

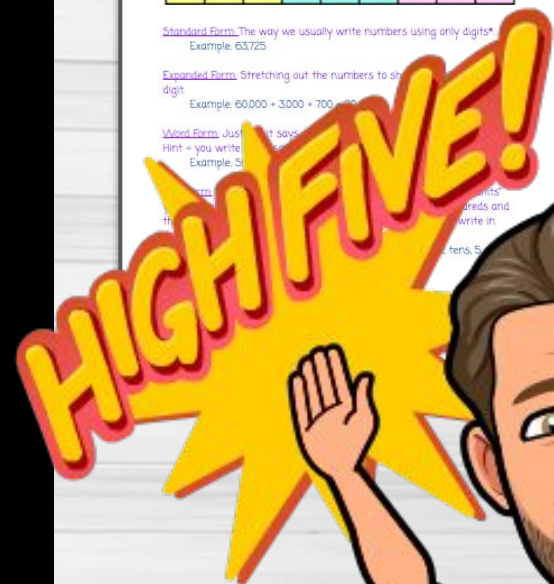
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# 4TH GRADE

## ENGAGE NEW YORK

### MODULE 1

#### PLACE VALUE, ROUNDING, ADDITION AND SUBTRACTION



### Place Value Chart

Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
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**Standard Form:** The way we usually write numbers using only digits.  
Example: 63,725

**Expanded Form:** Stretching out the numbers to show each digit.  
Example:  $60,000 + 3,000 + 700 + 20 + 5$

**Word Form:** Just what you write.  
Example: Sixty-three thousand, seven hundred twenty-five.

### Rounding

- Find the place value you are rounding to and underline it.
- Look next door (to the right) to see if you will round up (1) or round down (0).
  - If its neighbor is 4 or less (0, 1, 2, 3, 4) let it rest. You leave the original place alone.
  - If its neighbor is 5 or more (5, 6, 7, 8, 9), then add one more to the original place.
- Everything in front of the original place stays the same.
- Everything behind the original place (including the neighbor) turns into zeros.

**Rounding Coaster**

to the nearest hundred:  $462 \rightarrow 500$  (ROUND DOWN)

to the nearest ten:  $462 \rightarrow 460$  (ROUND UP)

Find the number, look right next door. Five or higher, add one more, four or less, let it rest. The arrow on the coaster points to the direction to round.

### Adding with Regrouping

- Add the ones.
  - $5 + 8 = 13$
  - Regroup 10 ones as 1 ten and 3 ones. Move the 1 onto the tens place.
  - $1 + 3 + 5 = 9$
- Add the tens.
  - $7 + 4 = 11$
  - Regroup the 11 hundreds as 1 thousand and 1 hundred. Move the 1 onto the thousands place.
- Add the hundreds.
  - $1 + 6 = 7$
- Add the thousands.
  - $1 + 6 = 7$
- Check for reasonableness (round).
  - 6,735 rounds to 7,000
  - 1,458 rounds to 1,500
  - 8,500 rounds to 8,500
  - Is 8,000 close to our actual answer of 8,197? Yes! Then it is reasonable.
  - Is 7,000 close to our actual answer of 8,197? No! Then it is NOT reasonable. You need to check your problem again because it is probably wrong.
  - Never just round your answer. Always round each part of the problem and see if the answer to that is close or reasonable.

### Subtraction with Regrouping

- Subtract the ones place.
  - $6 - 4 = 2$
- Subtract the tens place.
  - $2 - 7 =$  Can't do that.
  - We will have to unbundle the 8 to take a 10. We combine this 10 with the 2 to get 12.
  - $12 - 7 = 5$
- Subtract the hundreds place.
  - $7 - 8 =$  Can't do that.
  - We will have to unbundle the 3 to take a 10. We combine this 10 with the 7 to get 17.
  - $17 - 8 = 9$
- Subtract the thousands place.
  - $6 - 2 = 4$
- Subtract the ten thousands place.
  - $6 - 6 =$  nothing = 0

**784 More on TOP? -26 No need to stop!**

**More on the FLOOR? 312 42 GO next door and get 10 more! -26**

**35 Numbers the SAME? -154 Zeros? 04 the game!**

### Comparing Whole Numbers

- Line up numbers by place value.
- Start with the biggest place value.
  - a. If one number is bigger than the others it is the greatest (greater than).
  - b. If the numbers are the same you move to the next place value.

Example: Compare 437,082 and 431,967.

Hund Th	Ten Th	Hund	Ten	Ones
4	3	7	0	8
4	3	1	9	6

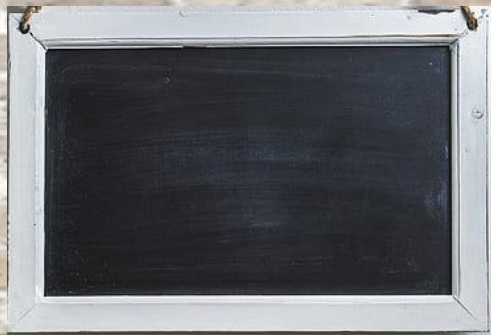
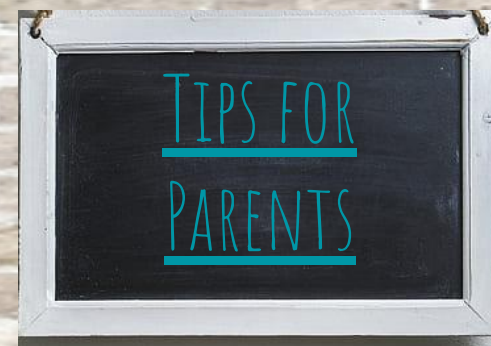
7 is greater than 1 so...  $437,082 > 431,967$

