دولة قطر

المجلس الأعلى للتعليم
SUPREME EDUCATION COUNCIL
هيئة التعليم

SCIENTIFIC ENGLISH

MATHEMATICS AND SCIENCE

GRADE 5

النشيد الوطني

قَسَمًا بِمَنْ رَفَعَ السَّمَـاءْ	قَسَمًا بِمَنْ نَشَرَ الضِّيَـاءْ
قَطَرٌ سَتَبْقَـى حُـرَّةً	تَسْمُو بِرُوحِ الأَوْفِيَـاءْ
سِيـرُوا عَلَـى نَهْـجِ الأُلَـى	وَعَلَى ضِيَاءِ الأَنْبِيَـاءْ
قَطَرٌ بِقَلْبِي سِيـرَةٌ عِـزٌّ	وَأَمْـجَادُ الإِبَاءْ
قَطَرُ الرِّجَـالُ الأَوَّلِينَ	حُمَاتُنَا يَوْمَ النِّـدَاءْ
وَحَمَائِـمٌ يَوْمَ السَّلَامْ	جَوَارِحٌ يَوْمَ الْفِـدَاءْ

لون علم دولة قطر العنابي والأبيض ، وتفصل بين اللونين تسعة رؤوس.

الأبيض : هو رمز السلام الذي يسعى له حكام قطر وأبناؤها.

العنابي : يرمز إلى الدماء المتخثرة، وهي دماء الشهداء من أبناء قطر الذين خاضوا معارك كثيرة في سبيل وحدة دولة قطر وخاصة في النصف الأخيرمن القرن التاسع عشر.

الرؤوس التسعة : ترمز إلى أن دولة قطر هي العضو التاسع في الإمارات المتصالحة من دول الخليج العربية.

علم دولة قطر

رؤية قطر الوطنية 2030

تهدف رؤيـة قطر الوطنية 2030 التي تمت المصادقة عليها بموجب القرار الأميري رقم 44 لسنة 2008، إلى تحويل قطـر بحلـول عام 2030 إلى دولة متقدمة قادرة على تحقيق التنمية المستدامة وعلى تأمين استمرار العيش الكريم لشعبها جيلا بعد جيل. حيث تحدد الرؤية الوطنيـة لدولة قطـر النتـائج التي يسعى البلد لتحقيقها على المدى الطويـل كما أنها تـوفـر إطارا عاما لتطوير إستراتيجيات وطنية شاملة وخطط تنفيذها.

وتستشرف الرؤية الوطنية الآفاق التنموية من خلال الركائز الأربع المترابطة التالية :

التنمية البشرية	التنمية الاجتماعية	التنمية الاقتصادية	التنمية البيئية

الركيزة الأولى ـ التنمية البشرية
الغايات المستهدفة :

سكان متعلمون :

- نظام تعليمي يرقى إلى مستوى الأنظمة التعليمية العالمية المتميزة ويزود المواطنين بما يفي بحاجاتهم وحاجات المجتمع القطري، ويتضمن:
  - مناهج تعليم وبرامج تدريب تستجيب لحاجات سوق العمل الحالية والمستقبلية.
  - فرصا تعليمية وتدريبية عالية الجودة تتناسب مع طموحات وقدرات كل فرد.
  - برامج تعليم مستمر مدى الحياة متاحة للجميع.

- شبكة وطنية للتعليم النظامي وغير النظامي تجهز الأطفال والشباب القطريين بالمهارات اللازمة والدافعية العالية للمساهمة في بناء مجتمعهم وتقدمه، تعمل على:
  - ترسيخ قيم وتقاليد المجتمع القطري والمحافظة على تراثه.
  - تشجيع النشء على الإبداع والابتكار وتنمية القدرات.
  - غرس روح الانتماء والمواطنة.
  - المشاركة في مجموعة واسعة من النشاطات الثقافية والرياضية

- مؤسسات تعليمية متطورة ومستقلة تدار بكفاءة وبشكل ذاتي ووفق إرشادات مركزية وتخضع لنظام المساءلة.
- نظام فعال لتمويل البحث العلمي يقوم على مبدأ الشراكة بين القطاعين العام والخاص بالتعاون مع الهيئات الدولية المختصة ومراكز البحوث العالمية المرموقة.
- دور فاعل دوليا في مجالات النشاط الثقافي والفكري والبحث العلمي.
- استقطاب التوليفة المرغوبة من العمالة الوافدة ورعاية حقوقها وتأمين سلامتها، والحفاظ على أصحاب المهارات المتميزة منها.

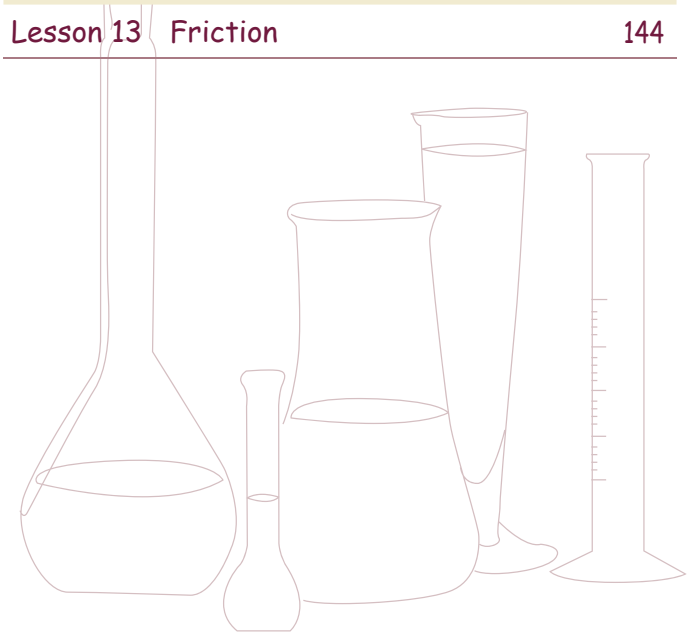
Contents

Mathematics

Lesson 1	**GRADE 4 REVIEW**	**6**
UNIT 1	**FRACTIONS**	
Lesson 2	Factors and Multiples	12
Lesson 3	Fractions	19
Lesson 4	Fractions 2	29
Lesson 5	Compare and Order Fractions	35
UNIT 2	**DECIMALS AND PERCENTAGES**	
Lesson 6	Place Value	42
Lesson 7	Numbers and Place Value	48
Lesson 8	Converting Fractions to Decimals	55
UNIT 3	**ADDITION AND SUBTRACTION**	
Lesson 9	Estimating Sum and Differences	63
Lesson 10	Decimals, Addition and Subtraction Review	69
UNIT 4	**MULTIPLICATION**	
Lesson 11	Multiplication	75
Lesson 12	Square Numbers and Square Roots	81
UNIT 5	**DIVISION**	
Lesson 13	Division	87
Lesson 14	Problem Solving	92
Lesson 15	**GRADE 5 SEMESTER 1 REVIEW**	**97**
GLOSSARY		**101**

Science

Lesson 1	**GRADE 4 REVIEW**	110
UNIT 1	**STAYING ALIVE**	
Lesson 2	Basic needs	112
Lesson 3	Life processes	114
UNIT 2	**LIFE CYCLES**	
Lesson 4	Stages of life cycle	117
UNIT 3	**FOOD CHAINS**	
Lesson 5	Predator and prey	120
Lesson 6	Food chains	123
UNIT 4	**WATER**	
Lesson 7	Dissolving	126
Lesson 8	The water cycle	129
Lesson 9	Pollution	132
UNIT 5	**STATIC ELECTRICITY**	
Lesson 10	Static electricity	135
UNIT 6	**MOVEMENT**	
Lesson 11	Forces	138
Lesson 12	Forces move objects	141
UNIT 7	**FRICTION**	
Lesson 13	Friction	144



SCIENTIFIC ENGLISH

MATHEMATICS

GRADE 5

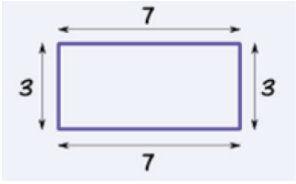
GRADE 4 REVIEW

Task 1: **Can you remember the keywords from Grade 4?**

Write the correct keyword for each definition from the box below.

number line improper fraction proper fraction dividend
divisor quotient remainder dirhams riyal perimeter

KEYWORD	DEFINITION	PICTURE or EXAMPLE
	The number we want to divide.	$24 \div 6 = 4$
	A line with numbers placed in their correct position.	
	Qatari money made out of paper.	
	A fraction where the numerator is greater than or equal to the denominator.	$\frac{9}{5}$

KEYWORD	DEFINITION	PICTURE or EXAMPLE
	Qatari coins, made in amounts of .25 and .50.	
	A fraction where the numerator is less than the denominator.	$\frac{3}{5}$
	The number of groups you want to divide a number into.	$20 \div 10 = 2$
	The distance around the outside of a shape.	
	The answer in division.	$20 \div 10 = 2$
	The number that is left over after one whole number is divided by another.	$57 \div 5 = 11\ r2$

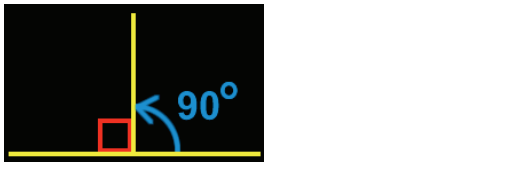
Task 2: MATCHING.

Help us draw lines to match the words with their correct meaning or picture.

1. right angle
2. ray
3. perpendicular lines
4. line segment
5. acute angle
6. parallel lines
7. quadrilateral
8. less than
9. obtuse angle
10. greater than

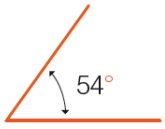
a)

b)



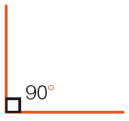
c)

d)



e)

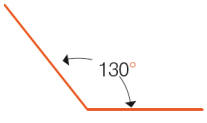
f)



g)

h)

i)

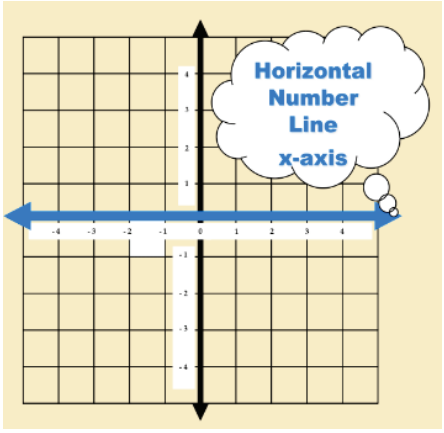


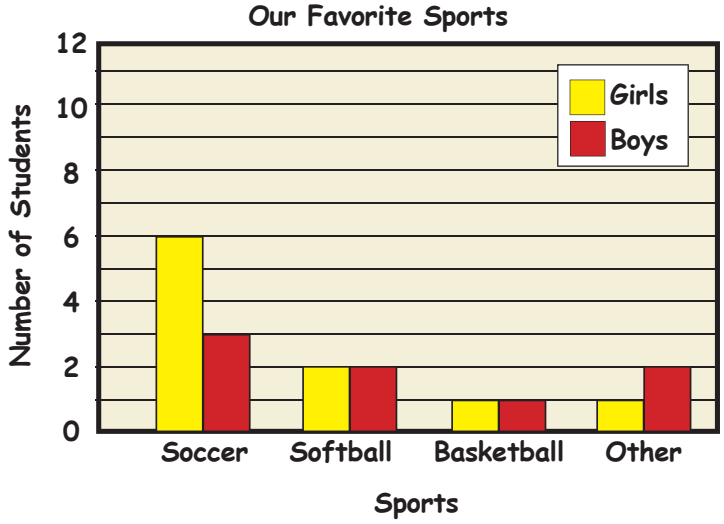
j)

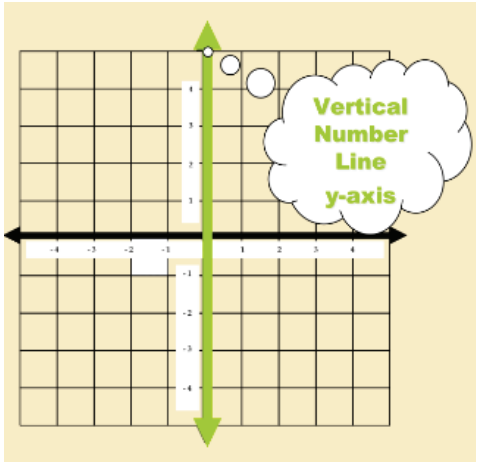
Task 3:

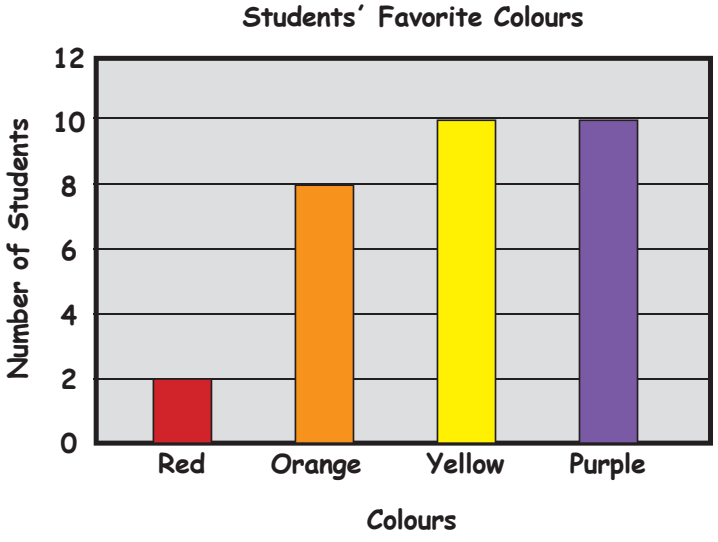
Use the keywords from the box below to label these pictures.

vertical axis horizontal axis bar chart double bar chart









Task 4: Fill in the blank.

