres and counted 12 whole squares. So, the area is about 12 square centimetres."	"I counted squares on the 1-cm grid: 12 whole squares and 4 half squares, which make 2 whole squares, so the area is 14 cm^2."
Observations/Documentation			

Measurement

Activity 3 Assessment

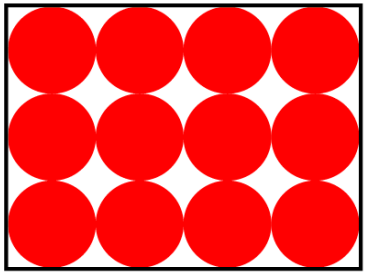
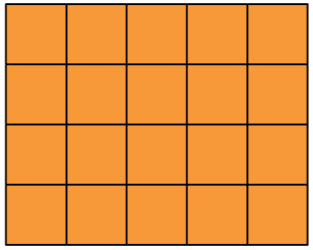
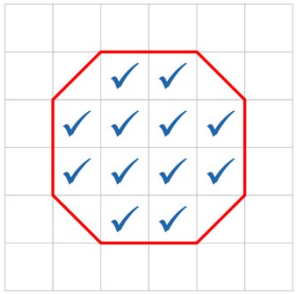
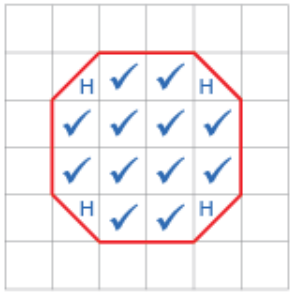
Estimating and Measuring Area in Square Centimetres

Investigating, Estimating, and Measuring Area (cont'd)			
Uses referents to estimate area, then measures to check  "I used my fingernail as a referent for 1 cm^2. I estimated the area of Shape A to be 14 cm^2. Then I measured to check and the area was 16 cm^2."	Uses row and column structure of an array to determine area of a rectangle  "I traced the rectangle on a 1-cm grid where each square represents 1 cm^2. The rectangle forms an array with 4 rows of 6 squares: 4 × 6 = 24; the area of the rectangle is 24 cm^2.	Constructs different rectangles for a given area (square centimetres) Area of rectangle = 16 cm^2  "I constructed 3 different rectangles: A square with side length 4 cm: 4 cm × 4 cm = 16 cm^2. A 2-cm by 8-cm rectangle: 2 cm × 8 cm = 16 cm^2. A 1-cm by 16-cm rectangle: 1 cm × 16 cm = 16 cm^2."	Flexibly determines the area of shapes, including rectangles, and solves problems A baseball ticket has an area of 75 cm^2. The ticket is 5 cm wide. How long is it? "I know $A = l \times w$, so I solved the equation $75 = l \times 5$. I know 15 × 5 = 75, so the ticket is 15 cm long."
Observations/Documentation			

Measurement

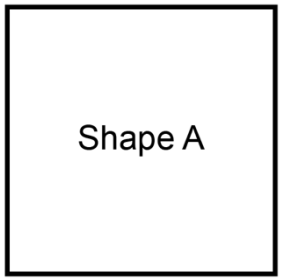
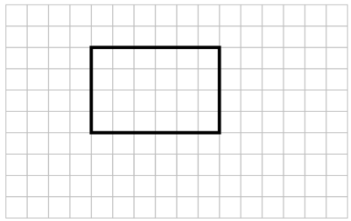
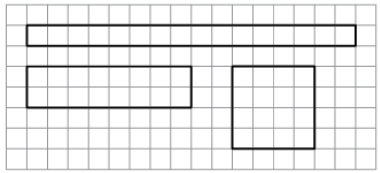
Activity 4 Assessment

Exploring Area of Rectangles

Investigating, Estimating, and Measuring Area			
Covers with non-standard units that don't tile to measure area	Recognizes that area is measured using square units	Tiles with square centimetres and determines area by counting squares	Uses partial units to get more precise measure
			
"I covered the rectangle with counters, but there are gaps. Not all the rectangle is covered."	"I covered the rectangle with square tiles and determined the area to be 20 square units."	"I covered the octagon with square centimetres and counted 12 whole squares. So, the area is about 12 square centimetres."	"I counted squares on the 1-cm grid: 12 whole squares and 4 half squares, which make 2 whole squares, so the area is 14 cm^2."
Observations/Documentation			

Measurement

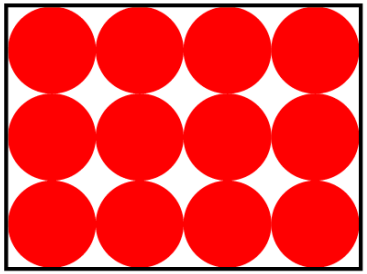
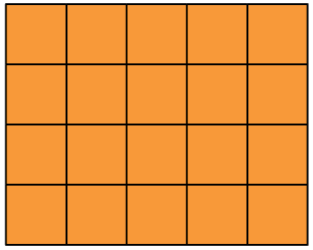
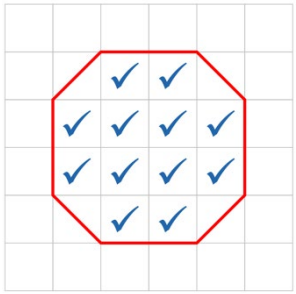
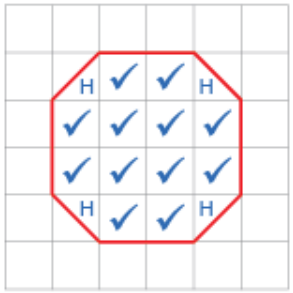
Activity 4 Assessment
Exploring Area of Rectangles

Investigating, Estimating, and Measuring Area (cont'd)			
Uses referents to estimate area, then measures to check  "I used my fingernail as a referent for 1 cm^2. I estimated the area of Shape A to be 14 cm^2. Then I measured to check and the area was 16 cm^2."	Uses row and column structure of an array to determine area of a rectangle  "I traced the rectangle on a 1-cm grid where each square represents 1 cm^2. The rectangle forms an array with 4 rows of 6 squares: 4 × 6 = 24; the area of the rectangle is 24 cm^2.	Constructs different rectangles for a given area (square centimetres) Area of rectangle = 16 cm^2  "I constructed 3 different rectangles: A square with side length 4 cm: 4 cm × 4 cm = 16 cm^2. A 2-cm by 8-cm rectangle: 2 cm × 8 cm = 16 cm^2. A 1-cm by 16-cm rectangle: 1 cm × 16 cm = 16 cm^2."	Flexibly determines the area of shapes, including rectangles, and solves problems A baseball ticket has an area of 75 cm^2. The ticket is 5 cm wide. How long is it? "I know $A = l \times w$, so I solved the equation $75 = l \times 5$. I know 15 × 5 = 75, so the ticket is 15 cm long."
Observations/Documentation			

Measurement

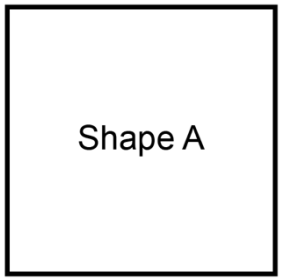
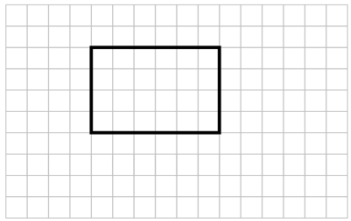
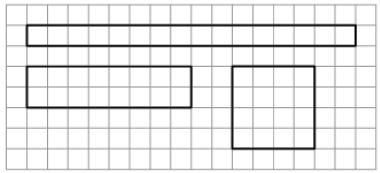
Activity 5 Assessment

Area Consolidation

Investigating, Estimating, and Measuring Area			
Covers with non-standard units that don't tile to measure area	Recognizes that area is measured using square units	Tiles with square centimetres and determines area by counting squares	Uses partial units to get more precise measure
			
"I covered the rectangle with counters, but there are gaps. Not all the rectangle is covered."	"I covered the rectangle with square tiles and determined the area to be 20 square units."	"I covered the octagon with square centimetres and counted 12 whole squares. So, the area is about 12 square centimetres."	"I counted squares on the 1-cm grid: 12 whole squares and 4 half squares, which make 2 whole squares, so the area is 14 cm^2."
Observations/Documentation			

Measurement

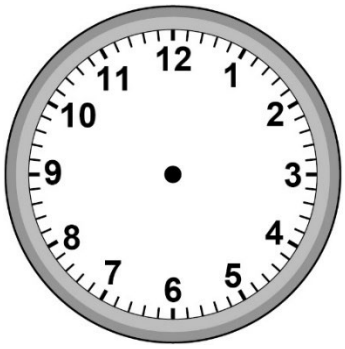
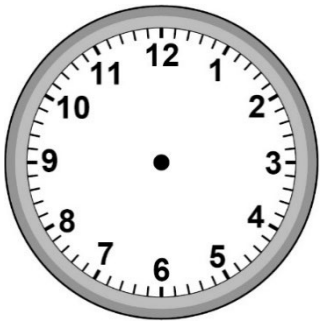
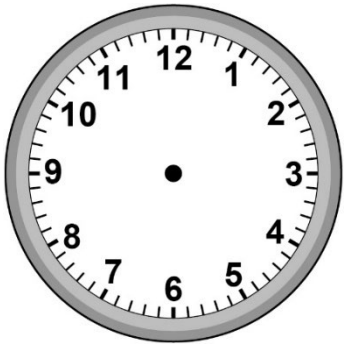
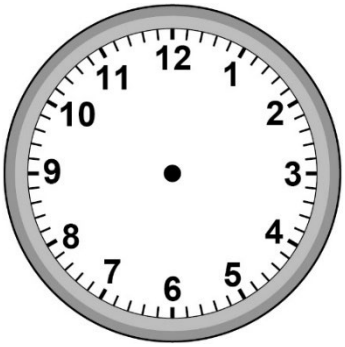
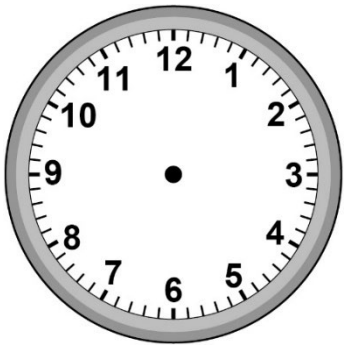
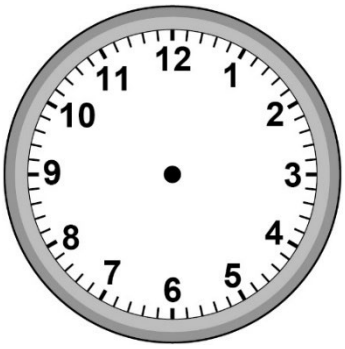
Activity 5 Assessment
Area Consolidation