**Comparing Numbers**

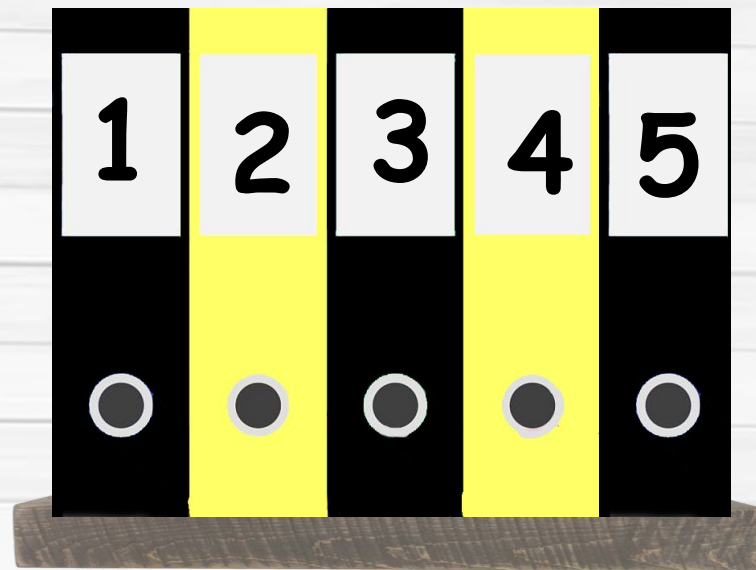
less than ( $<$ )

greater than ( $>$ )

equal to ( $=$ )







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MODULE 2  
WORD PROBLEM MEASUREMENT

Measurement and Conversions

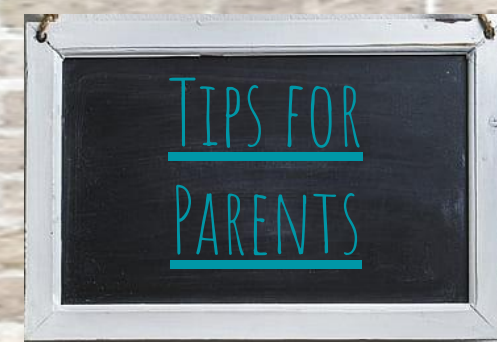
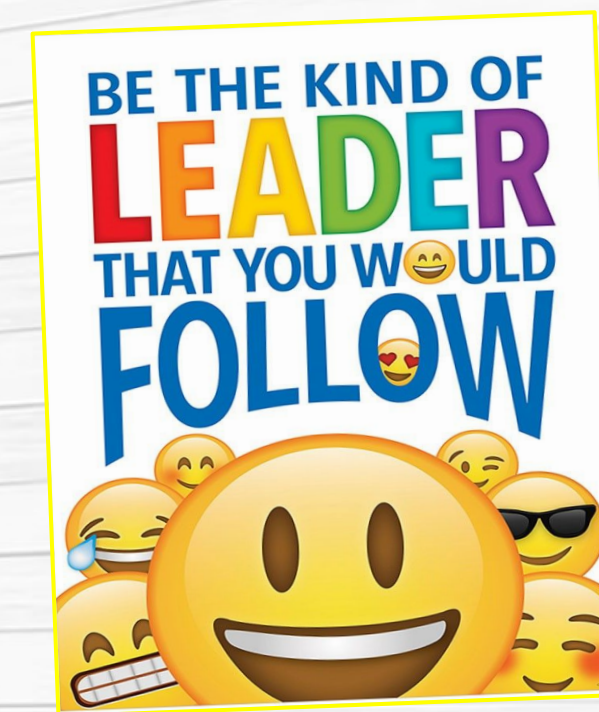
Lots of small units	=	Fewer larger units
100 centimeter (cm)	=	1 meter (m)
1,000 meter (m)	=	1 kilometer (km)
1,000 grams (g)	=	1 kilogram (kg)
1,000 milliliters (mL)	=	1 liter (L)
12 inches (in)	=	1 foot (ft)

Examples:

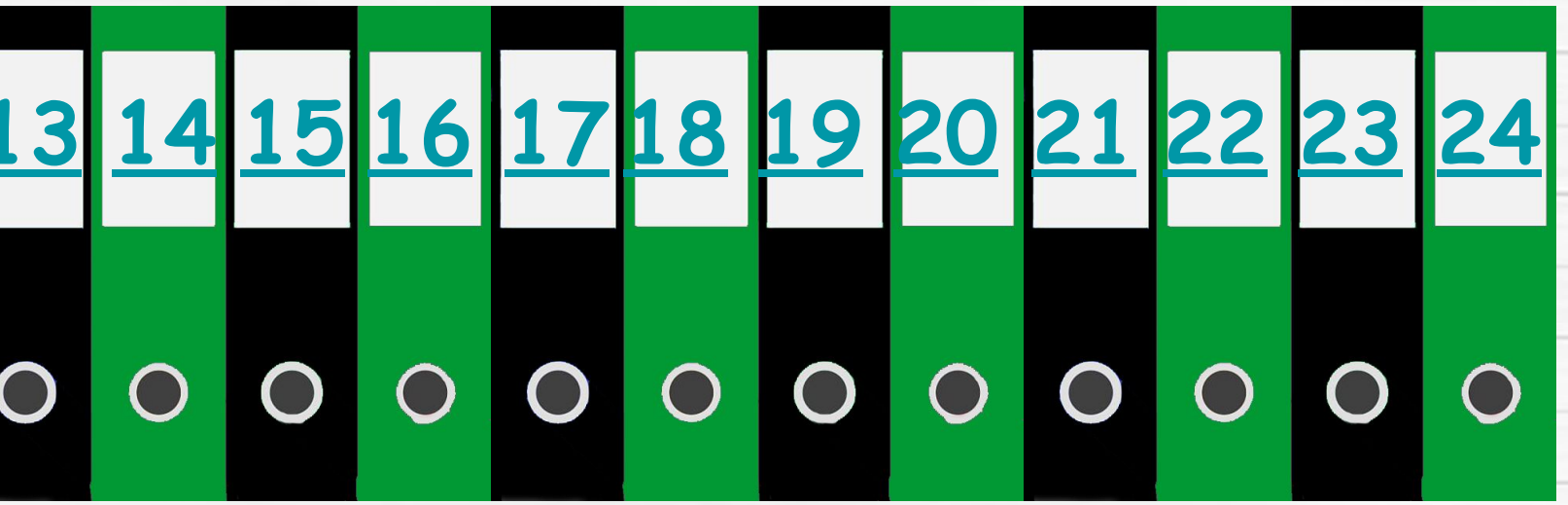
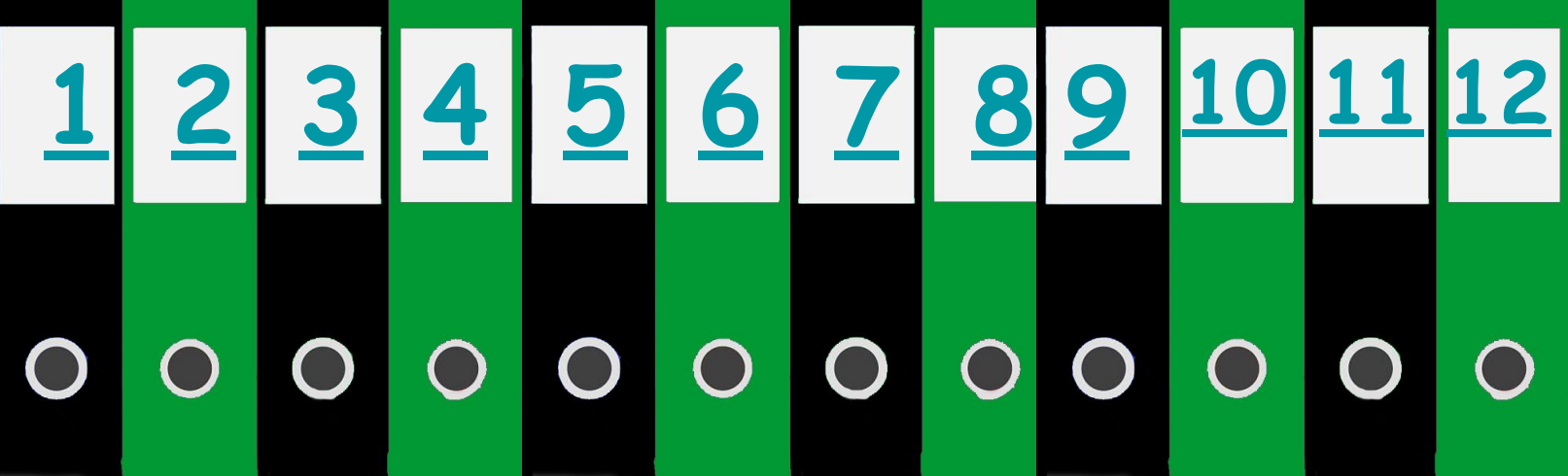
$3,478 \text{ meters} = 3,000 \text{ meters} + 478 \text{ meters} = 3 \text{ kilometers } 478 \text{ meters}$

$6 \text{ kilograms } 45 \text{ grams} = 6,000 \text{ grams} + 45 \text{ grams} = 6,045 \text{ grams}$