Write the word for each abbreviation.

kilometer meter kilogram milliliter gram
millimeter centimeter liter

1. m .....
2. mL .....
3. kg .....
4. g .....
5. cm .....
6. km .....
7. mm .....
8. L .....

Task 5:

Complete the sentences below with a word from the box.

capacity mass length

1. Millimeters, centimeters and meters are measures of ..... .
2. Milliliters and liters are measures of ..... .
3. Grams and kilograms are measures of ..... .

GAME TIME!

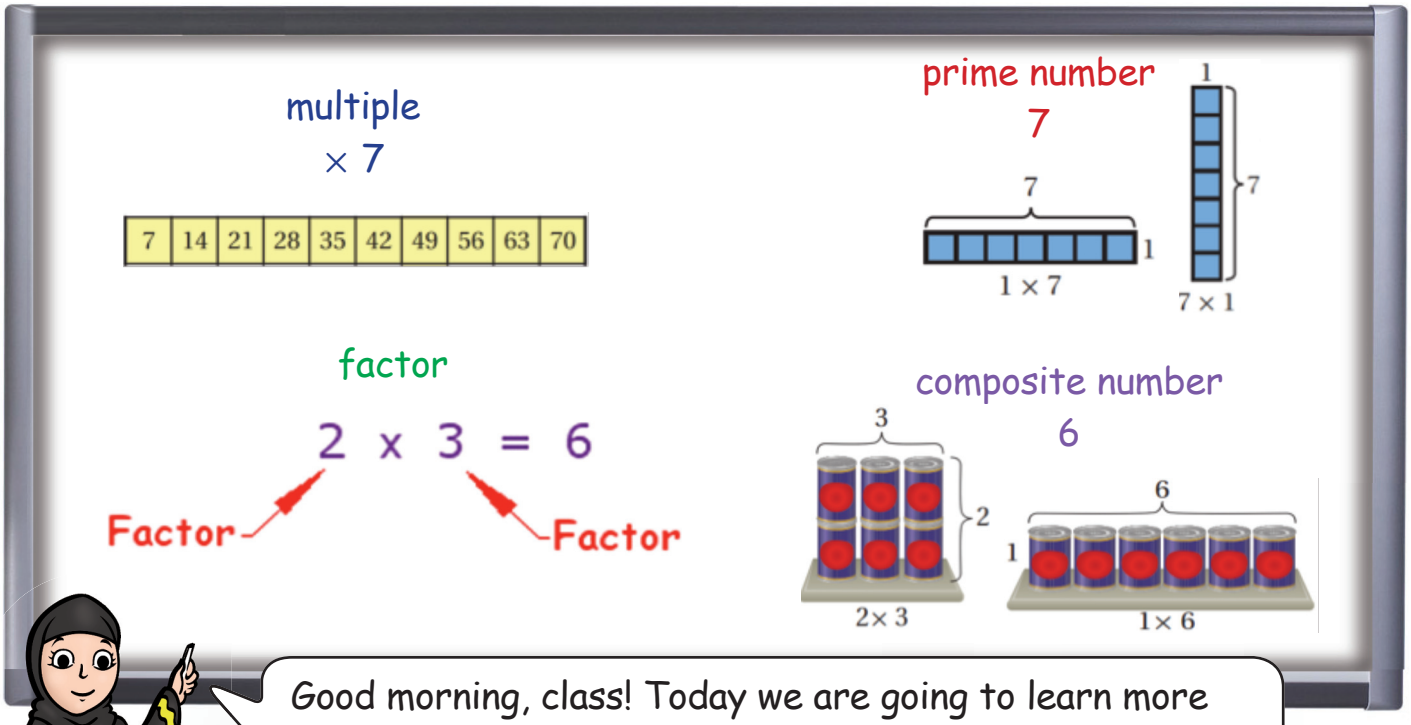
Look at the **keywords** on the bottom of the page. Write **one** word in each box. Listen as your teacher reads out a definition. Put an X on the box if you have the matching word. Three in a row is BINGO!

	BINGO	

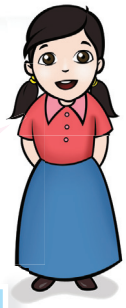
ordered pair	rule	Qatari Riyals	angle	hour
minute	rectangle	edge	vertex	second
origin	graph	cylinder	face	parallelogram
metric system	degree	coordinate plane	day	quadrilateral

FACTORS AND MULTIPLES

KEYWORDS: multiple factor prime number composite number



Good morning, class! Today we are going to learn more about factors and multiples. Do you see the multiples of 7 on the board, Nouf?



Yes, Mrs. Amna. I see that a **multiple** is the product of that number and any whole number. Sara, do you know what common factors are?

Yes, I do. **Factors** are the numbers you multiply together to get another number. On the whiteboard, 2 and 3 are factors of 6, because 2 x 3 = 6. All the factors of 6 are 1, 2, 3, and 6.

I see a prime number on the board. A **prime number** has only two factors: 1 and the number. 7 is prime.

Then a **composite number** must be any number that has more than two factors. Like 6.

Task 1:

Unscramble each word to complete the sentences
Use a word from the box below.

multiple factor prime number composite number

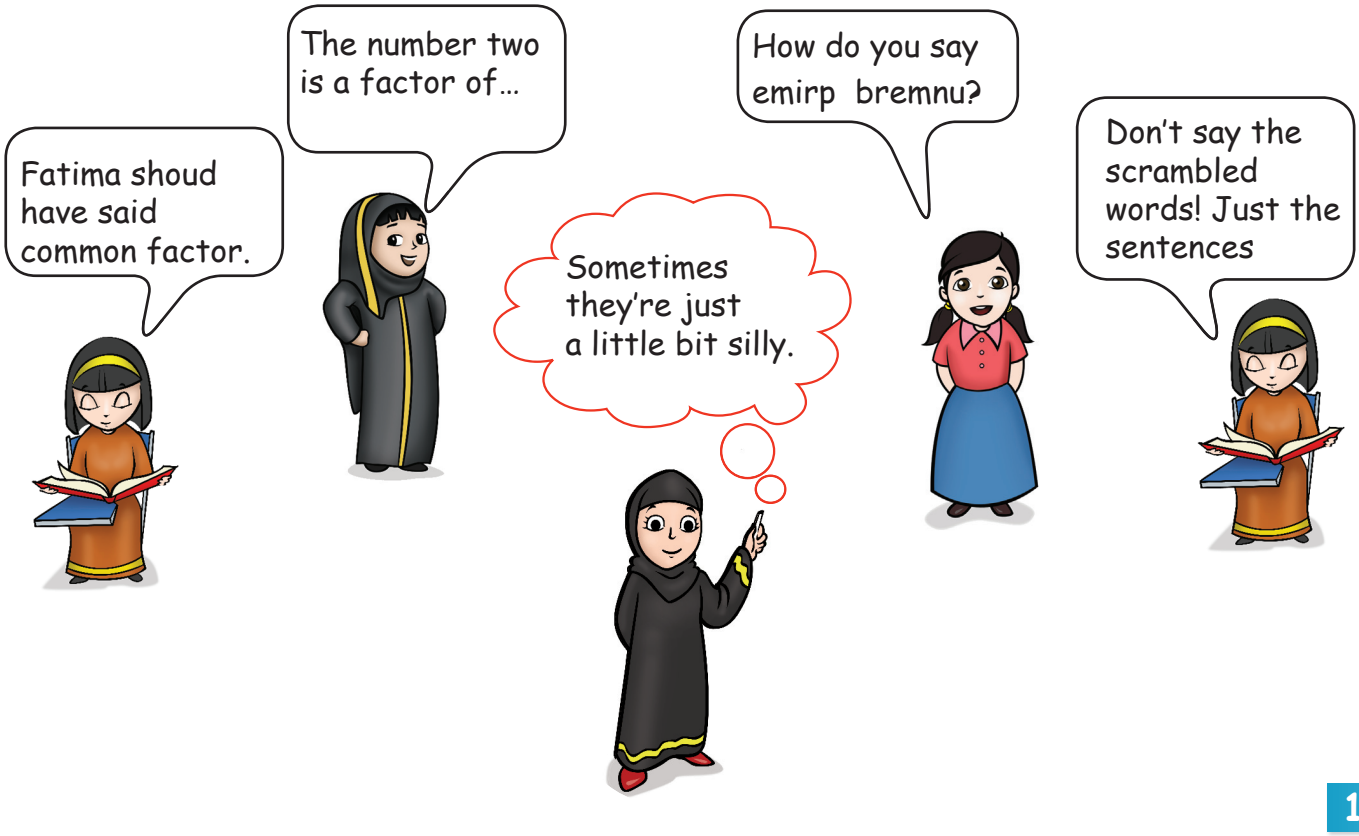
1. emirp bremnu
   The number 7 has only 2 factors. It is a ....

2. putmille
   35 is a ..... of 5.

3. simpoocet rembun
   A ...., like 12, has more than two factors.

4. tarfocs
   2 and 3 are ..... of6.

Task 2: Read each of the sentences in Task 1 to a partner.



Task 3: Prime number maze

Help the dog find its bone by following the path of prime numbers.

12	16	40	129	71	66	48	20	56
78	73	11	113	29	30	102	138	28
46	31	12	42	12	18	129	14	100
69	59	45				52	56	102
67	113	40				89	83	15
37	136	100				128	103	107
101	83	18				35	25	109
84	19	26	102	108	55	104	83	113
108	7	83	73	40	67	89	67	15
138	112	35	101	109	19	33	84	42

Task 4:

Help each butterfly find its flower by drawing lines to match each vocabulary word with its defintion.

prime number

composite number

common factor

A factor that is the same for two or more numbers.

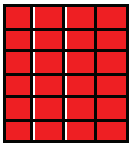
A number that has only 2 factors.

A number that has more than 2 factors.