Investigating, Estimating, and Measuring Area (cont'd)			
Uses referents to estimate area, then measures to check  "I used my fingernail as a referent for 1 cm^2. I estimated the area of Shape A to be 14 cm^2. Then I measured to check and the area was 16 cm^2."	Uses row and column structure of an array to determine area of a rectangle  "I traced the rectangle on a 1-cm grid where each square represents 1 cm^2. The rectangle forms an array with 4 rows of 6 squares: 4 × 6 = 24; the area of the rectangle is 24 cm^2.	Constructs different rectangles for a given area (square centimetres) Area of rectangle = 16 cm^2  "I constructed 3 different rectangles: A square with side length 4 cm: 4 cm × 4 cm = 16 cm^2. A 2-cm by 8-cm rectangle: 2 cm × 8 cm = 16 cm^2. A 1-cm by 16-cm rectangle: 1 cm × 16 cm = 16 cm^2."	Flexibly determines the area of shapes, including rectangles, and solves problems A baseball ticket has an area of 75 cm^2. The ticket is 5 cm wide. How long is it? "I know $A = l \times w$, so I solved the equation $75 = l \times 5$. I know 15 × 5 = 75, so the ticket is 15 cm long."
Observations/Documentation			

Name_____ Date_____

Measurement
Unit 2 Line Master 1

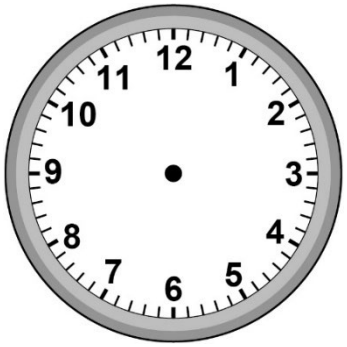
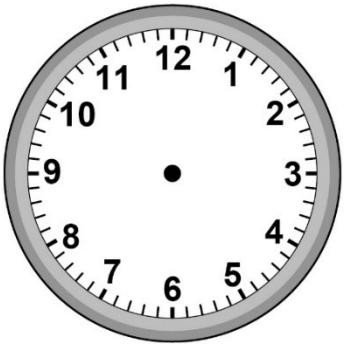
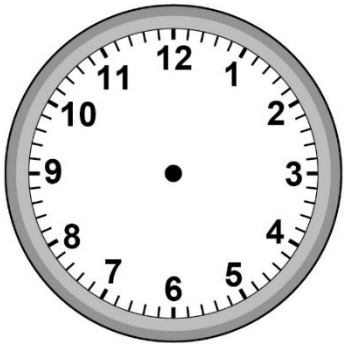
Finding Duration

Start Time	End Time
2:20 p.m. 	3:05 p.m. 
Duration:	
7:10 a.m. 	7:30 a.m. 
Duration:	
8:45 p.m. 	9:25 p.m. 
Duration:	

Name_____ Date_____

Measurement
Unit 2 Line Master 2

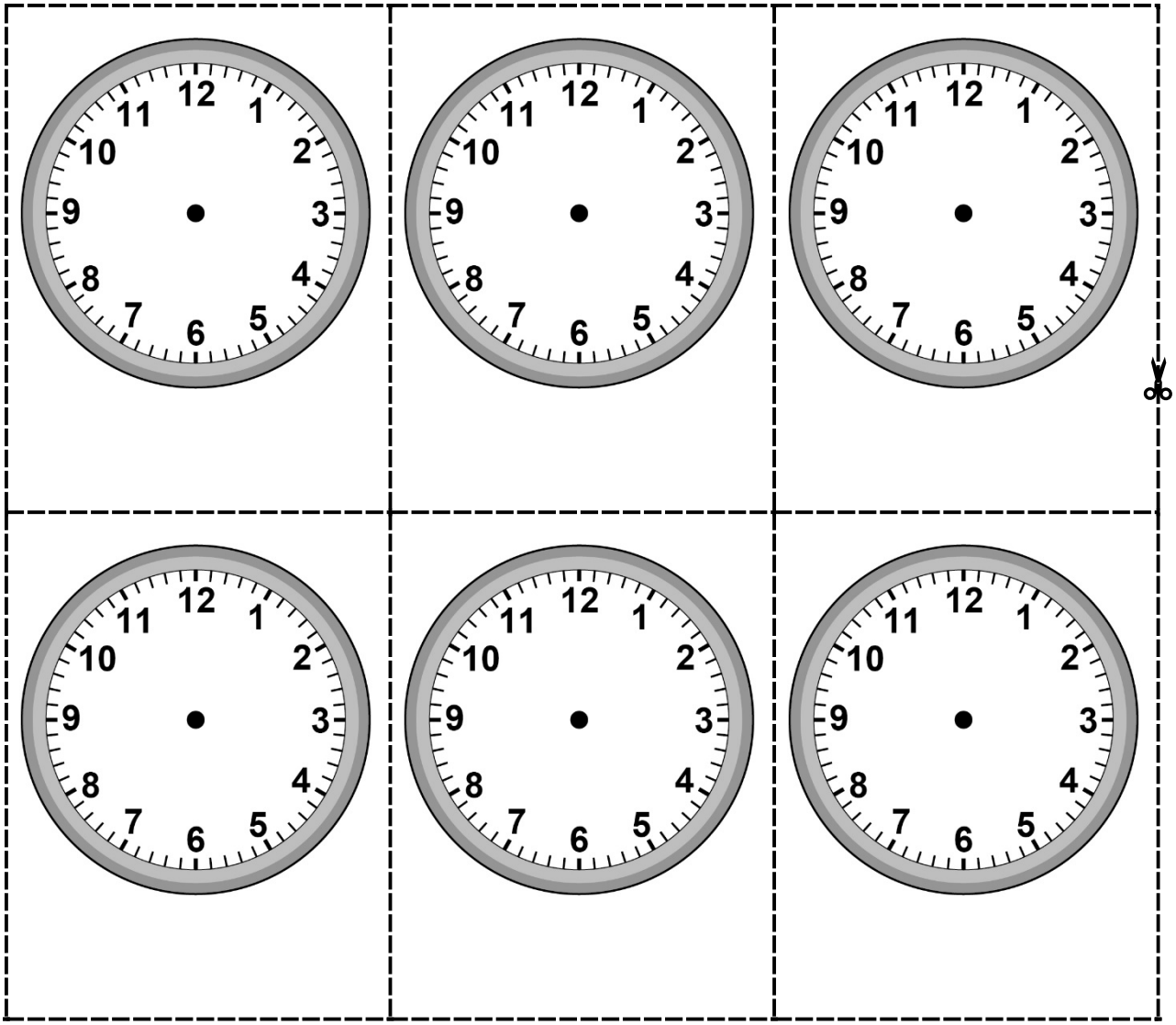
Start and End Times

Start Time	End Time
Time: _____ 	Time: _____ 
Duration: $\frac{1}{2}$ h or _____ min	
Time: _____ 	Time: _____ 
Duration: $\frac{2}{3}$ h or _____ min	
Time: _____ 	Time: _____ 
Duration: $\frac{3}{4}$ h or _____ min	

Name_____ Date_____

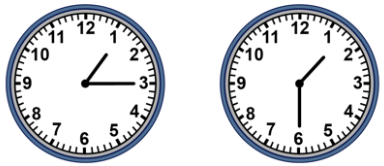
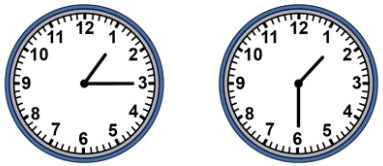
Measurement
Unit 2 Line Master 3

Blank Clock Faces



Measurement

Activity 6 Assessment
Exploring Duration

Exploring Duration		
Tells time using fractions.  "It is quarter to three or two forty-five."	Determines duration in minutes Start Time End Time  "I skip-count by 5s as the minute hand moves from 3 to 6: 5, 10, 15. The duration is 15 min."	Relates durations in minutes to fractions of an hour Start Time End Time  "I know there are 4 groups of 15 min in 60 min. So, 15 min is $\frac{1}{4}$ h."
Observations/Documentation		

Measurement

Activity 6 Assessment
Exploring Duration

Exploring Duration (cont'd)

Calculates duration of an event

On Saturday, Alicia visited her grandmother from 11:30 a.m. to 1:10 p.m.
How long did the visit last?

"The visit lasted 1 h 40 min or $1\frac{2}{3}$ h."

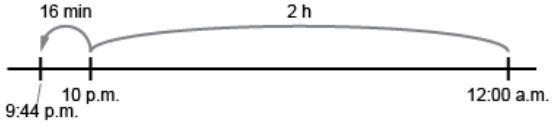
Compares durations using standard units

Start Time	End Time	Duration
12:18 p.m.	1:55 p.m.	1 h 37 min
11:23 a.m.	1:08 p.m.	1 h 45 min

"The second event lasted longer as 1 h 45 min > 1 h 37 min."

Flexibly solves duration problems using various strategies and relationships among units

It is New Year's Eve. The clock will strike midnight in 136 min. What time is it?



"I know 1 h = 60 min and 2 h = 120 min.
136 min = 120 min + 16 min = 2 h and 16 min.
Midnight is 12:00 a.m. The time is 9:44 p.m."

Observations/Documentation

Measurement

Activity 7 Assessment

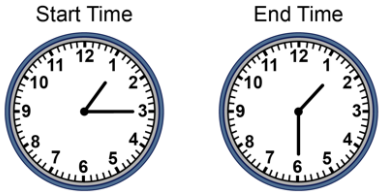
Solving Problems Involving Duration

Exploring Duration

Tells time using fractions.

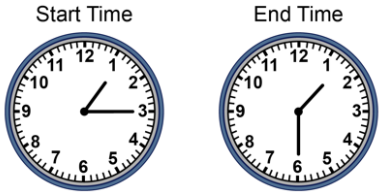
"It is quarter to three or two forty-five."

Determines duration in minutes



"I skip-count by 5s as the minute hand moves from 3 to 6: 5, 10, 15. The duration is 15 min."

Relates durations in minutes to fractions of an hour



"I know there are 4 groups of 15 min in 60 min.
So, 15 min is $\frac{1}{4}$ h."

Observations/Documentation

Measurement

Activity 7 Assessment

Solving Problems Involving Duration

Exploring Duration (cont'd)

Calculates duration of an event

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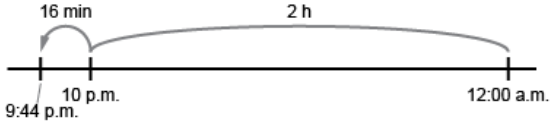

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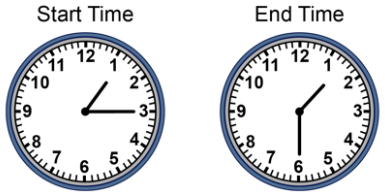
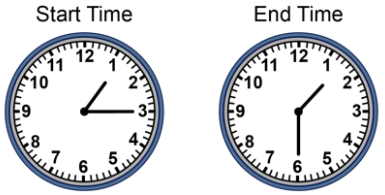
Observations/Documentation

Measurement

Activity 8 Assessment
Consolidation

Exploring Duration

Tells time using fractions.	Determines duration in minutes	Relates durations in minutes to fractions of an hour
		
"It is quarter to three or two forty-five."	"I skip-count by 5s as the minute hand moves from 3 to 6: 5, 10, 15. The duration is 15 min."	"I know there are 4 groups of 15 min in 60 min. So, 15 min is $\frac{1}{4}$ h."