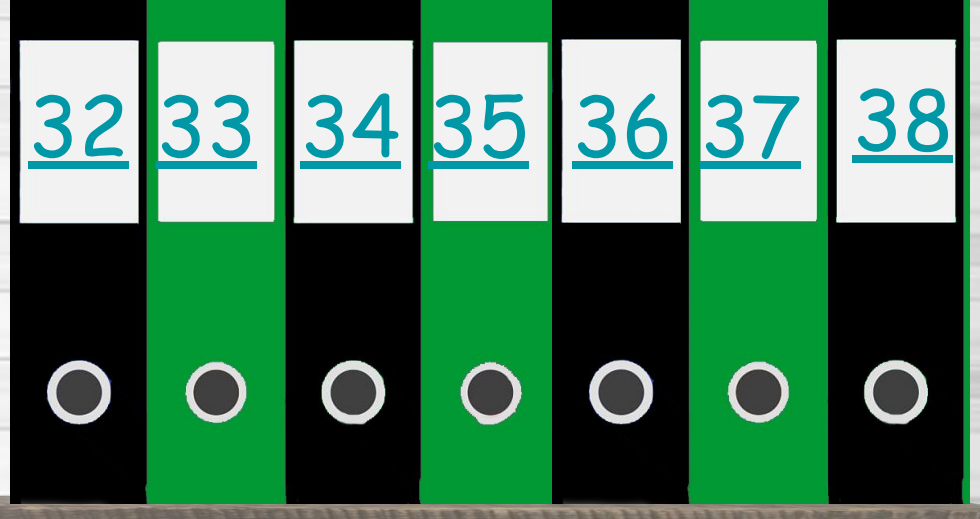
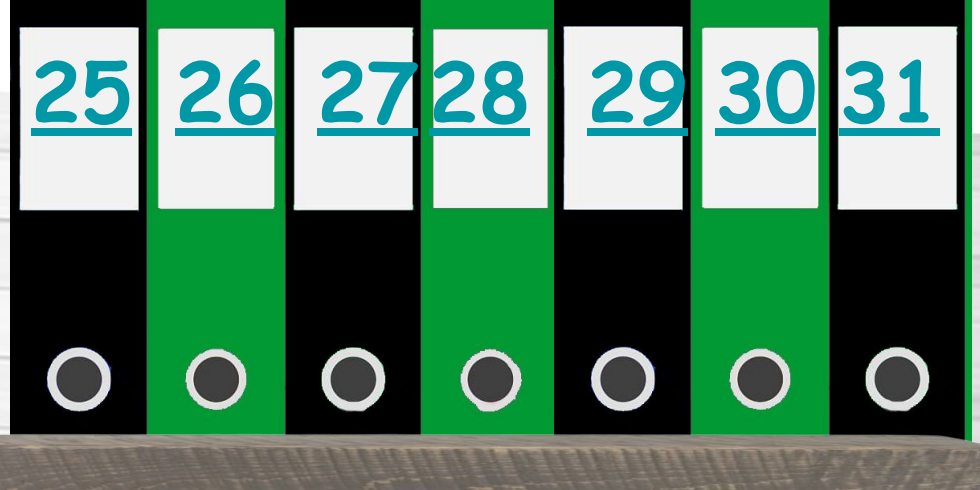
$278 \text{ centimeters} = 200 \text{ cm} + 78 \text{ cm} = 2 \text{ meters } 78 \text{ centimeters}$







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MODULE 3  
MULTIPLICATION AND DIVISION

**Multiplying 2 Digits by 2 Digits!**

Standard:

$$\begin{array}{r} 53 \\ \times 26 \\ \hline 318 \\ +1,060 \\ \hline 1,378 \end{array}$$

Partial Products:

$$\begin{array}{r} 53 \\ \times 26 \\ \hline 18 \quad \leftarrow 6 \times 3 = 18 \\ 300 \quad \leftarrow 6 \times 50 = 300 \\ 60 \quad \leftarrow 20 \times 3 = 60 \\ +1,000 \quad \leftarrow 20 \times 50 = 1,000 \\ \hline 1,378 \end{array}$$

Area Model:

$$53 \times 26$$

50	3	
A = 20 x 50 = 1,000	A = 20 x 3 = 60	1,000
20	6	300
A = 6 x 50 = 300	A = 6 x 3 = 18	60
		+ 18
		1,378

**Division 3 Ways**

**Long Division**

$$\begin{array}{r} 155 \div 3 \\ 3 \overline{) 155} \\ \underline{-3} \phantom{0} \\ 16 \phantom{0} \\ \underline{-15} \phantom{0} \\ 17 \phantom{0} \\ \underline{-15} \\ 2 \end{array}$$

**Box Method**

$$\begin{array}{|c|c|c|} \hline 1 & 5 & 5 \\ \hline 4 & 16 & 17 \\ \hline -3 & -15 & -15 \\ \hline 1 & 1 & 2 \\ \hline \end{array}$$