Name_____ HOMEWORK Date: _____

FIND THE FACTORS OF 24

1. Cut out the 24 squares below.



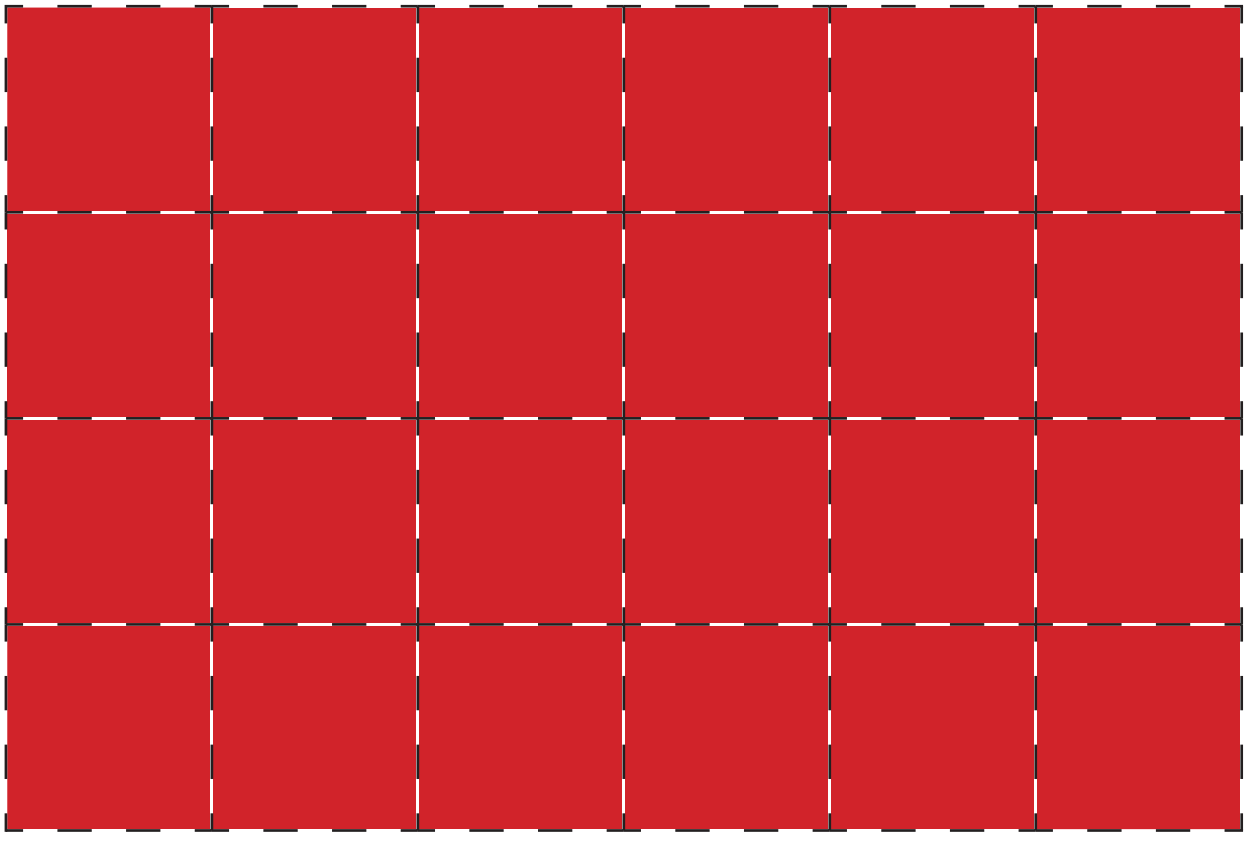
6 x 4

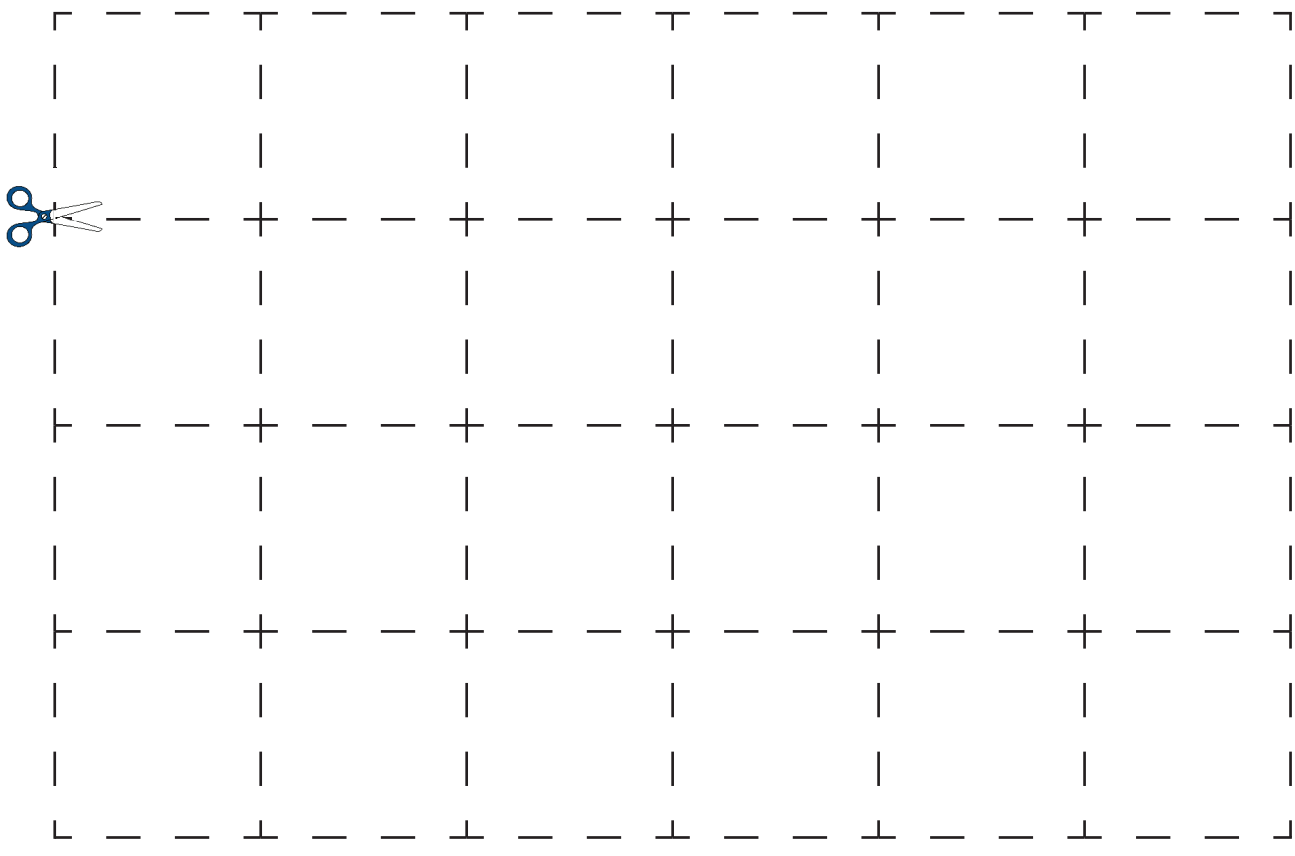
2. Make arrays with the squares to find factors of 24.

3. The factors of 24 are: ..... .

4. Show your parents the difference between prime and composite numbers, using arrays.

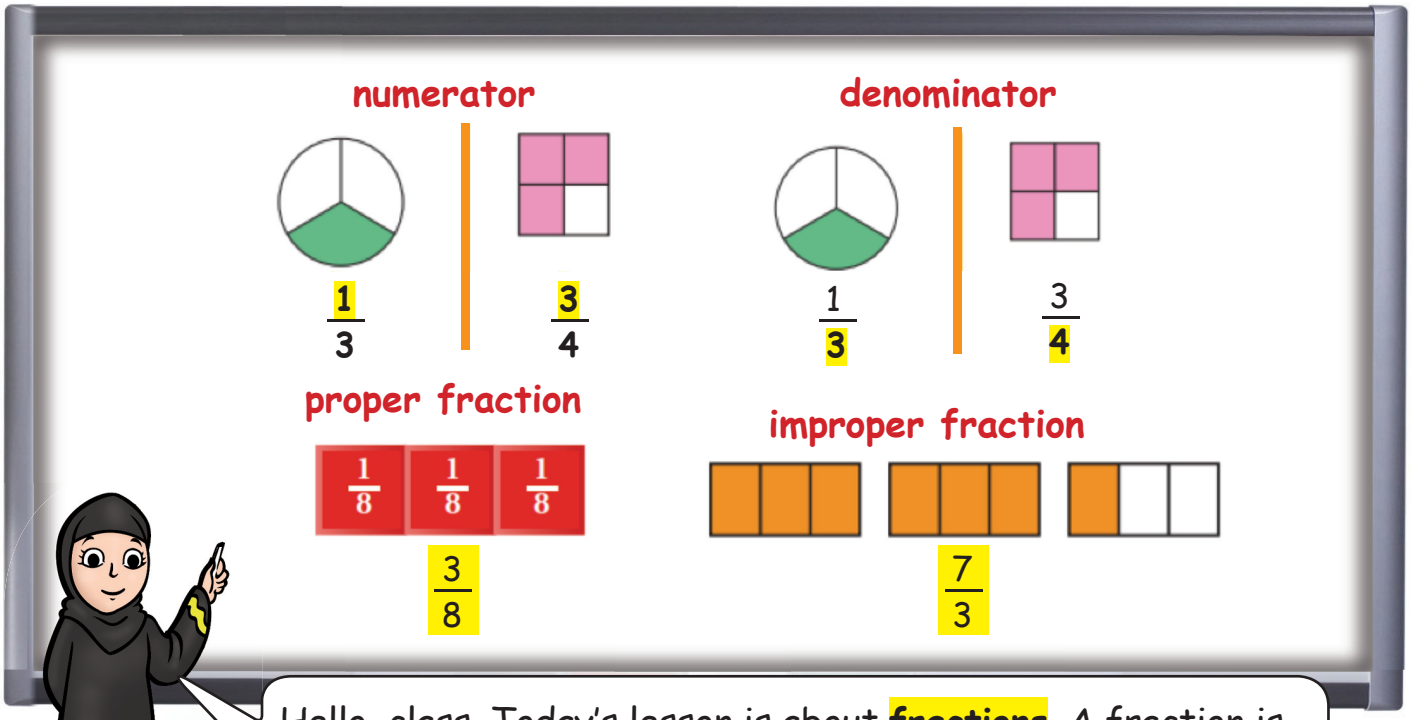
Extra Credit! Use the squares to find all the numbers less than 24 that are prime numbers. The prime numbers <24 are: ..... .





FRACTIONS

KEYWORDS: fraction numerator denominator proper fraction improper fraction



Hello, class. Today's lesson is about **fractions**. A fraction is a number that represents part of a whole or part of a set.

The **numerator** is the number above the line in a fraction. The numerator tells us how many of the equal parts are being used.

Yes! The **denominator** tells us how many equal parts are in the whole. The denominator is always the bottom number in a fraction.

In a **proper fraction** the numerator is always less than the denominator. It is less than one whole.

Thats right! But in **improper fractions** the numerator is greater than or equal to the denominator. It's one whole or more.

Task 1: Unscramble each word to complete the sentences.

Use the word from the box below:

fraction **numerator** **denominator** **proper** **improper**

1. perrop
   The numerator is less than the denominator in ..... fractions.

2. roarmenut
   The ..... is the top number in a fraction.

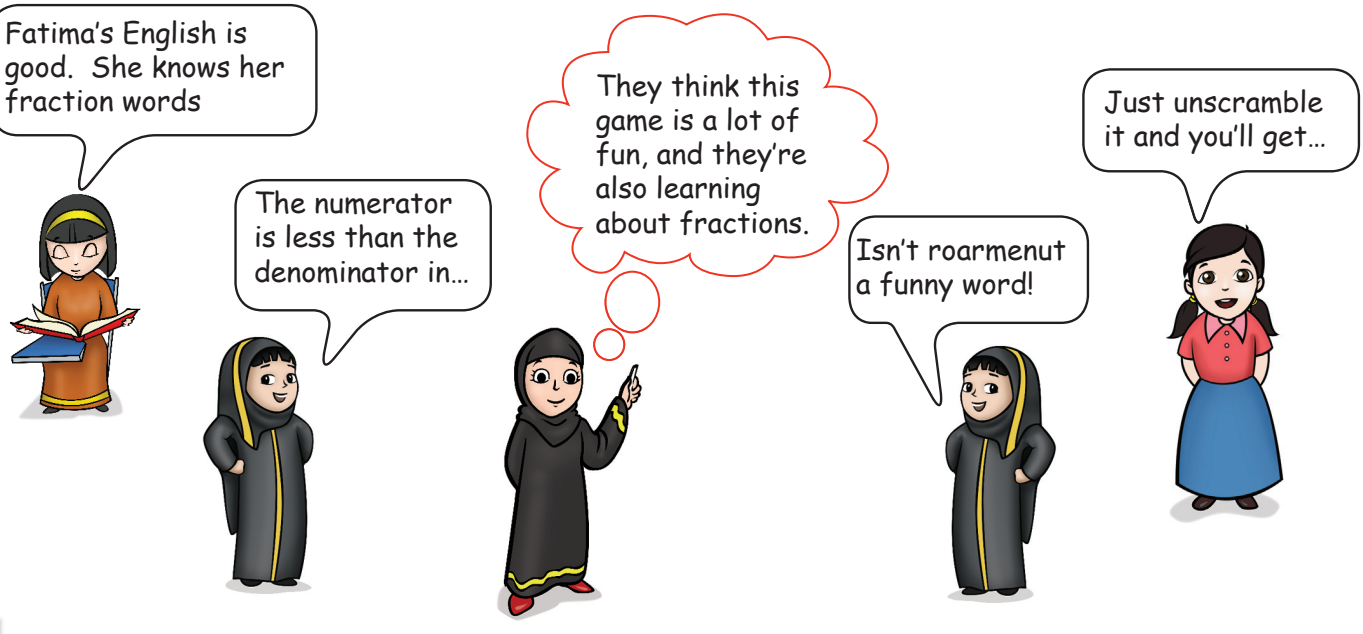
3. morpepir
   The numerator is greater than or equal to the denominator in ..... fractions.

4. contiraf
   A ..... represents part of a whole or part of a set.

5. emonnadirot
   The ..... is the bottom number in a fraction.

Task 2: LET'S TALK!

Read each sentence in Task 2 to a partner.



Task 3: ACTIVITY TIME!

Use any keyword to draw your own cartoon on the next page.

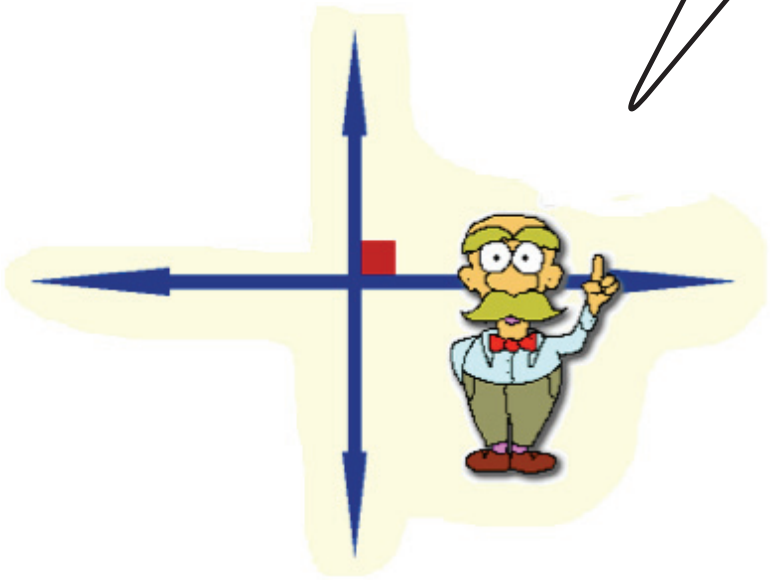
Write the keyword in the box and its meaning in the speech bubble.

Example:

perpendicular

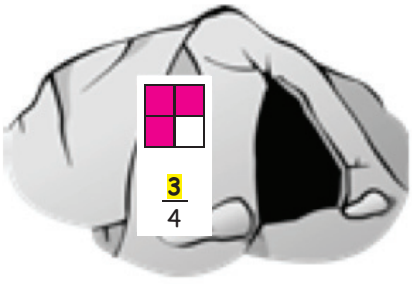
definition/meaning

Remember that perpendicular lines meet to form right angles



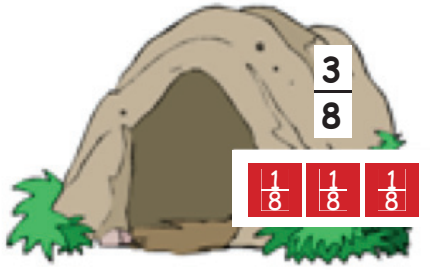
Task 4: Help each bear cub find his cave.