Observations/Documentation

Measurement

Activity 8 Assessment
Consolidation

Exploring Duration (cont'd)

Calculates duration of an event

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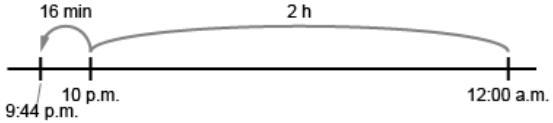

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Midnight is 12:00 a.m. The time is 9:44 p.m."

Observations/Documentation

Name_____ Date_____

Geometry
Unit 1 Line Master 1a

Scavenger Hunt Recording Sheet

Polygons

Sketch of Polygon	Properties

Name_____ Date_____

Geometry
Unit 1 Line Master 1b

Scavenger Hunt Recording Sheet (cont'd)

Prisms

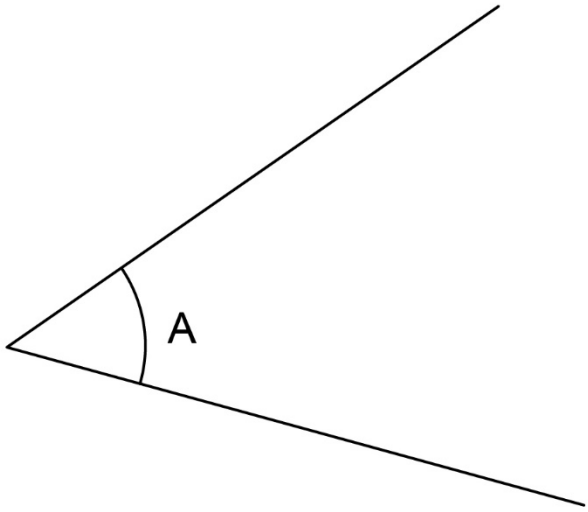
Sketch of Prism	Properties

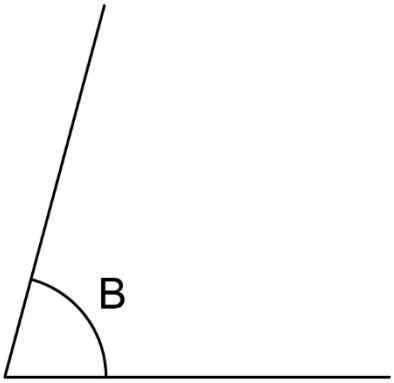
Name_____ Date_____

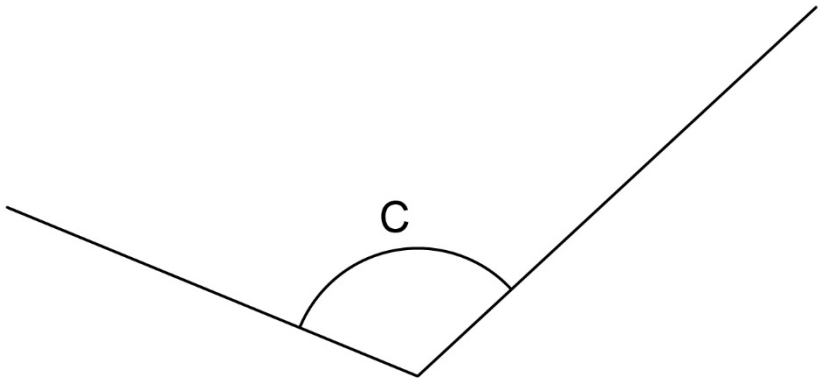
Geometry
Unit 1 Line Master 2a

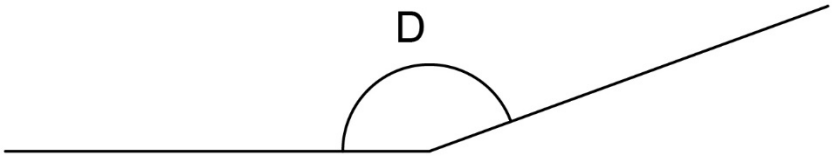
What's My Measure?

Measure each angle.







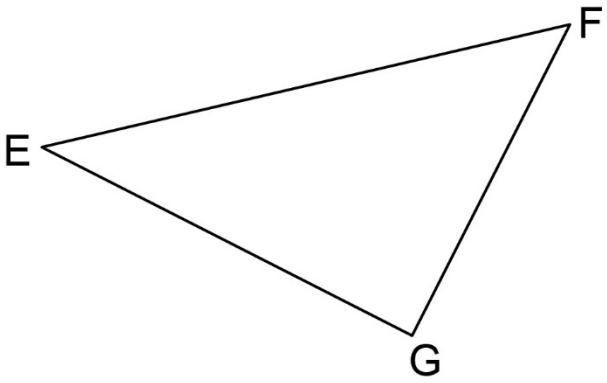


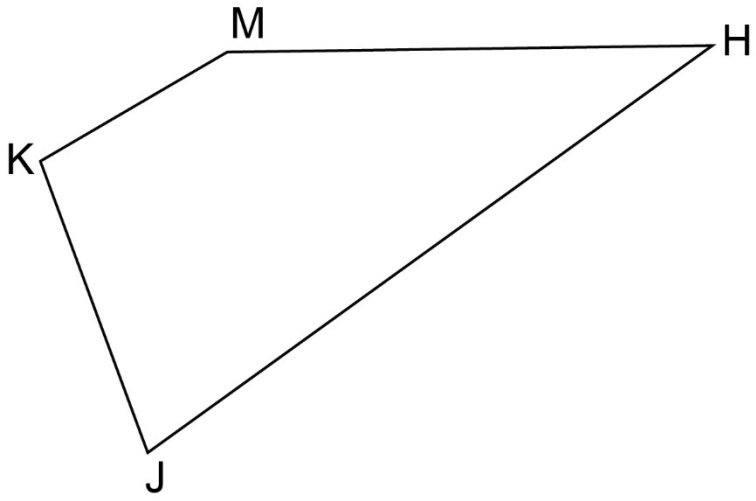
Name_____ Date_____

Geometry
Unit 1 Line Master 2b

What's My Measure? (cont'd)

Measure the angles in each shape.