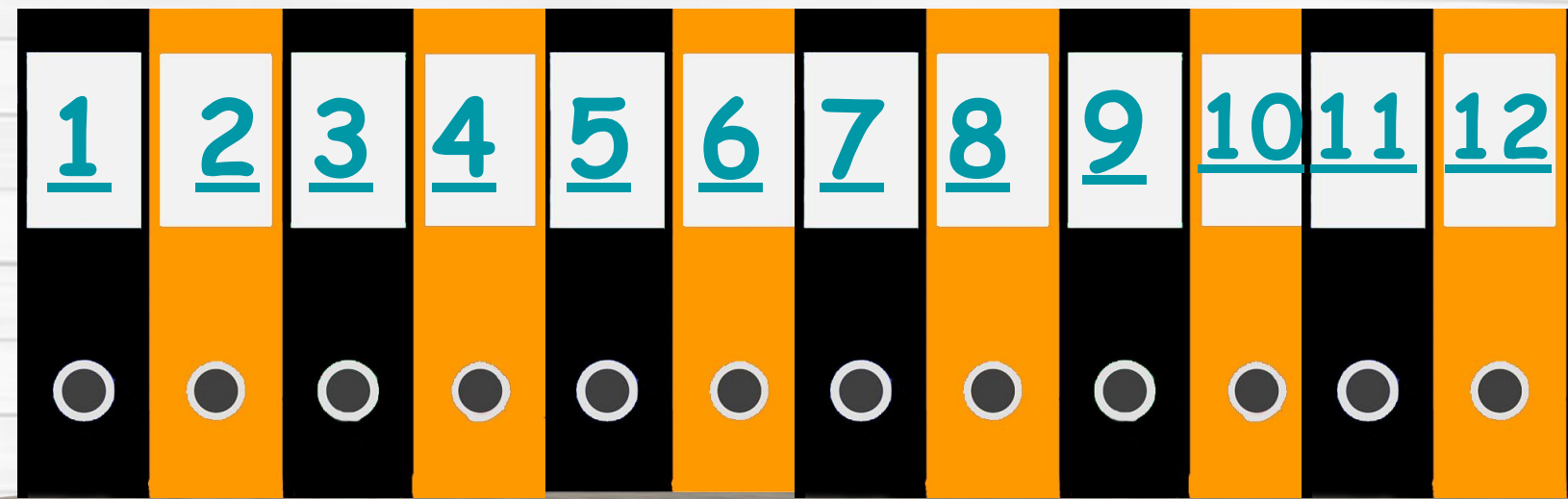
**Place Value**

TIPS FOR PARENTS

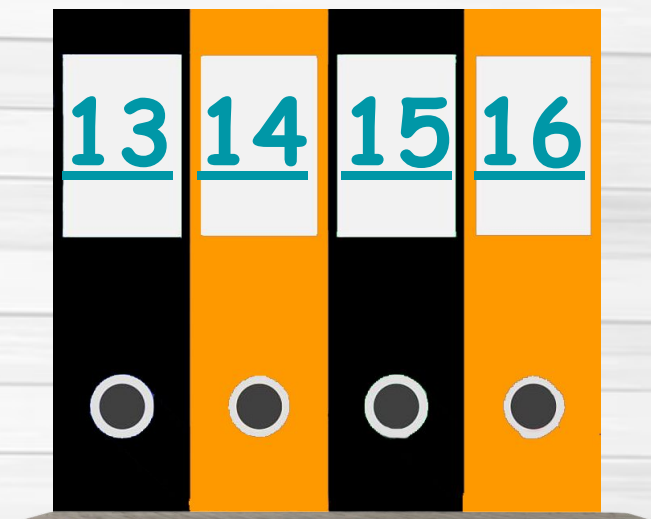




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MODULE 4  
GEOMETRY



**Lines Vocabulary**

Term	Definition	Illustration
Point	An exact location in space (STOP)	
Line	An endless straight path with no end points (GO)	
Ray	A part of a line with a single endpoint	
Line Segment	A part of a line with TWO (2) endpoints	
Parallel Lines	Lines that are the same distance apart and NEVER intersect (cross)	
Intersecting Lines	Lines that cross at a point	
Perpendicular Lines	TWO INTERSECTING lines that form RIGHT ANGLES	

\*\* Right angles are angles that measure exactly 90 degrees.

**Classifying Triangles by Their Sides**

Name	Definition	Illustration
Equilateral	All three (3) sides are equal angles are equal	
Isosceles	Has only two (2) side lengths that are equal	
Scalene	Has NO equal sides or angles	

**Classifying Triangles by Their Angles**

Name	Definition	Illustration
Acute	All three (3) angles are less than 90 degrees All 3 angles are acute angles	
Right	Has one (1) angle that measures 90 degrees This triangle has one right angle	
Obtuse	Has one (1) angle larger than 90 degrees This triangle has one obtuse angle	

**Classifying Quadrilaterals**

Quadrilaterals are polygons with 4 sides.

Name	Attributes	Illustration
Trapezoid	1 pair of parallel sides	
Parallelogram	2 pairs of parallel sides 2 pairs of sides the same length	
Rhombus	2 pairs of parallel sides all sides are equal length	
Rectangle	2 pairs of parallel sides 2 pairs of sides of equal length all right angles	
Square	2 pairs of parallel sides all sides are equal length all right angles	

\*Some quadrilaterals can have multiple names  
EXAMPLE: A square is a quadrilateral because it has 4 sides. It can also be called a parallelogram because it has 2 pairs of parallel sides.

KEY:  
■ Parallelogram 
 ■ Rhombus 
 ■ Rectangle

• Triangles can have more than one classification.  
 ◦ For Example:  
 ■ An equilateral triangle is also an acute triangle because an equilateral triangle has 3 acute angles.  
 ■ A right triangle is also an isosceles triangle because a right triangle has two sides that measure the same length.