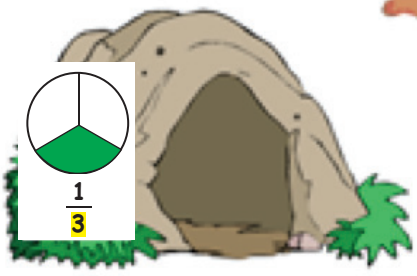
Draw lines to match the keywords to the pictures.



improper fraction

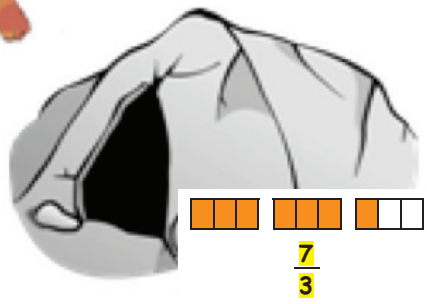
proper fraction





numerator

denominator



HOMEWORK!

1. Follow the directions to make the Foldables on the next pages.
2. Use the Foldables to tell someone at home about fractions.

MY Foldable

FOLDABLES Follow the steps on the back to make your Foldable.

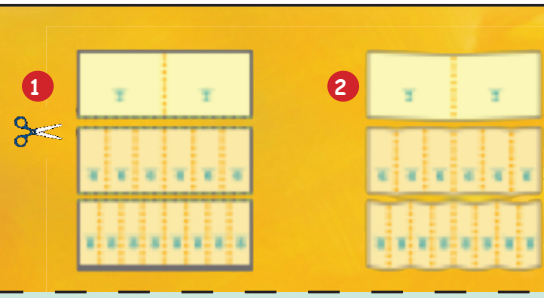
$\frac{}{2}$	$\frac{}{2}$

$\frac{}{6}$	$\frac{}{6}$	$\frac{}{6}$	$\frac{}{6}$	$\frac{}{6}$	$\frac{}{6}$

$\frac{}{8}$	$\frac{}{8}$	$\frac{}{8}$	$\frac{}{8}$	$\frac{}{8}$	$\frac{}{8}$	$\frac{}{8}$	$\frac{}{8}$

FOLDABLES

Study Organizer



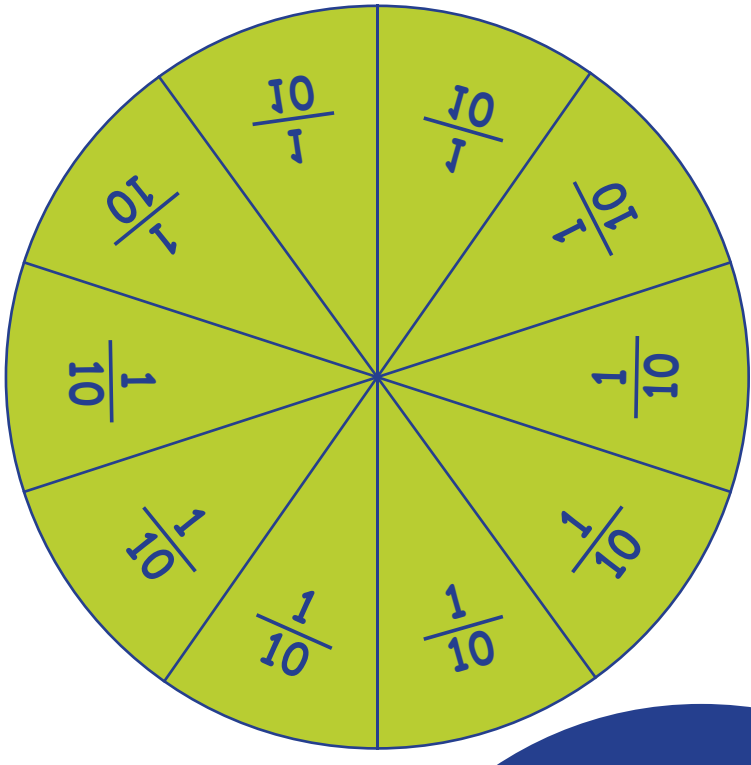
1

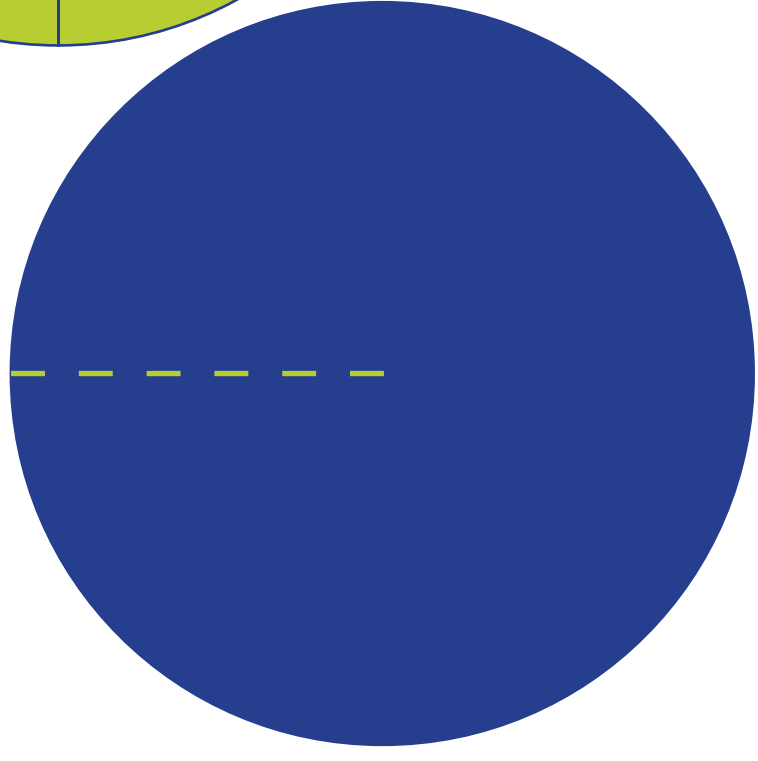
$\frac{}{3}$	$\frac{}{3}$	$\frac{}{3}$

$\frac{}{4}$	$\frac{}{4}$	$\frac{}{4}$	$\frac{}{4}$

MY Foldable

FOLDABLES Follow the steps on the back to make your Foldable.



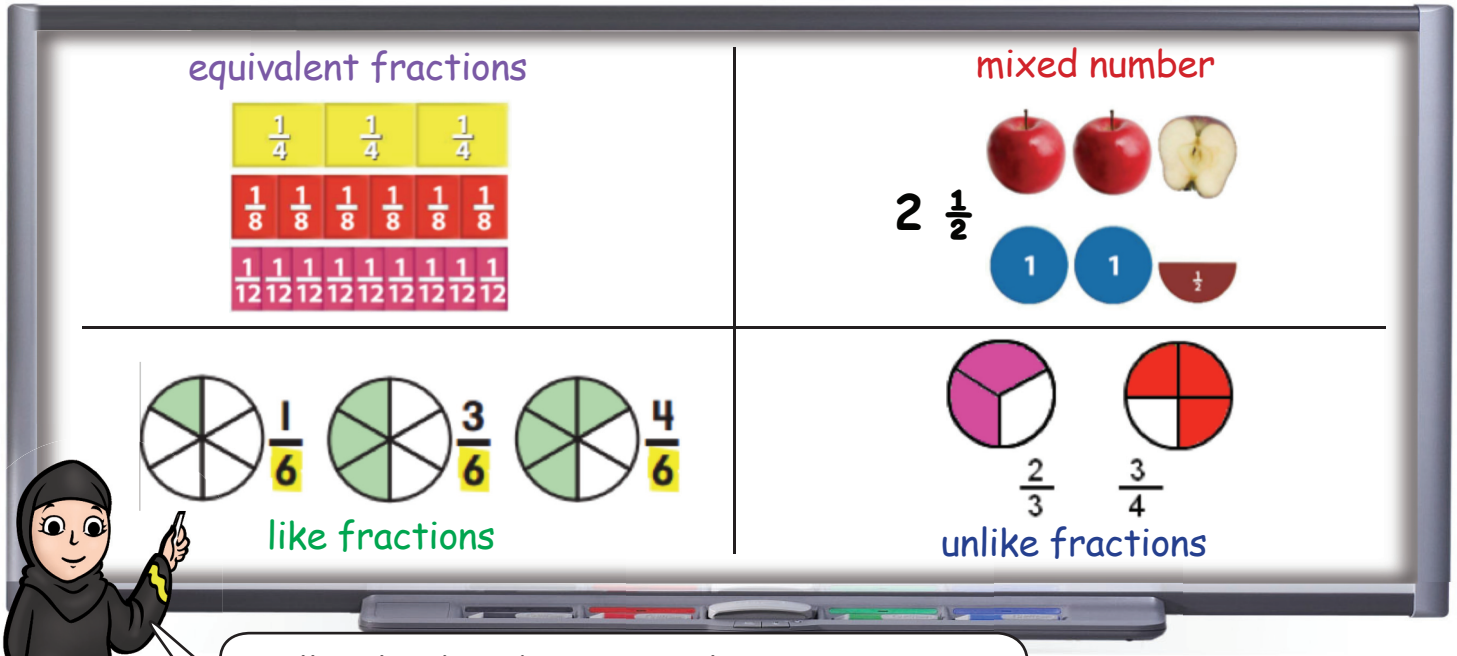


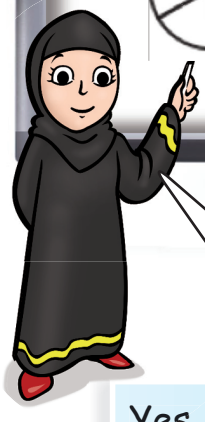
FOLDABLES

Study Organizer

FRACTIONS 2

KEYWORDS: **equivalent fractions like fractions unlike fractions mixed number**





Hello, class! Today, we are learning more about fractions. Khalid, can you please tell us about equivalent fractions.

Yes, Mrs. Amna. **Equivalent fractions** represent the same number. On the board you can see that three-fourths is equal to six-eighths and to nine-twelfths.

That's right. I know about **mixed numbers**. A mixed number has a whole part and a fraction part, like the apples on the board.

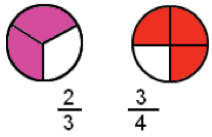
I like **like fractions** because they are easy! They have the same denominators.

Unlike fractions have different denominators. I think they're more interesting.

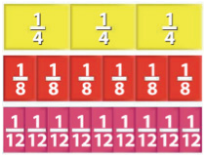
Task 1: **Draw lines to match the keywords to the pictures or examples.**

1. equivalent fractions
2. mixed number
3. unlike fractions
4. like fractions

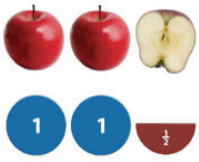
a)



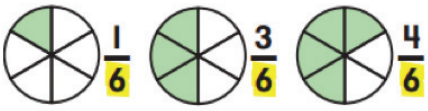
b)



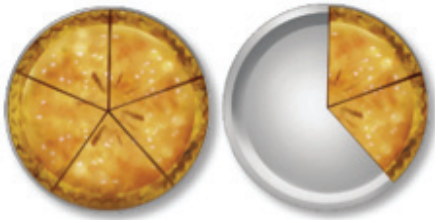
c)

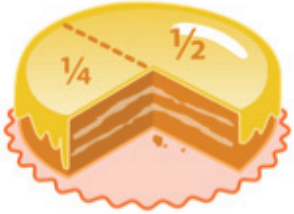


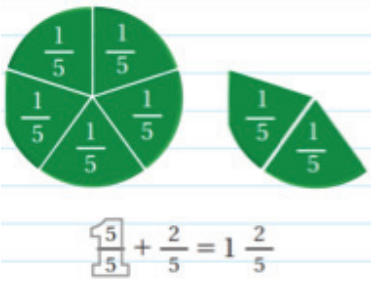
d)



Task 2: **A mixed number has a whole number and a fraction. Circle the pictures that show mixed numbers.**







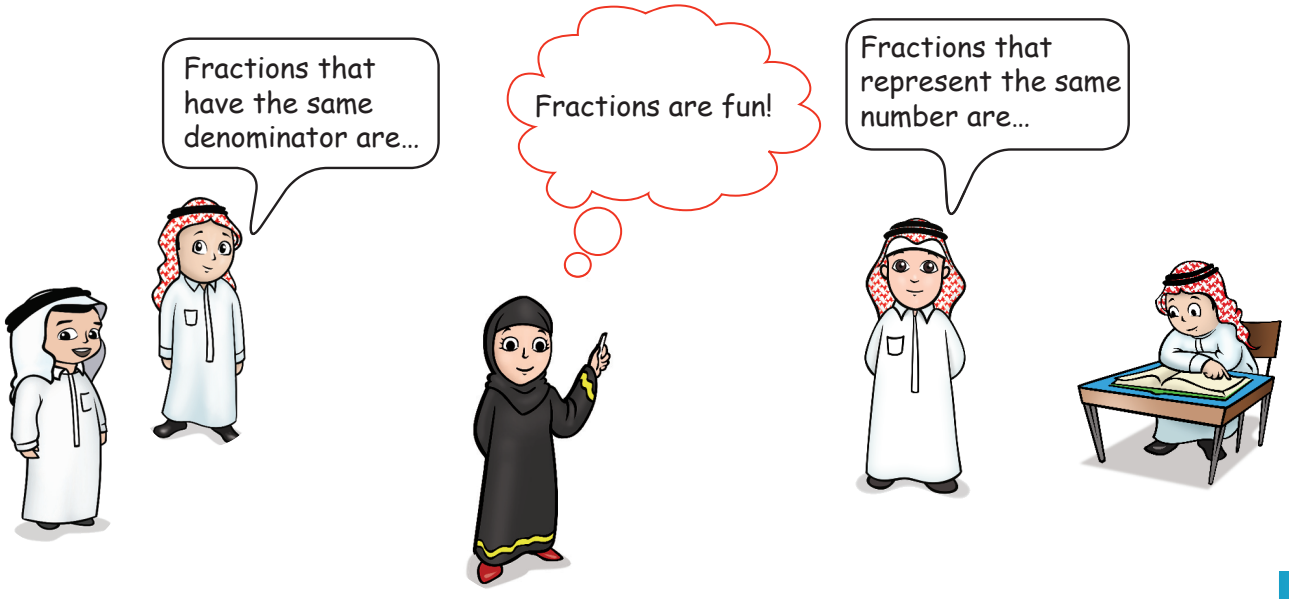
Task 3: Draw your own mixed number picture.