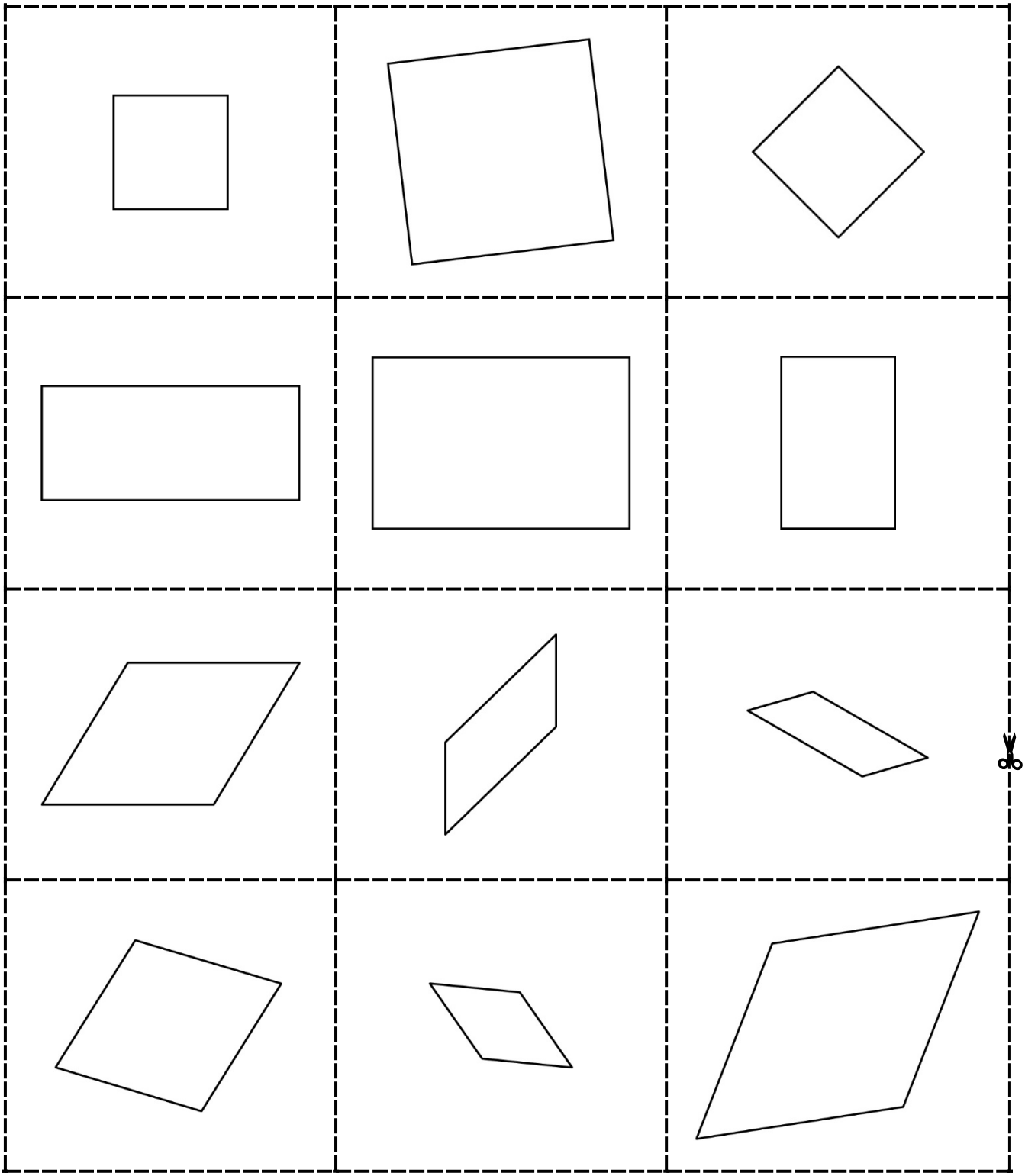




Name_____ Date_____

Geometry
Unit 1 Line Master 3a

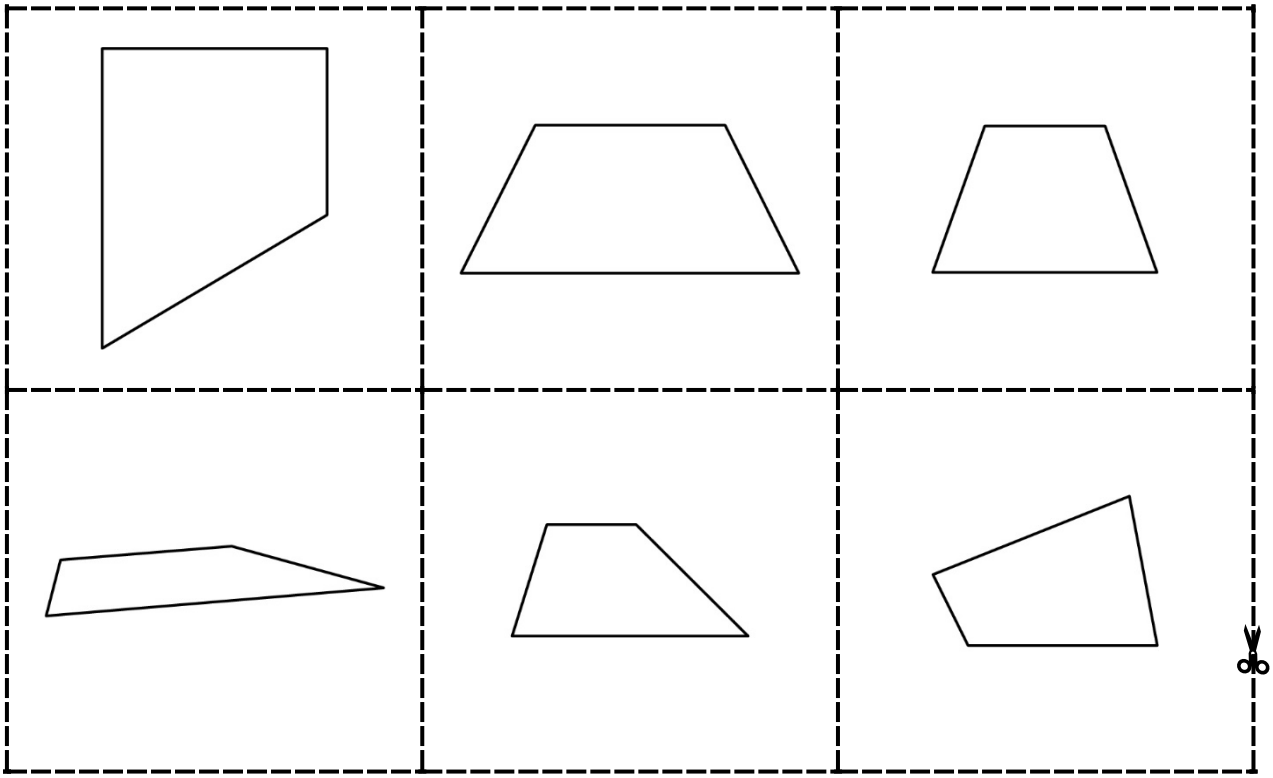
Quadrilaterals



Name_____ Date_____

Geometry
Unit 1 Line Master 3b

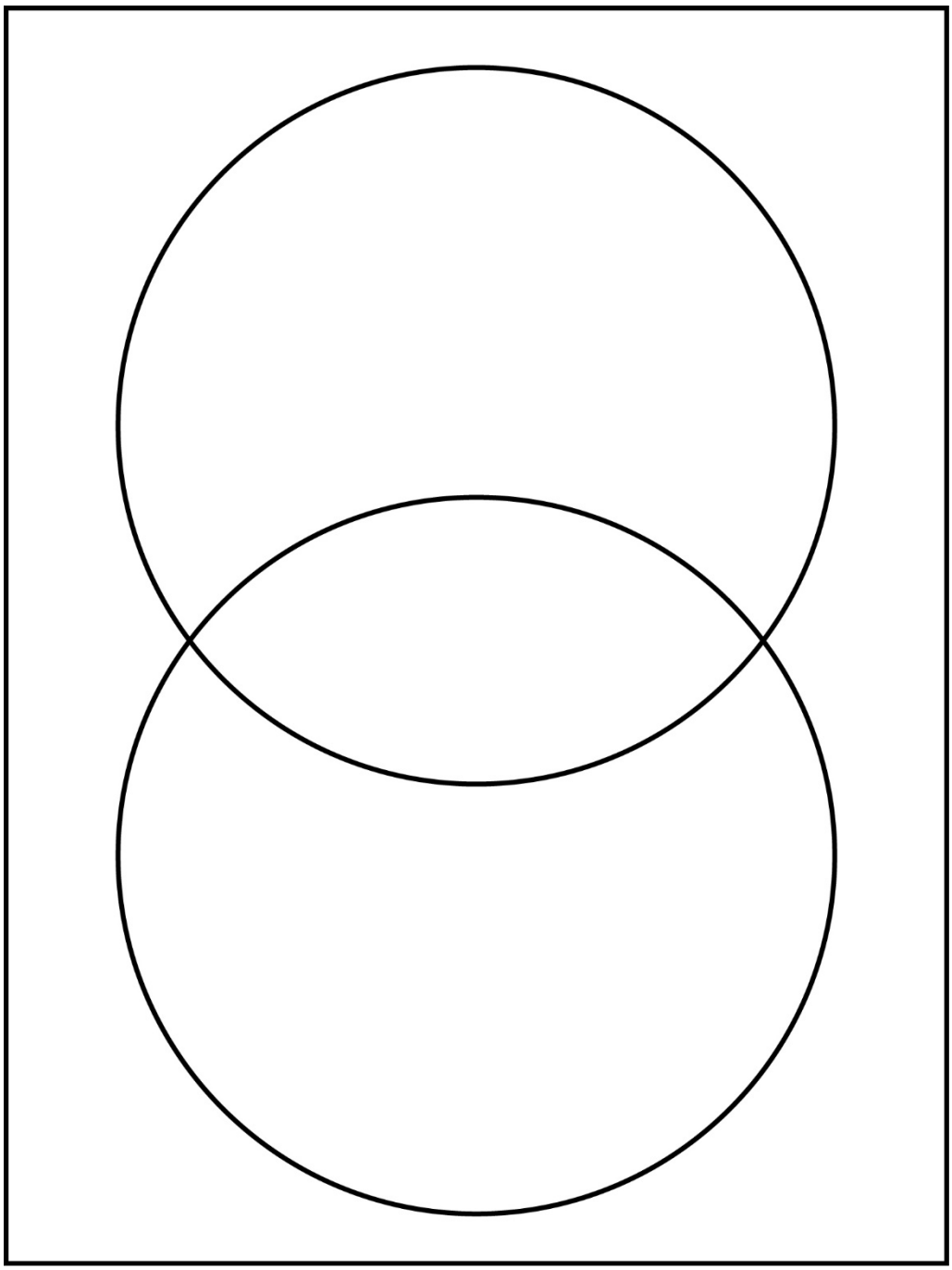
Quadrilaterals (cont'd)



Name_____ Date_____

Geometry
Unit 1 Line Master 4

Venn Diagram



Name_____ Date_____

Geometry
Unit 1 Line Master 5a

Is It, or Isn't It?

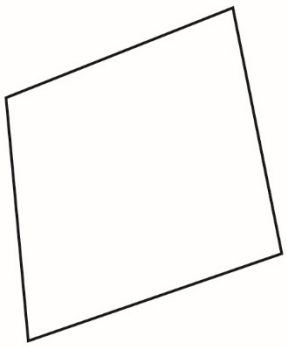
Use transformations to determine if these are geometric shapes or close approximations.

1. What geometric properties must a rectangle have?

Rectangle or close approximation

What transformations did you use to make your decision? Explain.

2. What geometric properties must a parallelogram have?



Parallelogram or close approximation

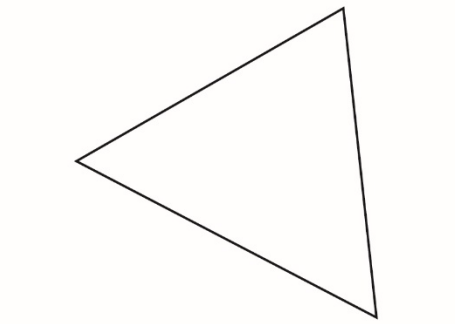
What transformations did you use to make your decision? Explain.

Name_____ Date_____

Geometry
Unit 1 Line Master 5b

Is It, or Isn't It? (cont'd)

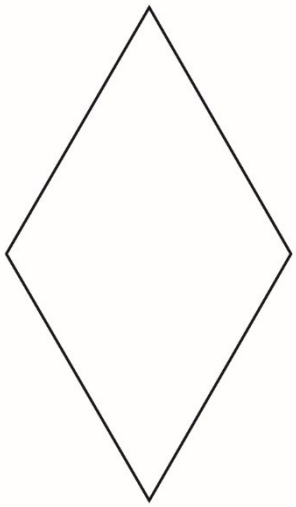
3. What geometric properties must an equilateral triangle have?



Equilateral triangle or close approximation

What transformations did you use to make your decision? Explain.

4. What geometric properties must a rhombus have?



Rhombus or close approximation

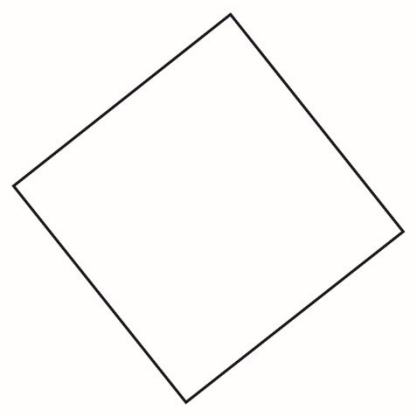
What transformations did you use to make your decision? Explain.

Name_____ Date_____

Geometry
Unit 1 Line Master 5c

Is It, or Isn't It? (cont'd)

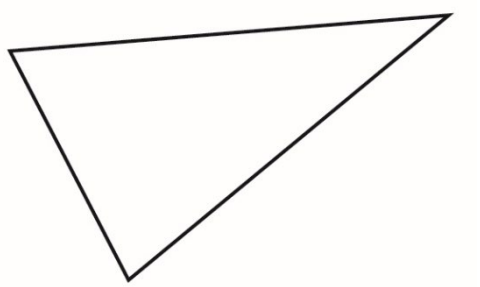
5. What geometric properties must a square have?



Square or close approximation

What transformations did you use to make your decision? Explain.

6. What geometric properties must an isosceles triangle have?



Isosceles triangle or close approximation

What transformations did you use to make your decision? Explain.

Name_____ Date_____

Geometry
Unit 1 Line Master 6a

Algorithms and Routines

An algorithm is a sequence of instructions. We follow sequences of instructions, whether we notice or not, during our daily lives.

A recipe to bake a cake is an algorithm. When we engage in certain routines, such as getting ready for school, we are working our way through an algorithm.

What is this algorithm for?

Code
Put on pajamas
Go to sleep
Read a chapter from your book
Brush teeth

If this algorithm was for your bedtime routine, would it be in the correct order?

How might you reorganize the steps in the algorithm so that it is accurate?
Is more than one sequence possible? Explain.

Within this algorithm for a bedtime routine, there could be additional algorithms with further sequences of instructions.
For example, when you brush your teeth, you follow another sequence of instructions!

Name_____ Date_____

Geometry
Unit 1 Line Master 6b

Algorithms and Routines (cont'd)

Another routine that you likely engage in several times per day is washing your hands. Write an algorithm for washing your hands.

You might include instructions to repeat steps a certain number of times. You might include instructions to repeat steps only under certain conditions, such as if your hands are still dirty. Specific instructions help to make algorithms more straightforward to follow.

Code: Washing your hands

Compare your algorithm for washing your hands with that of a classmate's. How are they alike? How are they different?

Name_____ Date_____

Geometry
Unit 1 Line Master 6c

Algorithms and Routines (cont'd)

1. On your own or with a partner, choose another typical daily routine. Write an algorithm for completing that routine.

Code:

Is there more than one way to write the sequence of instructions in your algorithm? Explain.

Have your classmates try to figure out what routine your algorithm was written for.