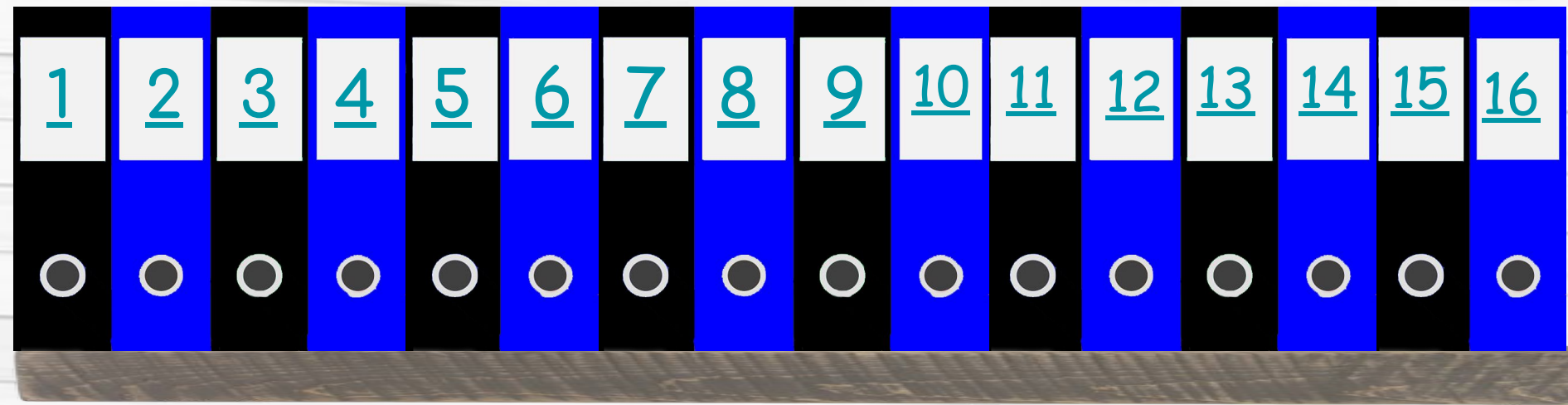
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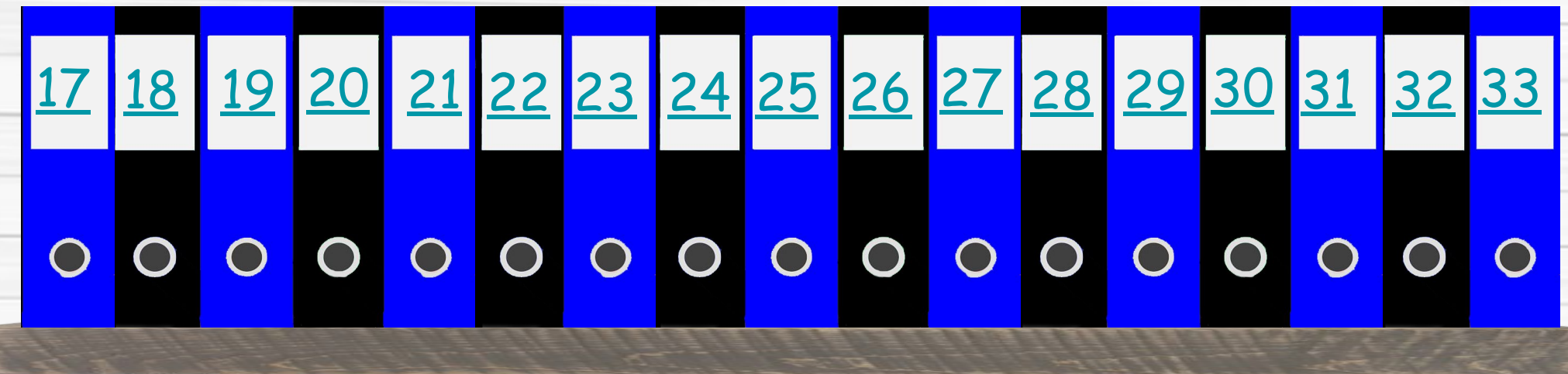
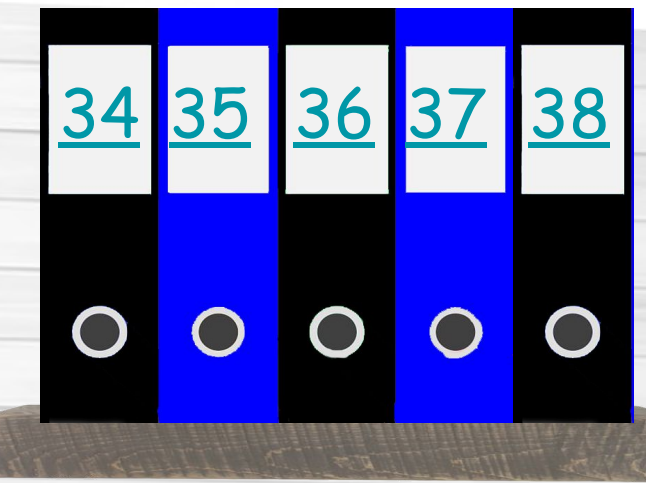
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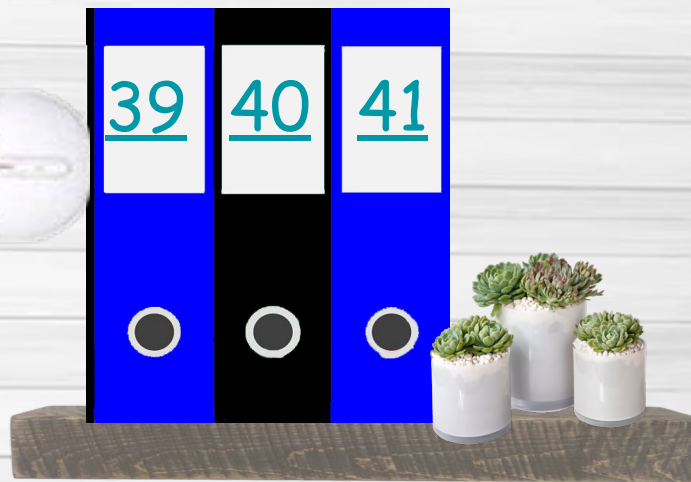