Task 4: Use the keywords in the box below to complete each sentence.

equivalent fractions	like fractions
unlike fractions	mixed number

1. A ..... has a whole number and a fraction.
2. Fractions that have the same denominator are ..... .
3. Fractions that represent the same number are ..... .
4. ..... have different denominators.

Task 5: LET'S TALK! Read each sentence in Task 4 to a partner.



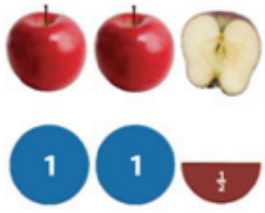
QUICK VOCABULARY CHECK UNIT 6

Each card shows an example of a key vocabulary word. Write each word from the box below on the card with the matching example.

fraction numerator denominator equivalent fractions
like fractions unlike fractions mixed number
improper fraction proper fraction

a) .....

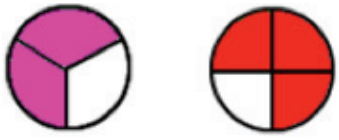
$2\frac{1}{2}$



b) p .....

$\frac{3}{8}$

c) .....



$\frac{2}{3}$ $\frac{3}{4}$

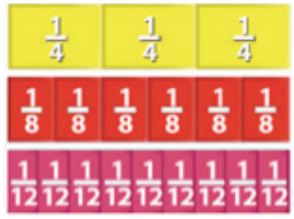
d) f .....

$\frac{3}{4}$

e) .....

$\frac{1}{3}$

f) .....

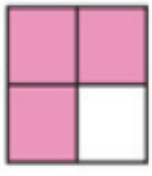


g) i .....

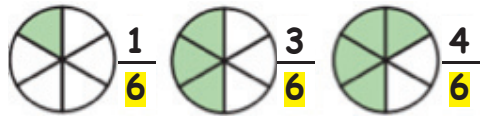
$\frac{7}{3}$

h) .....

$\frac{3}{4}$



i) .....



$\frac{1}{6}$ $\frac{3}{6}$ $\frac{4}{6}$

MY Foldable

FOLDABLES Follow the steps on the back to make your Foldable.

Subtract Fractions

$\frac{5}{6} - \frac{3}{6} =$

Add Fractions

$\frac{1}{5} + \frac{2}{5} =$

Multiply Fractions

$5 \times \frac{1}{8} =$

Foldables

Study Organizer

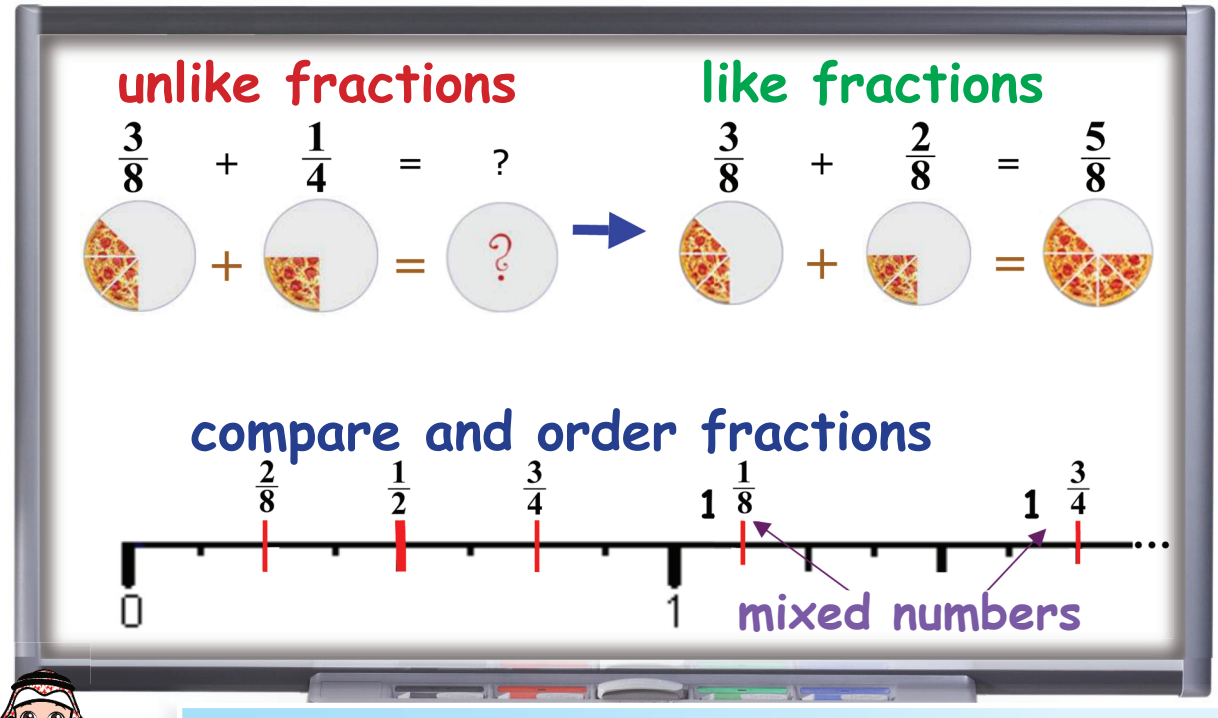
Subtract Fractions

Multiply Fractions

Add Fractions

COMPARE AND ORDER FRACTIONS

KEYWORDS: unlike fractions, like fractions, equivalent fractions, simplify, compare fractions, order fractions, mixed number



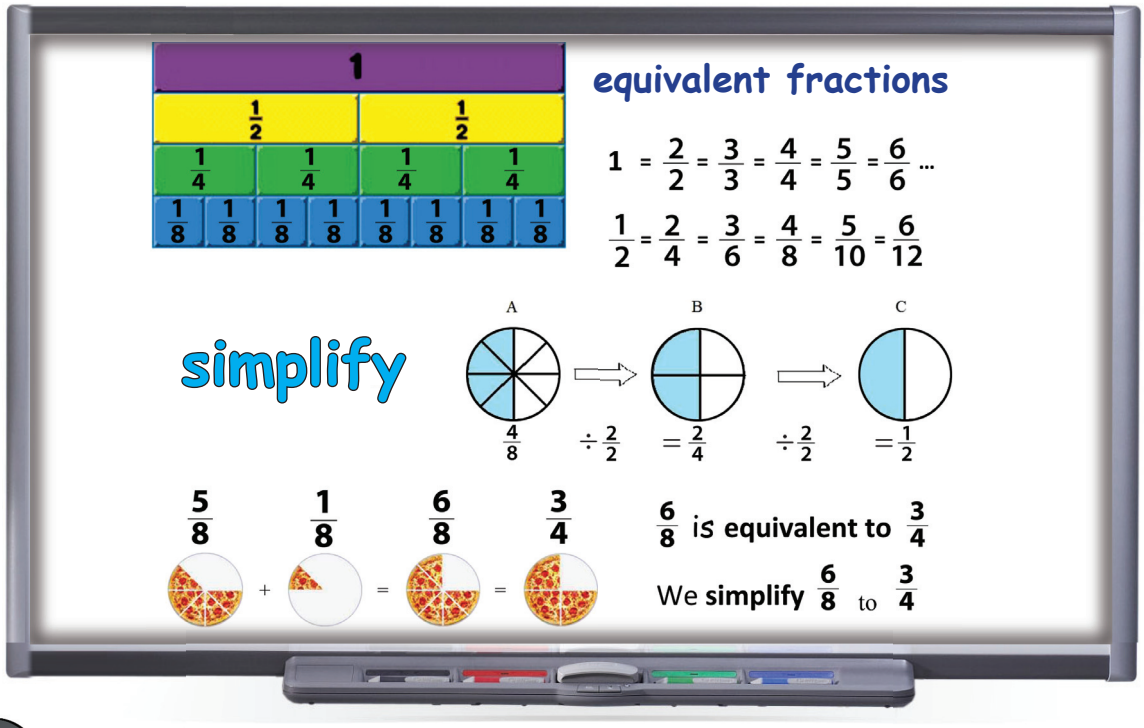
Like fractions have the same **denominator**, the number on the bottom. We know how to add and subtract them.

Unlike fractions have **different denominators**, like $\frac{3}{8}$ and $\frac{1}{4}$. How do we add or subtract them?

Before we can add or subtract **unlike fractions**, we have to change them so that the denominators are the same. That means, we change them into **like fractions** before we add or subtract.

We also have to change unlike fractions to like fractions to **compare and order** them. Usually, we just multiply the numerator and denominator of both fractions by a factor that is the same for each. We call that a common factor.

Mixed numbers have a whole number and a fraction. They are always greater than proper fractions.



Equivalent fractions look different but they have the same value. Look at the equivalent fractions for the number 1. Two out of 2 parts is 1 whole. Three out of 3 parts is one, and so on.

We know that if we multiply or divide by 1, **the value of the number will not change.** 1 times $\frac{1}{4}$ equals $\frac{1}{4}$. $\frac{2}{2} \times \frac{1}{4}$ is $\frac{2}{8}$. One-fourth and two-eights look different, but you can tell from the fraction bars that they are the same amount.

After we add or subtract fractions, sometimes we have to **simplify** the answer. To **simplify** a fraction, divide the top and bottom by a common factor, until you cannot divide it any more.

COMPARE AND ORDER FRACTIONS

Task 1:

Use the words from the box below to fill in the blanks.

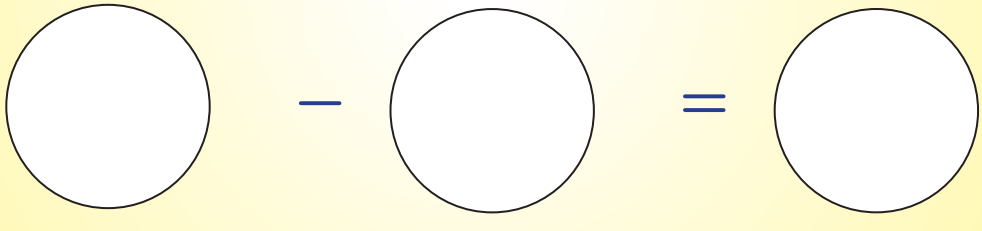
unlike	like fractions	equivalent
simplify	compare order	mixed number

1. An example of a .... is $3\frac{1}{2}$ (three and a half).
2. Three eighths, five tenths and two fourths are ..... fractions.
3. Two fourths, four eighths and one half are ..... fractions.
4. Fractions that have the same denominator are ....
5. It is easy to ..... and ..... like fractions.
6. When I ..... $\frac{2}{8}$ (two eighths), it will be $\frac{1}{4}$ (one fourth).

Task 2:

Read the word problem below. Draw lines in the pizza to show the subtraction problem. Explain to your partner why $\frac{4}{8}$ is equivalent to $\frac{1}{2}$.

I cut a pizza into eight equal slices (eighths). My brother ate four pieces ($\frac{4}{8}$, four eighths). That left only half for the rest of us!



MY Foldable

FOLDABLES Follow the steps on the back to make your Foldable.

Simplest Form

Three–fourths of voters voted YES!

$\frac{3}{4}$

Compare Fractions

Half population...
One-fourth of the population...

$\frac{1}{2} > \frac{1}{4}$

Mixed numbers

$1\frac{1}{2}$ cups flour

$1\frac{1}{2}$

FOLDABLES
Study Organizer

- Tear out the page and cut off the top banner.
- Fold along the two green dotted lines to make a pamphlet.

Fractions in our world

Ways to show fractions

TODAY'S MATHEMATICS KEYWORDS

Look at the keywords on this chart. Write the meaning and example or draw a picture for each word in the box below.

KEYWORD	DEFINITION	PICTURE or EXAMPLE
like fractions		
unlike fractions		
equivalent fractions		
mixed number		
simplify		
compare and order fractions		

PLACE VALUE

KEYWORDS: place value chart ones tenths hundredths thousandths decimal point

Place Value Chart

WHOLE NUMBERS				DECIMAL POINT	DECIMAL NUMBER		
thousands	hundreds	tens	ones		tenths	hundredths	thousandths
2	3	9	7	•	5	6	3

decimal point

2,397.563

This week we have been learning about place value. **A place value chart** tells us how much each digit in a number is worth. Class, can you tell me about the different place values?

The **ones** place is the first place to the left of the decimal point.
In this number, 7 is in the ones place.

WHOLE NUMBERS				DECIMAL POINT	DECIMAL NUMBER		
thousands	hundreds	tens	ones		tenths	hundredths	thousandths
2	3	9	7	•	5	6	3

The **tenths** place is the first place to the right of the decimal point. In this number, the **5** is in the tenths place.

WHOLE NUMBERS				DECIMAL POINT	DECIMAL NUMBER		
thousands	hundreds	tens	ones		tenths	hundredths	thousandths
2	3	9	7	•	5	6	3

The **hundredths** place is to the second place to the right of the decimal point.. In this number, **6** is in the hundredths place.

WHOLE NUMBERS				DECIMAL POINT	DECIMAL NUMBER		
thousands	hundreds	tens	ones		tenths	hundredths	thousandths
2	3	9	7	•	5	6	3

The **thousandths** place is to the third place to the right of the decimal point. In this number, **3** is in the thousandths place.