Name_____ Date_____

Geometry
Unit 1 Line Master 7a

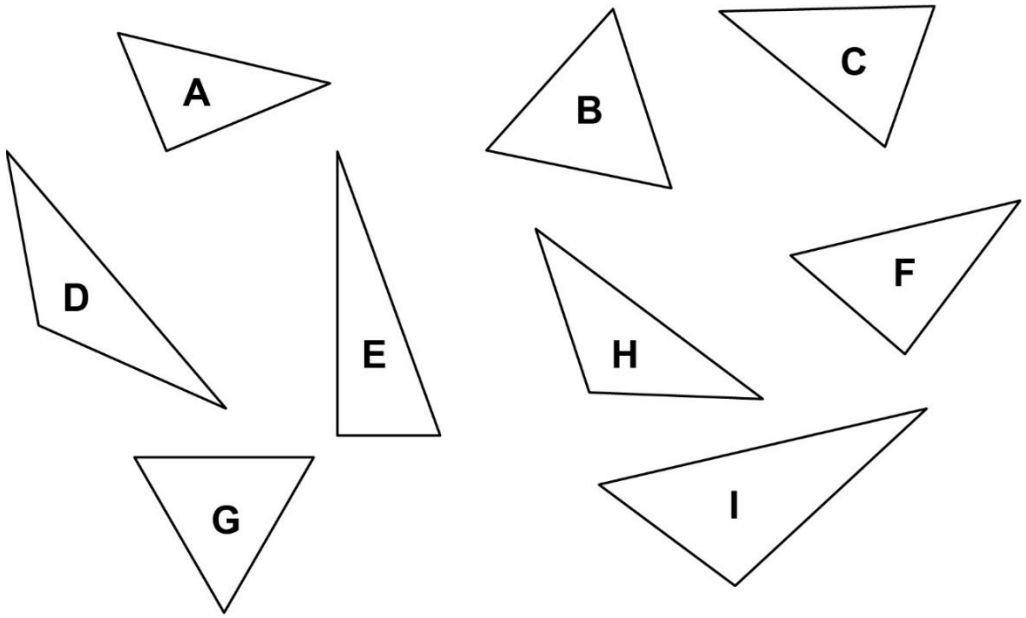
Algorithms and Classifying Triangles

You have written algorithms for completing different daily routines. Let's take a look at writing algorithms to help us classify triangles according to their side lengths or angle measures.

1. Here is an algorithm for classifying triangles according to their angle measures.

Algorithm for classifying a triangle according to angle measures
Measure all three angles.
If one angle is equal to 90 degrees, it's a right triangle.
If one angle is greater than 90 degrees, it's an obtuse triangle.
If all three angles are less than 90 degrees, it's an acute triangle.

Use the algorithm to classify five of these triangles.
Check if you get the correct answer each time.
If not, adjust the algorithm as necessary.



Name_____ Date_____

Geometry
Unit 1 Line Master 7b

Algorithms and Classifying Triangles (cont'd)

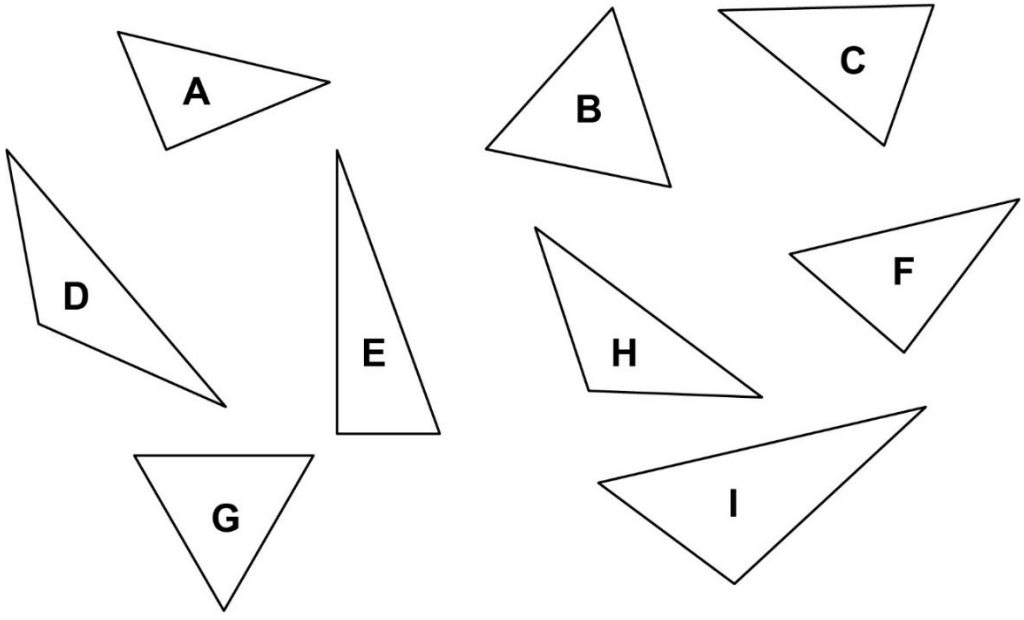
Answers:

A: Right triangle
B: Acute triangle
C: Acute triangle
D: Obtuse triangle
E: Right triangle
F: Right triangle
G: Acute triangle
H: Obtuse triangle
I: Obtuse triangle

2. Write an algorithm for classifying a triangle according to side lengths.

Algorithm for classifying a triangle according to side lengths

Use your algorithm to classify five of these triangles.
Check if you get the correct answer each time.
If not, adjust the algorithm as necessary.



Name_____ Date_____

Geometry
Unit 1 Line Master 7c

Algorithms and Classifying Triangles (cont'd)

Answers:

A: Scalene triangle
B: Equilateral triangle
C: Isosceles triangle
D: Scalene triangle
E: Scalene triangle
F: Scalene triangle
G: Equilateral triangle
H: Isosceles triangle
I: Scalene triangle

Name_____ Date_____

Geometry
Unit 1 Line Master 8a

Testing an Artefact and Providing Feedback

When artefacts such as computer applications are created, a design process is followed. Part of this process involves testing and troubleshooting. Throughout the design process, feedback is usually provided by the user of the computer application.

Feedback helps to ensure all needs are considered during the design process.

1. Check out this simple application and the design and feedback process that was done during its creation.

Purpose of the application	A computer programmer was asked to create a simple application that determines if an angle is right, obtuse, acute, or reflex.

Planning	The computer programmer starts by writing an algorithm.
	
	`Ask the user for the angle`
	`If the angle is equal to 90 then`
	`  Say: It is right`
	`If the angle is greater than 180, then`
	`  Say: It is reflex`
	`If the angle is greater than 90, then`
	`  Say: It is obtuse`
	`If the angle is less than 90, then`
	`  Say: It is acute`

Name_____ Date_____

Geometry
Unit 1 Line Master 8b

Testing an Artefact and Providing Feedback (cont'd)

Creating the Application	The computer programmer creates this application. https://scratch.mit.edu/projects/873766910/editor/
Testing the Application	The computer programmer tests the application and asks for feedback from the user. The user provides this feedback: • There seems to be an error. When I run the application, it says that the angle is obtuse even if it is greater than 180. It should say an angle greater than 180 is reflex. • I also suggest changing the background and the sprite so that it is not a blank background with a cat.
Troubleshooting the Application	The computer programmer troubleshoots and alters the code so that the application works. The programmer adjusts the order in the code, as they made an error in checking if the angle was obtuse before checking if the angle was reflex. The user tests the application again and it works! Here's the completed application: https://scratch.mit.edu/projects/873770291/editor/

Name_____ Date_____

Geometry
Unit 1 Line Master 8c

Testing an Artefact and Providing Feedback (cont'd)

2. A computer application has been written to classify triangles according to side lengths. Test out the application and provide feedback to the computer programmer.

Purpose of the application	A computer programmer was asked to create an application that determines if a triangle is equilateral, isosceles, or scalene.

Planning	The computer programmer starts by writing an algorithm.
	
	Say: Your triangle will be classified according to number of equal sides.
	Ask: How many equal sides does the triangle have?
	If the number of equal sides is greater than 3, then
	    Say: It can't be a triangle!
	Otherwise…
	    If the number of equal sides is equal to 0, then
	        Say: Scalene!
	    If the number of equal sides is 2, then
	        Say: Isosceles!
	    If the number of equal sides is 3, then
	        Say: Equilateral!

Name_____ Date_____

Geometry
Unit 1 Line Master 8d

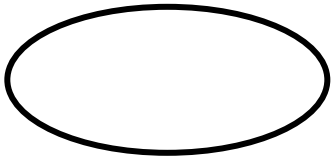
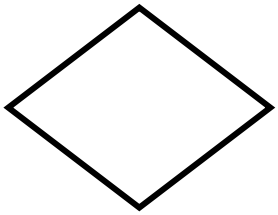
Testing an Artefact and Providing Feedback (cont'd)

Creating the Application	The computer programmer creates this application. https://scratch.mit.edu/projects/873771292/editor/
Testing the Application	The computer programmer tests the application and asks for feedback from users. Enter your feedback here:
Troubleshooting the Application	The computer programmer troubleshoots and alters the code so that the application works. Indicate how the code had to be altered in order to work properly: The user tests the application again and it works! **Optional Challenge:** Alter the code in the Scratch application to show what the final product should look like, based on the feedback you provided.

Name_____ Date_____

Geometry
Unit 1 Line Master 9

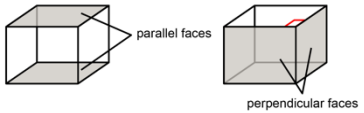
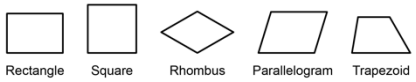
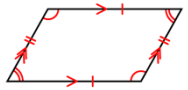
Flow Chart Legend

Symbol	Name	Function
	Start or End	An oval is used for the start and end of a program.
	Arrows	An arrow is used to illustrate the relationship between the shapes in the flow chart.
	Input and Output	A parallelogram is used for the inputs or outputs of a program.
	Process	A rectangle is used to represent a process.
	Decision	A diamond is used when a decision needs to be made to run the appropriate part of the program based on the information provided.