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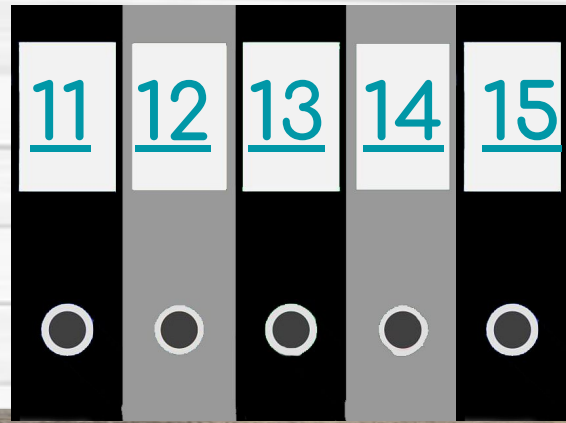
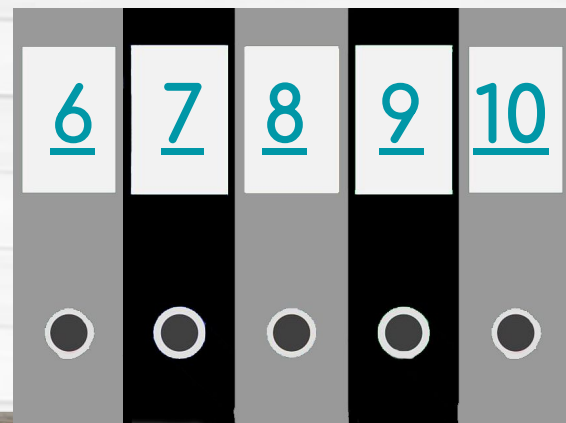
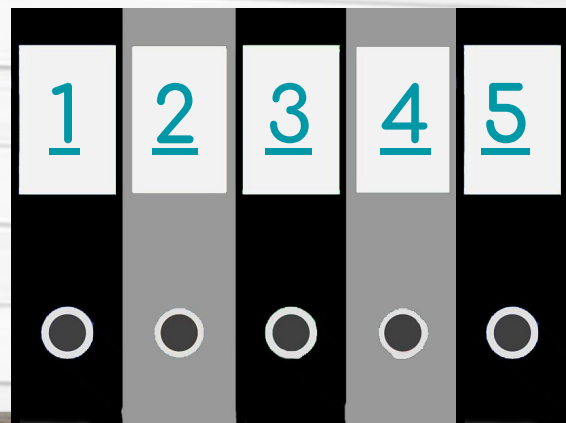
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MODULE 5  
FRACTIONS



TIPS FOR  
PARENTS







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# 4TH GRADE ENGAGE NEW YORK MODULE 6 DECIMALS AND PERCENTS



### Decimals

Hundred	Ten	One	Decimal	Tenths	Hundredths
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Tenths are like dimes. It takes 10 dimes to make 1 dollar. It takes 10 tenths to make 1 whole.

Hundredths are like pennies. It takes 100 pennies to make 1 dollar. It takes 100 hundredths to make 1 whole.

### Comparing Decimals

Compare decimals the same way you compare whole numbers, but MAKE SURE you line up the decimals.

283.4 < 283.12

2	8	3	.	4	
2	8	3	.	1	2

283.4 = 283.12 because the whole numbers are the same and 4 tenths is bigger than 1 tenth.

### Adding Decimals

$$\begin{array}{r} 3.3 + 3.44 = 3 \frac{32}{100} + 3 \frac{44}{100} = 6 \frac{76}{100} = 6.76 \\ 5.5 + 3.44 = 8.94 \end{array}$$

### Money

Money written as fractions of a dollar: 1 penny is  $\frac{1}{100}$  dollar, 1 dime is  $\frac{1}{10}$  dollar.

Money written as decimals and cents: 1 penny is  $\$0.01$ , 1 dime is  $\$0.10$ .

Different ways to express the same amount: 2 dollars, 1 quarter, 3 dimes, 7 pennies = 2 dollars + 25 cents + 30 cents + 7 cents = 2 dollars + 62 cents = 2 dollars and 62 cents =  $\$2.62$ .

### Adding Money

Can be done in MANY different ways.

A) Convert everything to cents and then convert back to dollars and cents.  
 $\$5.13 + \$2.04 = 513 \text{ cents} + 204 \text{ cents} = 717 \text{ cents} = \$7.17$

B) Add the dollars and cents separately and then combine.  
 $\$5.13 + \$2.04 = \$5 + \$2 + \$0.13 + \$0.04 = \$7 + \$0.17 = \$7.17$

C) Use a number bond to separate the cents to make groups of 100 cents (1 whole).  
 $\$4.80 + \$2.83 = 4 \text{ dollars } 80 \text{ cents} + 2 \text{ dollars } 83 \text{ cents} = 6 \text{ dollars } 163 \text{ cents} = 6 \text{ dollars } 100 \text{ cents} + 63 \text{ cents} = 6 \text{ dollars } 63 \text{ cents} = \$6.63$

D) Line up the decimals and add like you normally would for whole numbers.  
 $\$5.50 + \$1.62 = \$7.12$