WHOLE NUMBERS				DECIMAL POINT	DECIMAL NUMBER		
thousands	hundreds	tens	ones		tenths	hundredths	thousandths
2	3	9	7	•	5	6	3

I know that the **decimal point** is a period or dot separating the ones and tenths in a decimal number.

2,397.563

Task 1: Use the words in the box below to complete each sentence. Then draw a line from each sentence to the right number.

See the example below.

~~ones~~	tenths	hundredths	thousandths	decimal point

6 is in the ones place.

2 is in the ..... place.

6.782

8 is in the ..... place.

7 is in the ..... place.

Task 2: Write five and six hundred fourteen thousandths in standard form. Complete each box and draw a line to the right number.

The digit ..... is in the ..... place.

The digit ..... is in the ..... place.

. ← standard form

The digit ..... is in the ..... place.

The digit ..... is in the ..... place.

Task 3: Vocabulary check.

Choose the correct word(s) to complete each sentence.

decimal decimal point place value
place value chart expanded form standard form

1. ..... is the value given to a digit by its place in a number.
2. The usual or common way to write a number is called ..... .
3. The way of writing a number as the sum of the values of its digit is called ..... .
4. A ..... is a number that has a digit in the tenths place, hundredths place and so on.
5. The ..... is a period separating the ones and the tenths in a decimal number.
6. A ..... is a chart that shows the value of the digits in a number.

Task 4: Riddle.

I am a number with a 6 in the hundredths place, a 9 in the tenths place, and a 3 in the ones place.

What am I?

Task 5:

Create your own riddle using the keywords from today's lesson.

Draw a picture for your riddle also.

Task 6: Place value chart.

Complete the chart below.

Write 5 in the tens place.

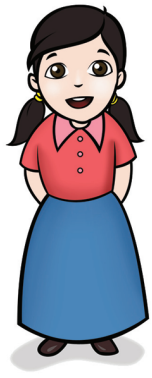
Write 7 in the thousandths place.

Write 2 in the ones place.

Write 0 in the hundredths place.

Write 6 in the tenths place.

What is the number? .....



NUMBERS AND PLACE VALUE

KEYWORDS: digit place value period expanded form standard form word form

digits

0 1 2 3 4 5 6 7 8 9

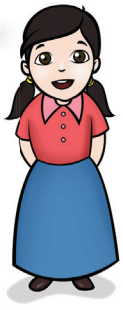
thousands period				ones or units period		
hundred thousand	ten thousands	thousands	,	hundreds	tens	ones (units)
	1	2	,	5	7	8

twelve thousand five hundred seventy-eight

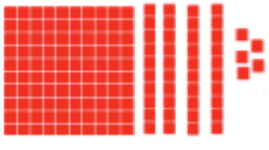
The symbols 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 are called **digits**. They are used to write any whole number.

Look at the board.
The 8 is in the ones place.
The 7 is in the tens place.
The 5 is in the hundreds place.
The 2 is in the thousands place.
The 1 is in the ten thousands place.

The place that a **digit** is in tells you how much that **digit** stands for. This is called **place value**.
Each place has 10 times the value of the place to its right.



The digits in large numbers are arranged in groups of three places: hundreds, tens and or ones.
These groups are called **periods**.

I see	I think	I write EXPANDED FORM	I write STANDARD FORM	I write or say WORD FORM
	7 tens 7 ones	70 + 7	77	seventy-seven
	5 tens 3 ones	50 + 3	53	fifty-three
	1 hundred 4 tens 5 ones	100 + 40 + 5	145	one hundred forty-five

I can use words instead of digits to write any number.

Words are longer, but they show how we say the numbers.

To say a 3-digit number, say the first digit on the left. Then say hundred. Last, say the number made by the two other digits.

So **256** is **two hundred fifty-six**. **1391** must be **one thousand three hundred ninety-one!**

It's easy if I always start on the left.

I can say these numbers! Can you?

0	zero	5	five
9	nine	14	fourteen
20	twenty	26	twenty-six
30	thirty	45	forty-five
60	sixty	73	seventy-three
82	eighty-two	90	ninety
97	ninety-seven		

Task 1: **Write each number in expanded form and word form.**

1. 485,830

expanded form: _____

word form: _____

2. 3,029,251

expanded form: _____

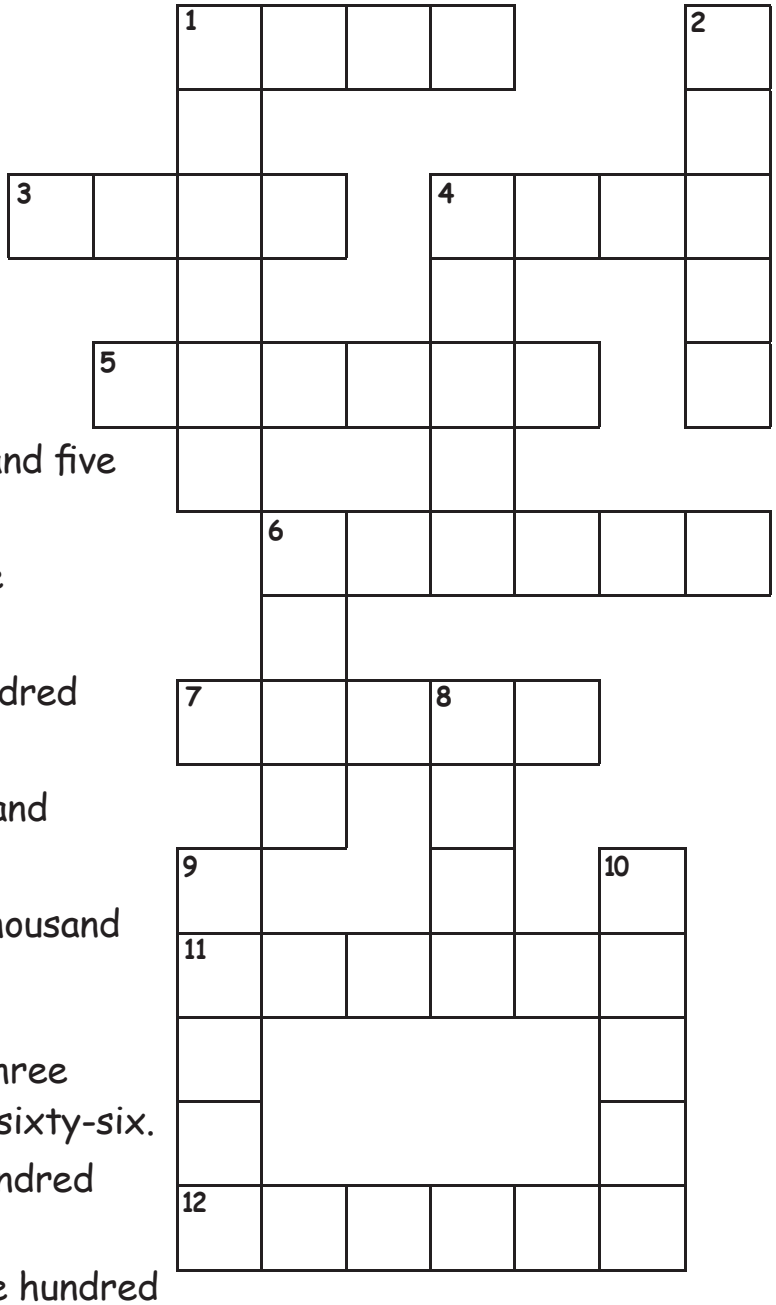
word form: _____

Task 2: **Match each word to the correct definition or example.**

1	digit	**a)** The way we usually write numbers. Example: 3,560
2	standard form	**b)** The symbols (0-9) used to write any whole number.
3	word form	**c)** Example: 400 + 90 + 2
4	expanded form	**d)** The way we say our numbers: Example: forty-seven
5	place value	**e)** The name given to each group of three digits on a place value chart.
6	period	**f)** The value given to a digit by its place in a number.

Task 3: **Puzzle time!** **Rewriting words as numbers!**

Change each number from word form to standard form.



Across

1) Four thousand seven hundred three.

3) Two thousand four hundred thirty-five.

4) Five thousand nine.

5) One hundred sixty-four thousand five hundred ninety-three.

6) Six hundred four thousand five hundred ninety.

7) Eighty five thousand three hundred ninety-six.

11) Five hundred forty-six thousand three hundred seventy-one.

12) Three hundred forty-eight thousand seven.

Down

1) Four hundred ninety-three thousand six hundred sixty-six.

2) Fifty thousand nine hundred thirty.

4) Fifty-six thousand nine hundred thirty-four.

6) Six thousand four hundred fifty-one.

8) Nine thousand four hundred forty-three.

9) Twenty-five thousand seven hundred ninety-three.

10) Eighty one thousand two hundred forty-seven.

FUN WITH FLASHCARDS

CUT ✂ - - - - - - STUDY  PLAY 

digit

0 1 2 3 4

5 6 7 8 9

expanded form

400 + 20 + 9

place value

1386

Digit	Place	Place Value
1	thousands	1000
3	hundreds	300
8	tens	80
6	Ones	6

standard form

429

period

thousands period				ones or units period			
hundred thousand	ten thousands	thousands	,	hundreds	tens	ones (units)
	1	2	,	5	7	8
	twelve thousand			five hundred	seventy-eight	

word form

four hundred twenty-nine

PLAY WITH FLASHCARDS

You Need: 2 sets of flashcards. Play with a partner.

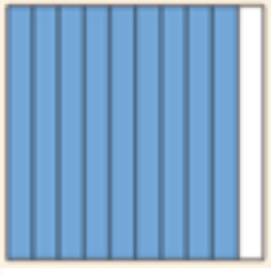
1. Put one set of cards picture side up. Put the other set definition side up.
2. Take turns. Can you match the pictures to the correct definitions?

A way to write numbers that shows how much each digit is worth.	The symbols 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 that are used to write a whole number.
The way we usually write numbers.	The place of each digit in a number tells you how much that digit is worth.
The way we say numbers.	The name given to each group of three digits on a place-value chart.

CONVERTING FRACTIONS TO DECIMALS

KEYWORDS: fraction, decimal, decimal point, model, percent, percentage

Fractions to Decimals

model	fraction	decimal
	$\frac{9}{10}$	0.9

decimal point

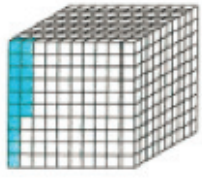
Today, we are looking at fractions and decimals. Did you know that fractions and decimals are related. They tell us the same thing. What is a decimal?

Numbers that have digits in the tenth place, hundredths place, and beyond are called **decimals**. A **decimal point** is used to separate the ones from the tenths place.

Well done, Fatima!

Class, we use **models** to relate decimals to fractions. For example the model here shows a thousandths cube.

It shows $\frac{16}{1000}$ as a fraction and 0.016 as a decimal.

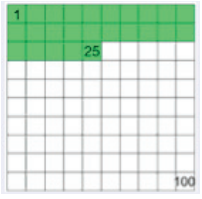


Who remembers what a fraction means?

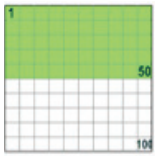
CONVERTING FRACTIONS TO DECIMALS

I do! A **fraction** is part of a whole.

Good, Sara!
Finally, today we will learn about **percentage**.
Percentage means part of a 100.
The symbol for **percent** is %.
Example: 25% means 25 per 100.
25% of this box is green

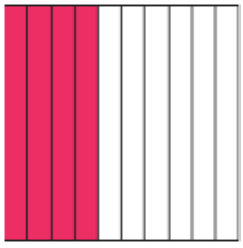


When you say "percent" you are really saying "per 100".
So 50% means 50 per 100
50% of this box is green

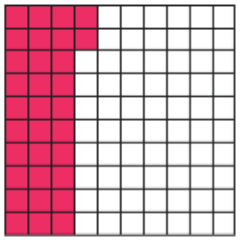


Task 1:

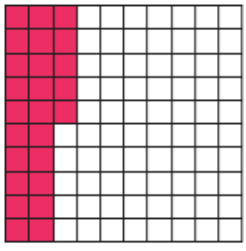
Match each model with the correct decimal.



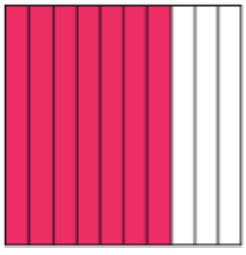
0.25



0.7



0.4



0.32

Task 2: My Drawing!

Can you draw a model to represent the decimal 0.65?

My drawing!

Task 3: Vocabulary check.

Match each word with the correct example.