Geometry

Activity 1 Assessment

Properties of Polygons and Prisms

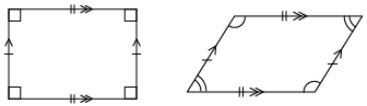
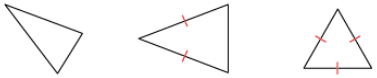
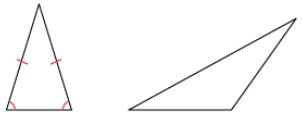
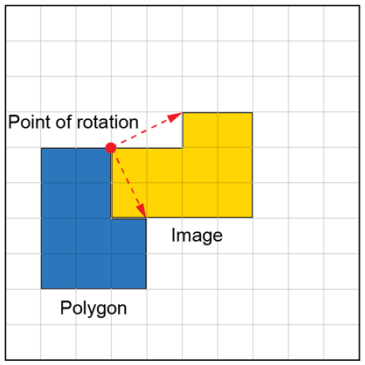
Exploring Polygons and Prisms			
Recognizes that a close approximation of a polygon is not the same as a polygon  "The Yield sign approximates a triangle, but it isn't a triangle because the corners are rounded."	Identifies relationships between sides of a polygon, and faces of a prism by measuring  "A rectangular prism has opposite faces parallel and adjacent faces perpendicular."	Recognizes and names different quadrilaterals  "These are all quadrilaterals because they have 4 sides. Each one has a special name."	Identifies and describes geometric properties of different quadrilaterals  "A parallelogram has opposite sides equal and parallel, opposite angles equal, and adjacent angles supplementary."
Observations/Documentation			

Geometry

Activity 1 Assessment

Properties of Polygons and Prisms

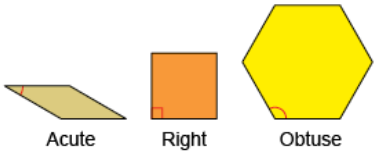
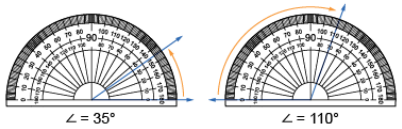
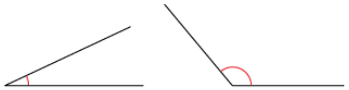
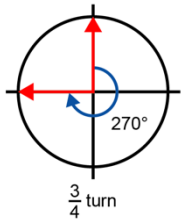
Exploring Polygons and Prisms (cont'd)

Classifies quadrilaterals in a hierarchy and names them in different ways	Describes various triangles by side length	Classifies triangles using geometric properties related to angles	Verifies that geometric properties of a polygon do not change after a transformation
			
"A rectangle is a parallelogram because it has opposite sides equal and parallel, and opposite angles equal."	"I know the first is scalene, the second is isosceles, and the third is equilateral by looking at the number of equal sides."	"The first triangle is an acute triangle because it has all acute angles. The second triangle is an obtuse triangle because it has an obtuse angle."	"After a rotation, the side lengths and angle measures of the polygon don't change."

Observations/Documentation

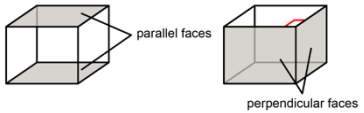
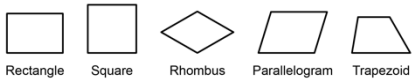
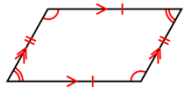
Geometry

Activity 2 Assessment
Classifying and Measuring Angles

Classifying and Measuring Angles			
Identifies and compares different types of angles using the benchmark of 90°	Compares, measures, and classifies angles using a protractor	Estimates, compares, and measures angles using standard units and benchmarks	Relates angles of 90°, 180°, 270°, and 360° to fractions of a circle
			
"This is an acute angle because it is less than 90°. This is an obtuse angle because it is greater than 90°."	"I can use the protractor to compare and measure angles. The two scales on the protractor make it easier to measure acute and obtuse angles."	"The first angle is about halfway between 0° and 45°, so it is about 25°. The second angle is less than halfway between 90° and 180°, so it's about 130°."	"A right angle, or 90°, represents a $\frac{1}{4}$ turn; 180° is a $\frac{1}{2}$ turn, 270° is a $\frac{3}{4}$ turn, and 360° is a full turn."
Observations/Documentation			

Geometry

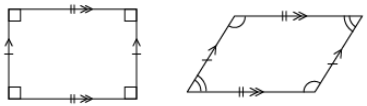
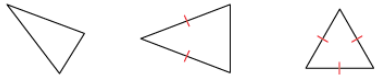
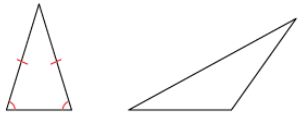
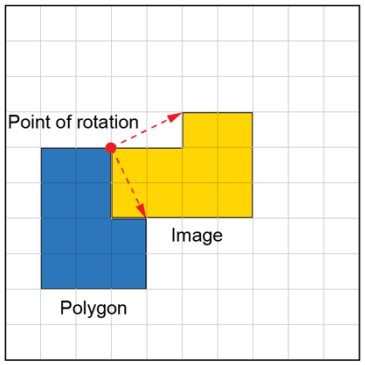
Activity 3 Assessment
Investigating Quadrilaterals

Exploring Polygons and Prisms			
Recognizes that a close approximation of a polygon is not the same as a polygon  "The Yield sign approximates a triangle, but it isn't a triangle because the corners are rounded."	Identifies relationships between sides of a polygon, and faces of a prism by measuring  "A rectangular prism has opposite faces parallel and adjacent faces perpendicular."	Recognizes and names different quadrilaterals  "These are all quadrilaterals because they have 4 sides. Each one has a special name."	Identifies and describes geometric properties of different quadrilaterals  "A parallelogram has opposite sides equal and parallel, opposite angles equal, and adjacent angles supplementary."
Observations/Documentation			

Geometry

Activity 3 Assessment
Investigating Quadrilaterals

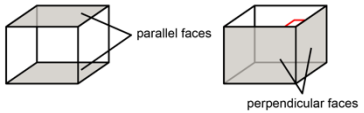
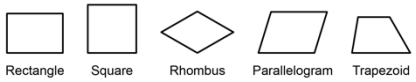
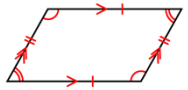
Exploring Polygons and Prisms (cont'd)

Classifies quadrilaterals in a hierarchy and names them in different ways	Describes various triangles by side length	Classifies triangles using geometric properties related to angles	Verifies that geometric properties of a polygon do not change after a transformation
			
"A rectangle is a parallelogram because it has opposite sides equal and parallel, and opposite angles equal."	"I know the first is scalene, the second is isosceles, and the third is equilateral by looking at the number of equal sides."	"The first triangle is an acute triangle because it has all acute angles. The second triangle is an obtuse triangle because it has an obtuse angle."	"After a rotation, the side lengths and angle measures of the polygon don't change."

Observations/Documentation

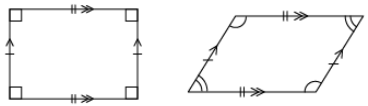
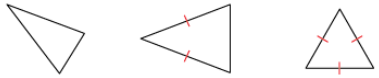
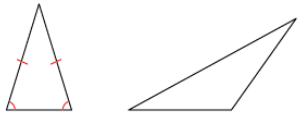
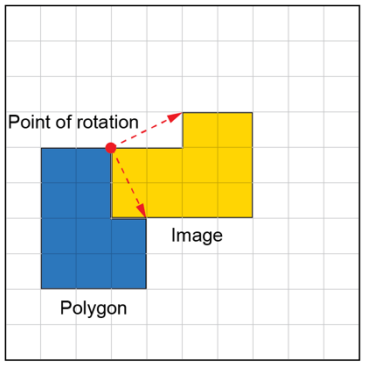
Geometry

Activity 4 Assessment
Classifying Triangles

Exploring Polygons and Prisms			
Recognizes that a close approximation of a polygon is not the same as a polygon  "The Yield sign approximates a triangle, but it isn't a triangle because the corners are rounded."	Identifies relationships between sides of a polygon, and faces of a prism by measuring  "A rectangular prism has opposite faces parallel and adjacent faces perpendicular."	Recognizes and names different quadrilaterals  "These are all quadrilaterals because they have 4 sides. Each one has a special name."	Identifies and describes geometric properties of different quadrilaterals  "A parallelogram has opposite sides equal and parallel, opposite angles equal, and adjacent angles supplementary."
Observations/Documentation			

Geometry

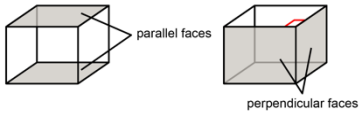
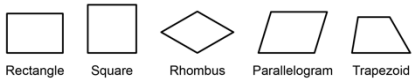
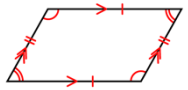
Activity 4 Assessment
Classifying Triangles

Exploring Polygons and Prisms (cont'd)			
Classifies quadrilaterals in a hierarchy and names them in different ways  "A rectangle is a parallelogram because it has opposite sides equal and parallel, and opposite angles equal."	Describes various triangles by side length  "I know the first is scalene, the second is isosceles, and the third is equilateral by looking at the number of equal sides."	Classifies triangles using geometric properties related to angles  "The first triangle is an acute triangle because it has all acute angles. The second triangle is an obtuse triangle because it has an obtuse angle."	Verifies that geometric properties of a polygon do not change after a transformation  "After a rotation, the side lengths and angle measures of the polygon don't change."
Observations/Documentation			

Geometry

Activity 5 Assessment

Investigating Geometric Properties through Transformations

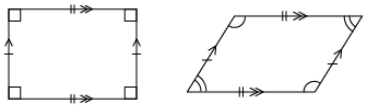
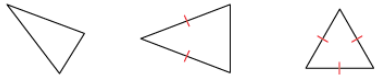
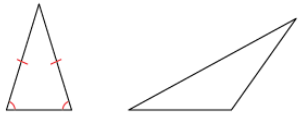
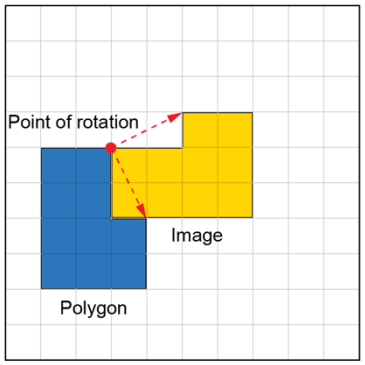
Exploring Polygons and Prisms			
Recognizes that a close approximation of a polygon is not the same as a polygon  "The Yield sign approximates a triangle, but it isn't a triangle because the corners are rounded."	Identifies relationships between sides of a polygon, and faces of a prism by measuring  "A rectangular prism has opposite faces parallel and adjacent faces perpendicular."	Recognizes and names different quadrilaterals  "These are all quadrilaterals because they have 4 sides. Each one has a special name."	Identifies and describes geometric properties of different quadrilaterals  "A parallelogram has opposite sides equal and parallel, opposite angles equal, and adjacent angles supplementary."
Observations/Documentation			

Geometry

Activity 5 Assessment

Investigating Geometric Properties through Transformations

Exploring Polygons and Prisms (cont'd)

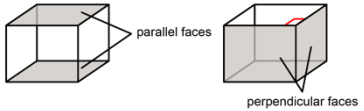
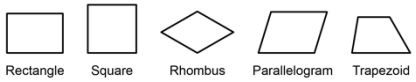
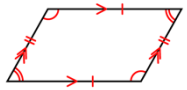
Classifies quadrilaterals in a hierarchy and names them in different ways	Describes various triangles by side length	Classifies triangles using geometric properties related to angles	Verifies that geometric properties of a polygon do not change after a transformation
			
"A rectangle is a parallelogram because it has opposite sides equal and parallel, and opposite angles equal."	"I know the first is scalene, the second is isosceles, and the third is equilateral by looking at the number of equal sides."	"The first triangle is an acute triangle because it has all acute angles. The second triangle is an obtuse triangle because it has an obtuse angle."	"After a rotation, the side lengths and angle measures of the polygon don't change."