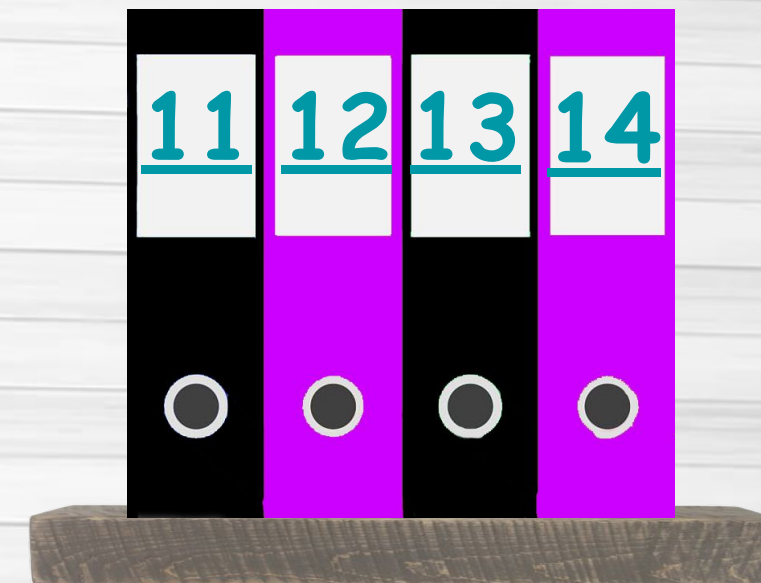
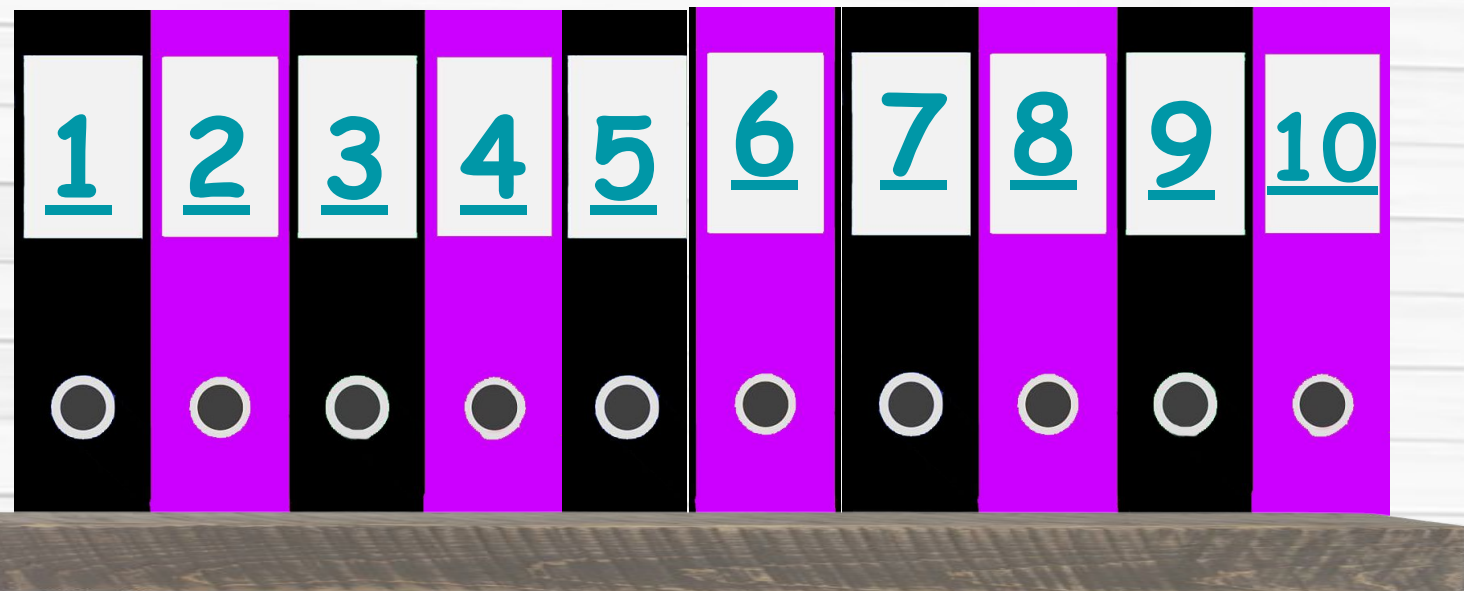


TIPS FOR PARENTS





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4TH GRADE  
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MODULE 7  
MEASUREMENT WITH MULTIPLE UNITS



**Conversion Chart**

Fewer big units	=	Many smaller units
1 pound (lb)	=	16 ounces (oz)
1 yard (yd)	=	3 feet (ft)
1 foot (ft)	=	12 inches (in)
1 gallon	=	4 quarts
1 quart	=	2 pints
1 pint	=	2 cups
1 minute	=	60 seconds
1 hour	=	60 minutes
1 day	=	24 hours

Use multiplication to convert from a larger size unit to a small size unit.  
Use division to convert from a smaller size unit to a bigger size unit.

**Example:**  
How many feet are in 4 yards?  
1 yard is 3 feet.

4 yards  
3 ft 3 ft 3 ft 3 ft

So if we have 4 groups of 3 feet  
We could do  $4 \times 3 = 12$  ft

How many gallons is 22 quarts?

22 quarts  
5 gallons 2 quarts

22 divided by 4 is 5 with a remainder of 2.  
5 gallons 2 quarts

TIPS FOR PARENTS



I'M OUT.