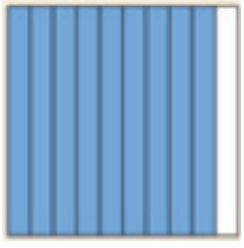
fraction
decimal
decimal point
model
percent

$\frac{7}{10}$

0.35

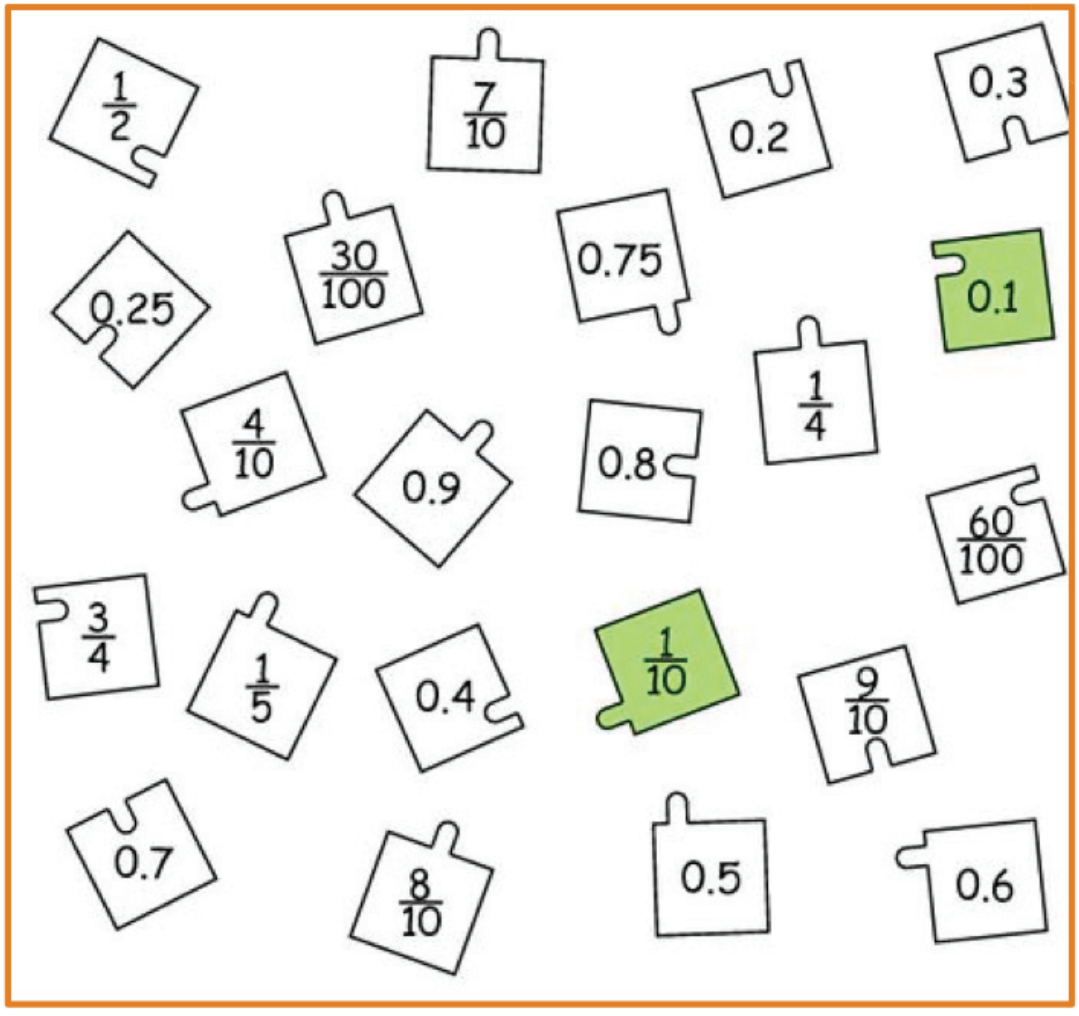
0.25

%



Task 4: PUZZLE FRACTIONS?

Colour two puzzles pieces the same colour that match the fraction and decimal. e.g. $\frac{1}{2}$ | 0.5 $\frac{1}{2} = 0.5$ One has been done for you.



TODAY'S MATHEMATICS KEYWORDS

Look at the keywords on this chart. Write the meaning and example or draw a picture for each word in the box below.

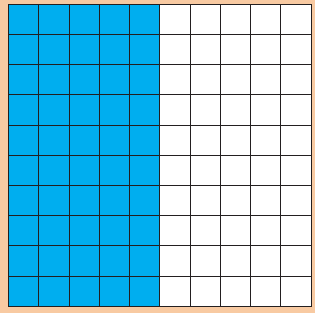
KEYWORD	DEFINITION	PICTURE or EXAMPLE
fraction		
decimal		
decimal point		
model		
percent percentage		

FOLDABLES

Use this foldable to write fractions as decimals.

MY Foldable

FOLDABLES Follow the steps on the back to make your Foldable.

Fractions	Decimals	Models
$\frac{1}{2}$	0.5	

FOLDABLES

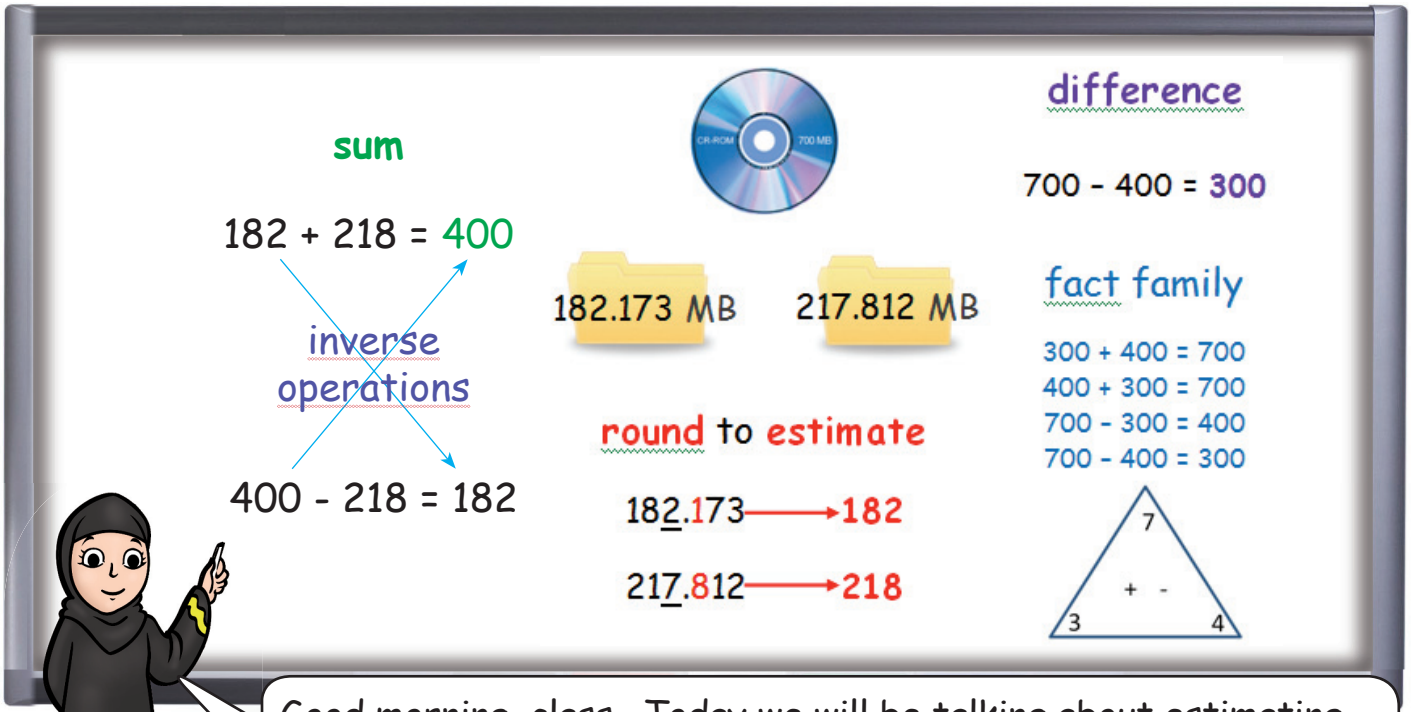
Study Organizer

How do I make it?

1. Tear out the page and cut off the top banner.
2. Fold along the lines to define three columns.

ESTIMATING SUMS AND DIFFERENCES

KEYWORDS: sum difference round estimate fact family inverse operations



Good morning, class. Today we will be talking about estimating sums and differences. Let's round the megabytes on each file in our CD to make an estimate of how much space we have used. Khalid, can you explain what we mean by round and estimate?

Yes, Mrs. Amna. We **round** a number to make it easier to work with, and an **estimate** is about how much a number is. An estimate is not exact.

We can add the numbers to find a **sum**, which is the answer. When we subtract numbers, the answer is called the **difference**. Addition and subtraction are **inverse operations** because they are opposites.

I see addition and subtraction with the same three numbers in the **fact family** on the board. The three numbers are related.

Task 1:

Draw lines to match the keyword with the example.

1	round	a) 700 – 400 = 300
2	inverse operation	b) 182 + 218 = 400 400 – 218 = 182
3	difference	c) 218.812 ⟶ 219
4	fact family	d) 217.812 + 182.173 The sum is about 400.
5	sum	e) 300 + 400 = 700 400 + 300 = 700 700 – 400 = 300 700 – 300 = 400
6	estimate	f) 182 + 218 = 400

Task 2:

Write the keyword from the box below to complete each sentence.

sum difference round estimate fact family
inverse operations

1. Addition and subtraction are ..... .
2. The answer in subtraction is the ..... .
3. We ..... numbers to get numbers that are easy to work with.
4. The ..... is the answer in addition.
5. A ..... is a group of related facts that use the same numbers.
6. An ..... is a number close to the exact value.

Task 3:

Circle the correct answer. Is it a, b or c?

1. Which numbers can make an addition-subtraction fact family?
   a) 9, 1, 6 **b)** 3, 4, 7 **c)** 10, 3, 5

2. If you round 217.812 to the nearest whole number you will get ..... ?
   a) 217.8 **b)** 217 **c)** 218

3. An answer that is about the same as the exact value is a/an .....
   a) difference **b)** estimate **c)** sum

4. Subtraction and addition are ..... operations.
   a) inverse **b)** estimate **c)** round

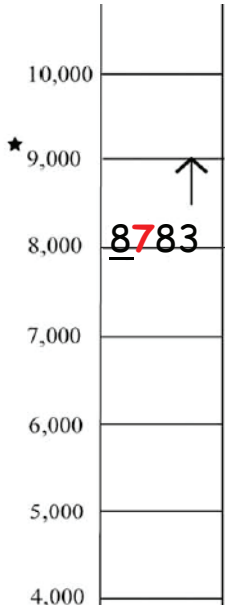
5. We can ..... a number to make it easier to work with.
   a) inverse **b)** estimate **c)** round

6. When I subtract two numbers I get the .....
   a) difference **b)** estimate **c)** sum

Task 4:

Read the words to the estimating ladder song.

Climb the estimating ladder, if you please.
It makes rounding numbers to the **thousands** a breeze.
Take the **thousands** for your number and to that rung go.
Should you stay there or move up? The **hundreds** will tell you so.
If it's four or less you stay on that rung as before.
If it's five or over you will step up one rung more.
Climb the estimating ladder. You will be so much better rounding numbers. You will see!



Task 5: POSTER TIME!

On this page draw a poster to teach someone about your favorite keyword in this lesson.

Keyword:

TODAY'S MATHEMATICS KEYWORDS

Can you remember these keywords?
Write the correct keyword from the box below for each definition.

sum **difference** **round** **estimate** **fact family**
inverse operation

KEYWORD	DEFINITION	PICTURE or EXAMPLE
	A group of related facts using the same numbers.	300 + 400 = 700 400 + 300 = 700 700 – 400 = 300 700 – 300 = 400
	The answer in a subtraction problem	700 – 400 = 300
	To change the value of a number to one that is easier to work with.	218.812 → 219
	A number close to an exact value. About how much.	218.812 + 182.173 The sum is about 400.

KEYWORD	DEFINITION	PICTURE or EXAMPLE
	The answer in an addition problem.	182 + 218 = 400
	Opposite operations that undo each other, such as addition and subtraction.	182 + 218 = 400 400 – 218 = 182

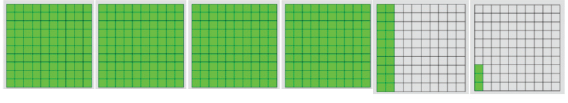
DECIMALS, ADDITION & SUBTRACTION REVIEW

KEYWORDS: decimal, decimal point, addition, sum, subtraction, difference, estimating, rounding

Decimals

4.23

decimal point



addition +

23.147
+ 5.800
28.947

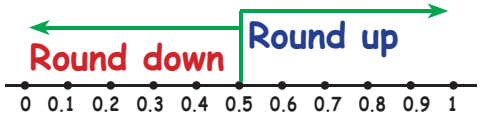
sum

subtraction -

5.774
- 2.171
3.603

difference

rounding



5.774 ≈ 6

estimating

A **decimal** number is a number that uses a **decimal point** followed by digits as a way of showing values less than one.

The **decimal point** separates the whole number from values less than one. For example, in the number 4.23, there are 4 whole parts and .23, or twenty-three hundredths, of one whole number.

Adding and subtracting decimals is just like adding and subtracting whole numbers! In **addition**, we put 2 or more numbers together to find the **sum**. **Subtraction** is when we take one number away from another to find the **difference**.

That's right, Khalid. **Rounding** decimals is also like **rounding** whole numbers.
You can **round** to **estimate** numbers. **Estimating** is easy. You can do it in your head. It can help you check your answers.

Look at this problem, Mrs. Amna.

5.774-2.171

We can round up 5.775 to 6.
We can **round down** 2.171 to 2.
So we can **estimate** the answer:
6 - 2 is 4.
My answer should be close to 4.

Great work, Faisal!

$$\begin{array}{r} 5.774 \\ -\ 2.171 \\ \hline 3.603 \end{array}$$

Task 1: Label.

You can use some words more than once.

addition subtraction sum difference round estimate

a .....

$$\begin{array}{r} 50.53 \\ +\ 43.02 \\ \hline 93.55 \end{array}$$

r .....

$$\begin{array}{r} 51 \\ +\ 43 \\ \hline 94 \end{array}$$

s .....

s .....

e .....

s .....

$$\begin{array}{r} 93.55 \\ -\ 43.02 \\ \hline 50.53 \end{array}$$

r .....

$$\begin{array}{r} 94 \\ -\ 43 \\ \hline 51 \end{array}$$

d .....

e .....

Task 2: MATCH

Can you make sentences?