Observations/Documentation

Geometry

Activity 6 Assessment

Coding: Classifying Triangles Using Algorithms

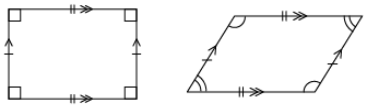
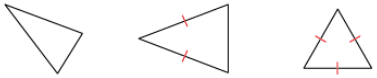
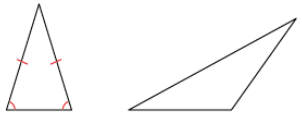
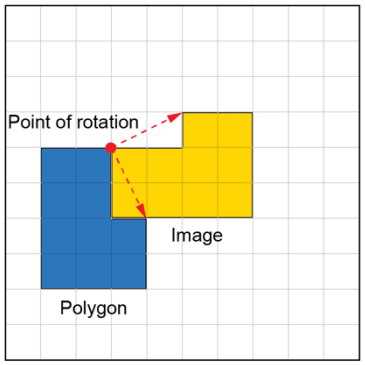
Exploring Polygons and Prisms			
Recognizes that a close approximation of a polygon is not the same as a polygon  "The Yield sign approximates a triangle, but it isn't a triangle because the corners are rounded."	Identifies relationships between sides of a polygon, and faces of a prism by measuring  "A rectangular prism has opposite faces parallel and adjacent faces perpendicular."	Recognizes and names different quadrilaterals  "These are all quadrilaterals because they have 4 sides. Each one has a special name."	Identifies and describes geometric properties of different quadrilaterals  "A parallelogram has opposite sides equal and parallel, opposite angles equal, and adjacent angles supplementary."
Observations/Documentation			

Geometry

Activity 6 Assessment

Coding: Classifying Triangles Using Algorithms

Exploring Polygons and Prisms (cont'd)

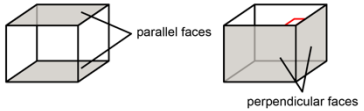
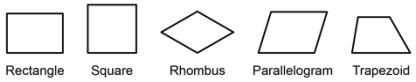
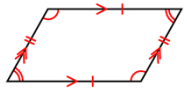
Classifies quadrilaterals in a hierarchy and names them in different ways	Describes various triangles by side length	Classifies triangles using geometric properties related to angles	Verifies that geometric properties of a polygon do not change after a transformation
			
"A rectangle is a parallelogram because it has opposite sides equal and parallel, and opposite angles equal."	"I know the first is scalene, the second is isosceles, and the third is equilateral by looking at the number of equal sides."	"The first triangle is an acute triangle because it has all acute angles. The second triangle is an obtuse triangle because it has an obtuse angle."	"After a rotation, the side lengths and angle measures of the polygon don't change."

Observations/Documentation

Geometry

Activity 7 Assessment

Consolidating Shapes, Prisms, and Angles

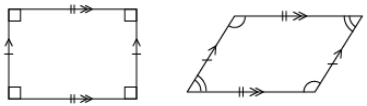
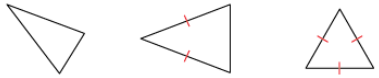
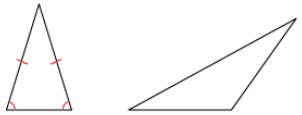
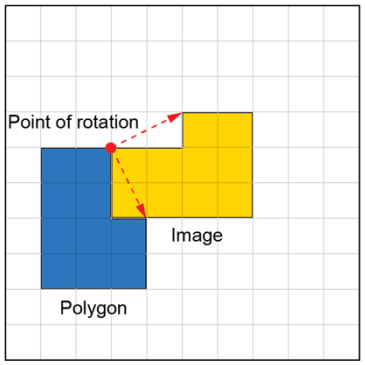
Exploring Polygons and Prisms			
Recognizes that a close approximation of a polygon is not the same as a polygon  "The Yield sign approximates a triangle, but it isn't a triangle because the corners are rounded."	Identifies relationships between sides of a polygon, and faces of a prism by measuring  "A rectangular prism has opposite faces parallel and adjacent faces perpendicular."	Recognizes and names different quadrilaterals  "These are all quadrilaterals because they have 4 sides. Each one has a special name."	Identifies and describes geometric properties of different quadrilaterals  "A parallelogram has opposite sides equal and parallel, opposite angles equal, and adjacent angles supplementary."
Observations/Documentation			

Geometry

Activity 7 Assessment

Consolidating Shapes, Prisms, and Angles

Exploring Polygons and Prisms (cont'd)

Classifies quadrilaterals in a hierarchy and names them in different ways	Describes various triangles by side length	Classifies triangles using geometric properties related to angles	Verifies that geometric properties of a polygon do not change after a transformation
			
"A rectangle is a parallelogram because it has opposite sides equal and parallel, and opposite angles equal."	"I know the first is scalene, the second is isosceles, and the third is equilateral by looking at the number of equal sides."	"The first triangle is an acute triangle because it has all acute angles. The second triangle is an obtuse triangle because it has an obtuse angle."	"After a rotation, the side lengths and angle measures of the polygon don't change."

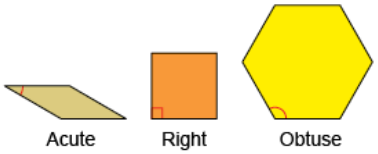
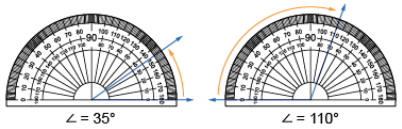
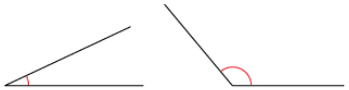
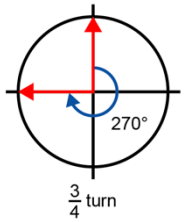
Observations/Documentation

Geometry

Activity 7 Assessment

Consolidating Shapes, Prisms, and Angles

Classifying and Measuring Angles

Identifies and compares different types of angles using the benchmark of 90°	Compares, measures, and classifies angles using a protractor	Estimates, compares, and measures angles using standard units and benchmarks	Relates angles of 90°, 180°, 270°, and 360° to fractions of a circle
			
"This is an acute angle because it is less than 90°. This is an obtuse angle because it is greater than 90°."	"I can use the protractor to compare and measure angles. The two scales on the protractor make it easier to measure acute and obtuse angles."	"The first angle is about halfway between 0° and 45°, so it is about 25°. The second angle is less than halfway between 90° and 180°, so it's about 130°."	"A right angle, or 90°, represents a $\frac{1}{4}$ turn; 180° is a $\frac{1}{2}$ turn, 270° is a $\frac{3}{4}$ turn, and 360° is a full turn."

Observations/Documentation

Data Management

Activity 1 Assessment

Interpreting and Drawing Pictographs and Dot Plots

Describing and Representing Data

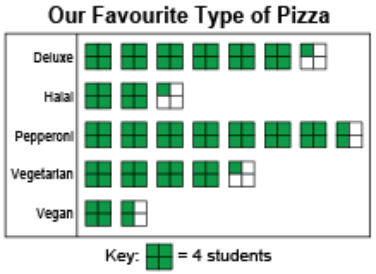
Describes given data using frequency counts.

Students in three Grade 4 classes were asked to choose their favourite pizza.

Pizza Type	Number of Students
Deluxe	25
Halal	9
Pepperoni	30
Vegetarian	17
Vegan	6

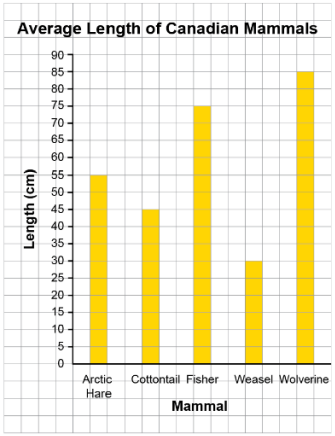
"30 students chose Pepperoni as their favourite pizza. Only 6 students chose Vegan."

Represents data using a pictograph or dot plot using many-to-one correspondence.



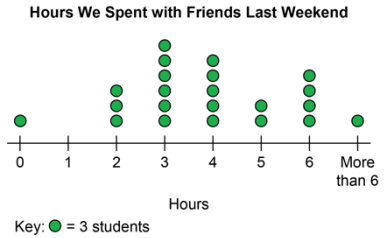
"The key is 1 square represents 4 students. For 17 students: 17 ÷ 4 = 4 R1, so I drew 4 full squares, and one-fourth of another square."

Represents data using a bar graph using many-to-one correspondence.



"I used the scale 1 square = 5 cm to represent animal lengths. All of the lengths were divisible by 5, so I divided each animal's length by 5 to find the number of squares in each bar."

Flexibly creates representations to show data using many-to-one correspondence.



"I used a key of 1 dot = 3 students because all numbers are multiples of 3 and are in the skip-counting by 3s sequence. Other students will find it easy to interpret."

Observations/Documentation

Data Management

Activity 1 Assessment

Interpreting and Drawing Pictographs and Dot Plots

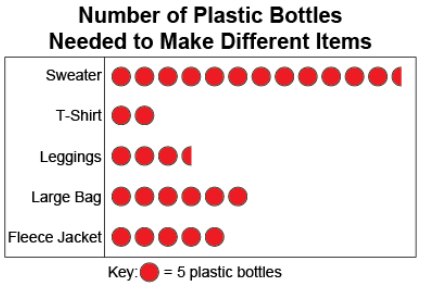
Interpreting Data and Making Informed Decisions

Draws conclusions based on data presented.

Item	Number of Bottles
Sweater	62.5
T-Shirt	10
Leggings	17.5
Large Bag	30
Fleece Jacket	25

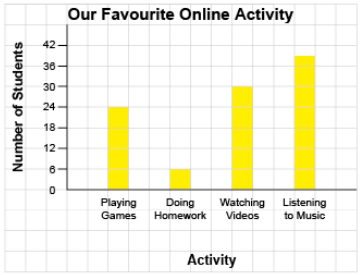
"A sweater uses about 6 times as many bottles as a t-shirt."

Uses inferences to make predictions about future events.



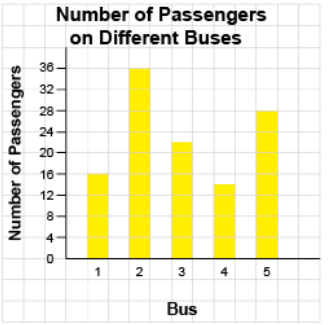
"More t-shirts could be made and sold with the fewest number of plastic bottles. I predict it would take less time to collect bottles and more money could be made. I think t-shirts should be sold for a fundraiser."

Interprets the results of data presented graphically.



"The bar graphs shows 99 students took the survey: 24 + 6 + 30 + 39 = 99. 15 more students listen to music than play games on-line."

Analyzes and interprets data to make convincing arguments and informed decisions.



"Since most passengers are on bus number 2, the bus company might add another bus to that route. The company could take one of the schedule times from bus number 4 and give it to bus 2 because it has the fewest number of passengers. It is important to meet the needs of the passengers."

Observations/Documentation

Data Management

Activity 2 Assessment

Interpreting and Drawing Bar Graphs

Describing and Representing Data

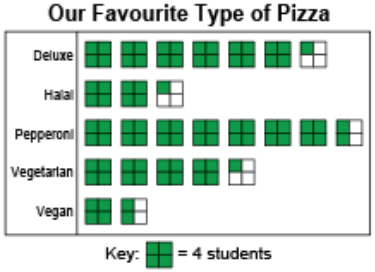
Describes given data using frequency counts.

Students in three Grade 4 classes were asked to choose their favourite pizza.

Pizza Type	Number of Students
Deluxe	25
Halal	9
Pepperoni	30
Vegetarian	17
Vegan	6

"30 students chose Pepperoni as their favourite pizza. Only 6 students chose Vegan."

Represents data using a pictograph or dot plot using many-to-one correspondence.



"The key is 1 square represents 4 students. For 17 students: 17 ÷ 4 = 4 R1, so I drew 4 full squares, and one-fourth of another square."

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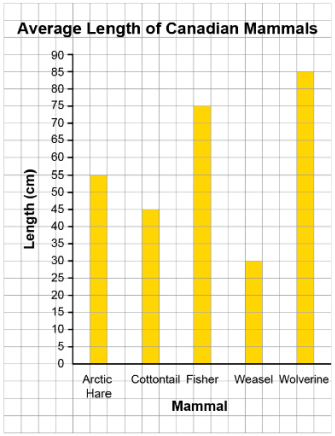
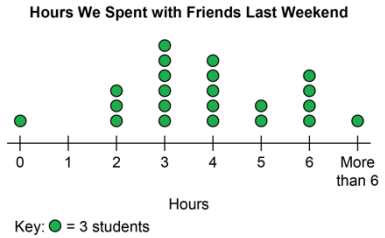


"I used the scale 1 square = 5 cm to represent animal lengths. All of the lengths were divisible by 5, so I divided each animal's length by 5 to find the number of squares in each bar."

Flexibly creates representations to show data using many-to-one correspondence.



"I used a key of 1 dot = 3 students because all numbers are multiples of 3 and are in the skip-counting by 3s sequence. Other students will find it easy to interpret."

Observations/Documentation

Data Management

Activity 2 Assessment

Interpreting and Drawing Bar Graphs

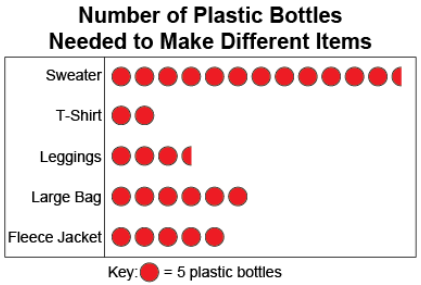
Interpreting Data and Making Informed Decisions

Draws conclusions based on data presented.

Item	Number of Bottles
Sweater	62.5
T-Shirt	10
Leggings	17.5
Large Bag	30
Fleece Jacket	25

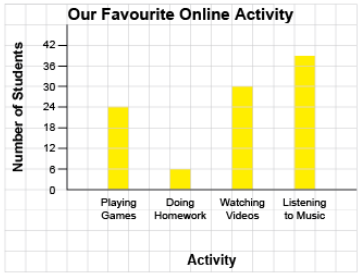
“A sweater uses about 6 times as many bottles as a t-shirt.”

Uses inferences to make predictions about future events.



“More t-shirts could be made and sold with the fewest number of plastic bottles. I predict it would take less time to collect bottles and more money could be made. I think t-shirts should be sold for a fundraiser.”

Interprets the results of data presented graphically.



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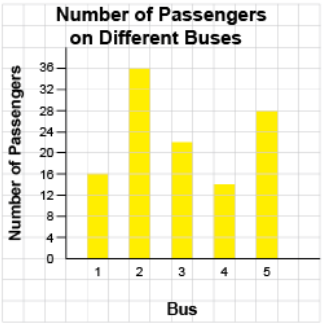
Analyzes and interprets data to make convincing arguments and informed decisions.



“Since most passengers are on bus number 2, the bus company might add another bus to that route. The company could take one of the schedule times from bus number 4 and give it to bus 2 because it has the fewest number of passengers. It is important to meet the needs of the passengers.”

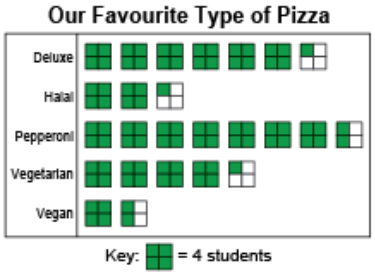
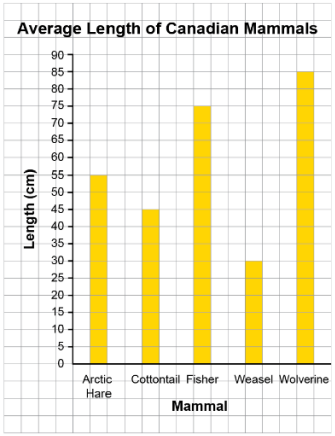
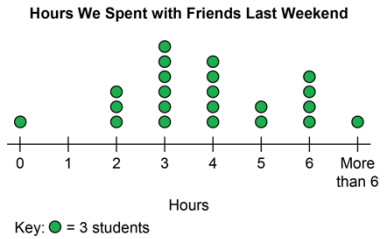
Observations/Documentation

Data Management

Activity 3 Assessment

Comparing Graphs

Describing and Representing Data

Describes given data using frequency counts. Students in three Grade 4 classes were asked to choose their favourite pizza. **Pizza Type / Number of Students** Deluxe: 25 Halal: 9 Pepperoni: 30 Vegetarian: 17 Vegan: 6 "30 students chose Pepperoni as their favourite pizza. Only 6 students chose Vegan."	Represents data using a pictograph or dot plot using many-to-one correspondence.  "The key is 1 square represents 4 students. For 17 students: 17 ÷ 4 = 4 R1, so I drew 4 full squares, and one-fourth of another square."	Represents data using a bar graph using many-to-one correspondence.  "I used the scale 1 square = 5 cm to represent animal lengths. All of the lengths were divisible by 5, so I divided each animal's length by 5 to find the number of squares in each bar."	Flexibly creates representations to show data using many-to-one correspondence.  "I used a key of 1 dot = 3 students because all numbers are multiples of 3 and are in the skip-counting by 3s sequence. Other students will find it easy to interpret."

Observations/Documentation

Data Management

Activity 3 Assessment

Comparing Graphs

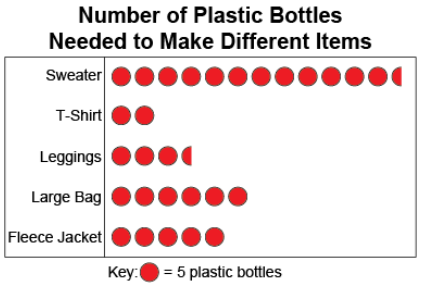
Interpreting Data and Making Informed Decisions

Draws conclusions based on data presented.

Item	Number of Bottles
Sweater	62.5
T-Shirt	10
Leggings	17.5
Large Bag	30
Fleece Jacket	25

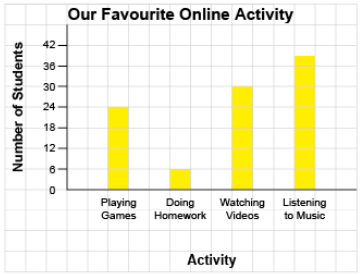
“A sweater uses about 6 times as many bottles as a t-shirt.”

Uses inferences to make predictions about future events.



“More t-shirts could be made and sold with the fewest number of plastic bottles. I predict it would take less time to collect bottles and more money could be made. I think t-shirts should be sold for a fundraiser.”

Interprets the results of data presented graphically.



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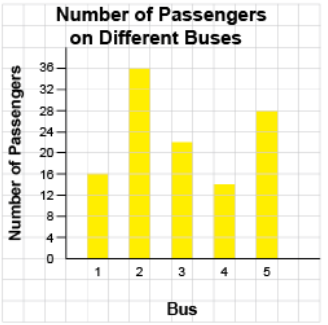


“Since most passengers are on bus number 2, the bus company might add another bus to that route. The company could take one of the schedule times from bus number 4 and give it to bus 2 because it has the fewest number of passengers. It is important to meet the needs of the passengers.”

Observations/Documentation

Data Management

Activity 4 Assessment

Data Management Consolidation

Describing and Representing Data

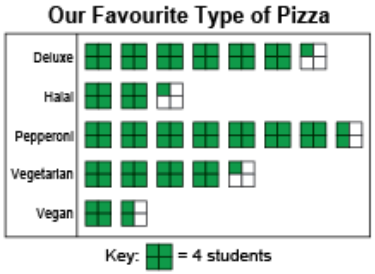
Describes given data using frequency counts.

Students in three Grade 4 classes were asked to choose their favourite pizza.

Pizza Type	Number of Students
Deluxe	25
Halal	9
Pepperoni	30
Vegetarian	17
Vegan	6

"30 students chose Pepperoni as their favourite pizza. Only 6 students chose Vegan."

Represents data using a pictograph or dot plot using many-to-one correspondence.



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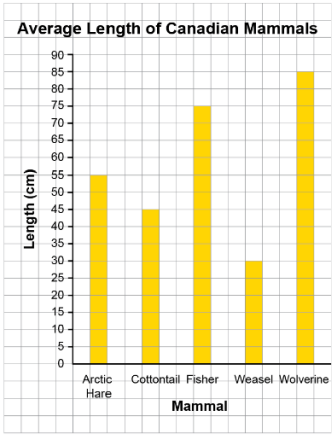

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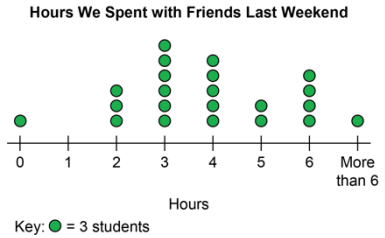

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Observations/Documentation

Data Management

Activity 4 Assessment

Data Management Consolidation

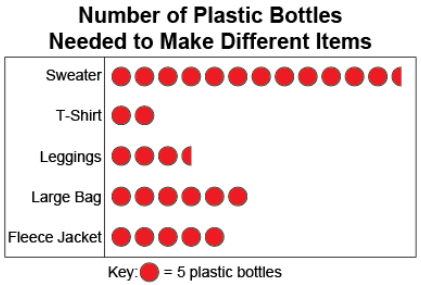
Interpreting Data and Making Informed Decisions

Draws conclusions based on data presented.

Item	Number of Bottles
Sweater	62.5
T-Shirt	10
Leggings	17.5
Large Bag	30
Fleece Jacket	25

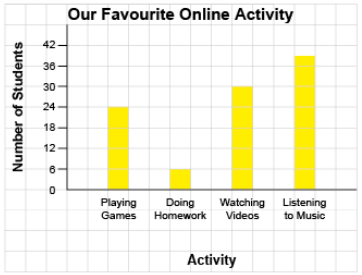
“A sweater uses about 6 times as many bottles as a t-shirt.”

Uses inferences to make predictions about future events.



“More t-shirts could be made and sold with the fewest number of plastic bottles. I predict it would take less time to collect bottles and more money could be made. I think t-shirts should be sold for a fundraiser.”

Interprets the results of data presented graphically.



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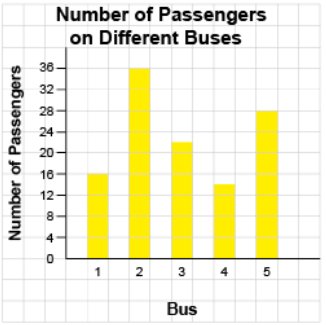

“Since most passengers are on bus number 2, the bus company might add another bus to that route. The company could take one of the schedule times from bus number 4 and give it to bus 2 because it has the fewest number of passengers. It is important to meet the needs of the passengers.”

Observations/Documentation