1. In addition
2. I can round
3. In subtraction
4. I estimate
5. A decimal number

a) I find the difference.

b) to estimate the answer.

c) I find the sum.

d) has a decimal point, to separate the whole part from the fractional part.

e) to check if my answer is reasonable.

Task 3: LET'S TALK!

What's the sum of 5.5 + 3.212?

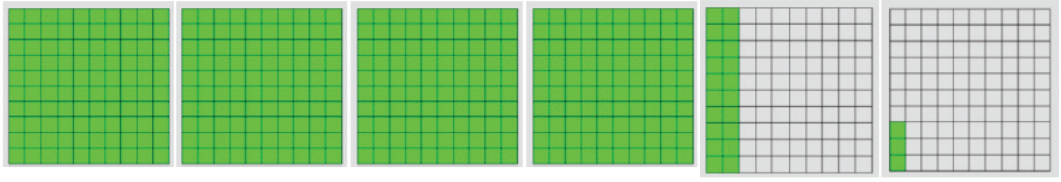
Well I can estimate . . .

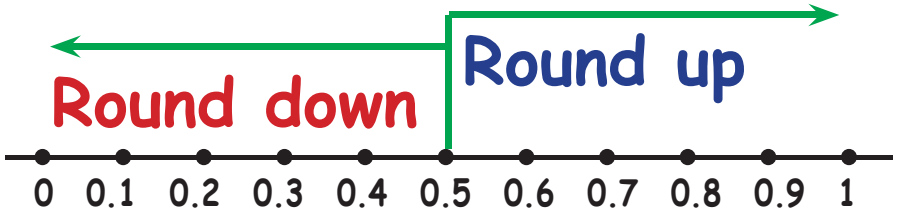
I can round 5.5 to . . .
and 3.212 to . . .

So the estimated sum is . .

The estimate is . . .
the answer is . . . We must be right!

Let me figure out the real answer.
The sum is . . .





TODAY'S MATHEMATICS KEYWORDS

Look at the keywords on this chart. Write the meaning and example or draw a picture for each word in the box below.

decimal **decimal point** **addition** **sum**
subtraction **difference** **estimating** **rounding**

KEYWORD	MEANING	PICTURE or EXAMPLE
	A number that has a whole part, a point, and a fractional part.	**67.235**
		134.04 - 40.49 93.55
decimal point		**5.89**
	To put two or more numbers together to find the sum.	

KEYWORD	MEANING	PICTURE or EXAMPLE
	The answer to an addition problem.	23.147 + 5.8 = 28.947
	The answer to a subtraction problem.	
	Rounding numbers up or down to find an approximate answer.	23.147 + 5.8 ≈23 + 6 = 29
rounding		

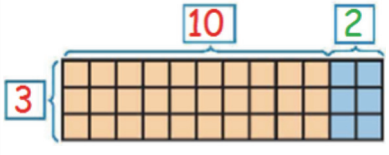
MULTIPLICATION

KEYWORDS: multiplication factor product multiply multiplication sentence partial product

MULTIPLICATION

$3 \times 12 = 36$

factor factor product



partial products

$3 \times 10 + 3 \times 2$

multiplication sentence

Good morning, class! Today we will be talking about **multiplication**.

Multiplication is repeated addition. A number sentence with the symbols x and = is called a multiplication sentence.

3 x 12 = 36 is a **multiplication sentence**.

What do we multiply together?

I know that we multiply **factors** together to find the **product**. For example: 3 x 12 = 36.

3 and 12 are the factors.

And Mrs Amna, 36 is the **product** and that is the answer!

Well done, class!.
We can also use **partial products** to multiply. All you need to do is use the expanded form of a number. For example:
3 x 12 is the same as 3 x 10 + 3 x 2.

Task 1:

Draw lines to match the keyword with the picture or example.

1 multiplication	**a)** 1 x 6 = 6
2 partial product	**b)** repeated addition
3 factors	**c)** 3 x 10 + 3 x 2
4 product	**d)** A number sentence with the symbols x and = .
5 multiplication sentence	**e)** 3 x 4 = 12

Task 2:

Use the keywords in the box below to complete each sentence.

multiplication factors product

1. In the problem 3 x 4 = 12, three and four are ..... .
2. Five times two is an example of a ..... problem.
3. The answer in multiplication is called the ..... .

Task 3: BUBBLE MAP!

Complete the bubble map.

Write an example or draw a picture about each word.

multiplication

multiplication sentence

factor

product

FUN WITH FLASHCARDS

CUT _____ FOLD | STUDY | PLAY

multiplication

5x14

14+14+14+14+14

multiply

factor

4 x 8 = 32

partial product

2 x 36 =

30 + 6

(2 x 30) + (2 x 6) =

60 + 12 = 72

product

3 x 3 = 9

multiplication sentence

3 x 12 = 36

PLAY WITH FLASHCARDS

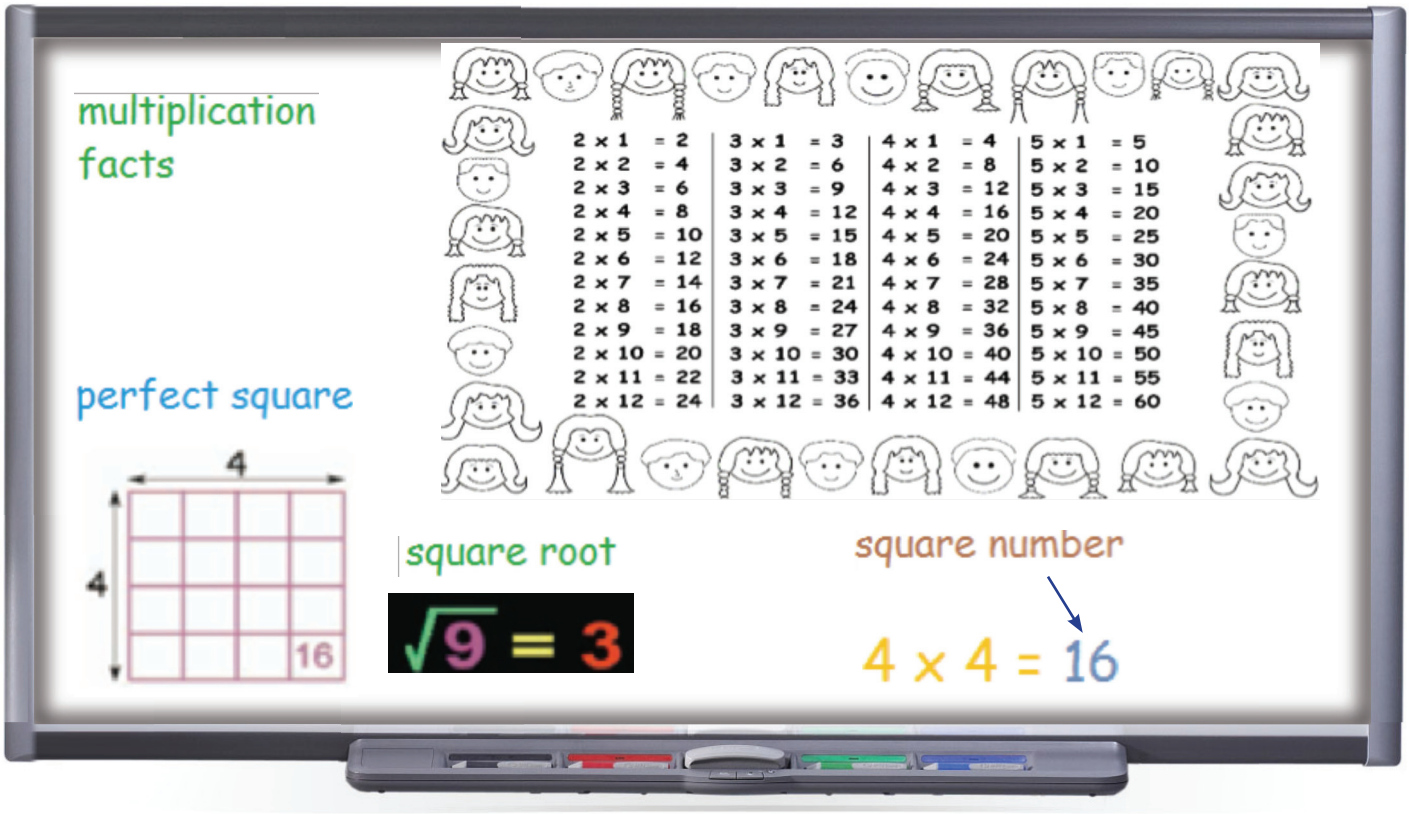
You Need: 2 sets of flashcards. Play with a partner.

1. Put one set of cards picture side up. Put the other set definition side up.
2. Take turns. Can you match the pictures to the correct definitions?

This *symbol* means to add one number repeatedly a given number of times.	Repeated addition.
A way of doing mental multiplication, using expanded form.	The answer to a multiplication problem.
A number sentence with the symbols x and =.	A number that is multiplied by another number.

SQUARE NUMBERS AND SQUARE ROOTS

KEYWORDS: perfect square square root square number multiplication facts



This week, we have been learning about multiplication.

We have to memorize our **multiplication facts**. We will learn to say each fact quickly and without calculating.

For example, 4 x 4 = 16, 4 x 5 = 20.

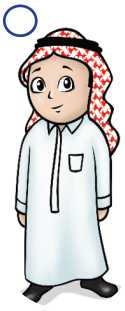
Now, class, we will learn about square numbers and square roots.

Who can tell us about square numbers??

Well, Mrs Amna, I know that a square number is the number you get when you multiply an integer by itself.

For example, 4 × 4 = 16, so 16 is a square number.

The first few square numbers are:
0 (=0×0)
1 (=1×1)
4 (=2×2)
9 (=3×3)
16 (=4×4)
25 (=5×5)



Mrs. Amna, I know that a **perfect square** is a number made by squaring a whole number. 16 is a perfect square because $4^2 = 16$

The **square root** of a number is a value that, when multiplied by itself, gives the number.
For example: 4 × 4 = 16, so the square root of 16 is 4.
The symbol is √.
Here's another example: √36 = 6 (because 6 x 6 = 36).

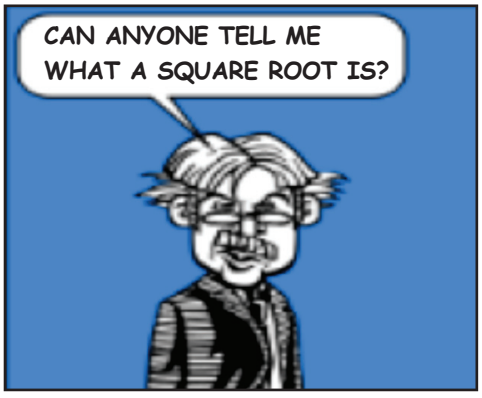
Task 1: Vocabulary check!

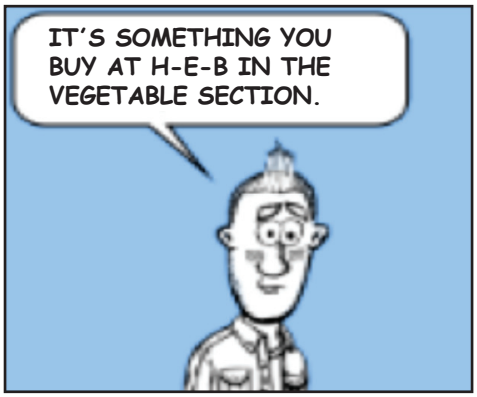
Draw lines to match the keyword with the picture or example.

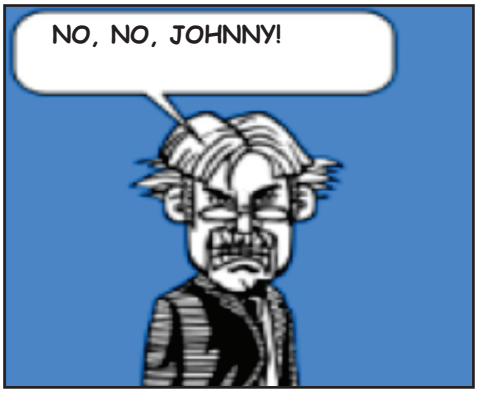
square number	5 x 5 = 25
multiplication facts	√64 = 8
perfect square	$7^2 = 49$
square root	2 x 2 = 4, 2 x 3 = 6, 2 x 4 =8, 2 x 5 = 10

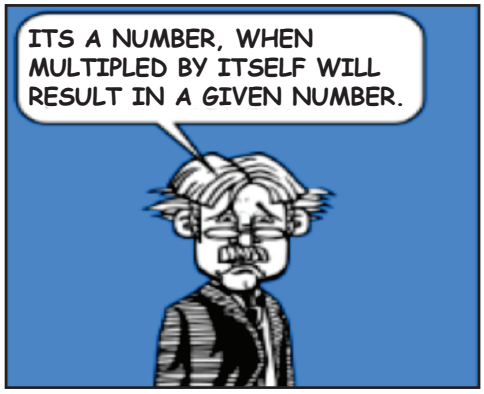
Task 2: COMIC TIME!

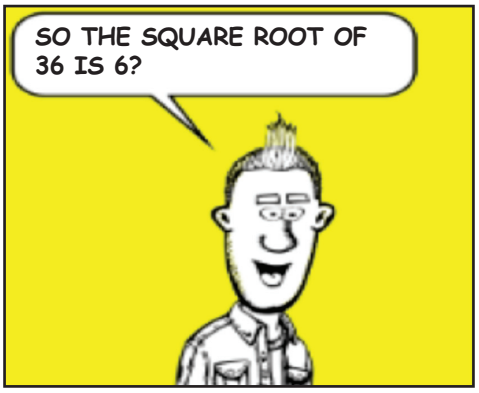
Read the comic strip below on square roots.

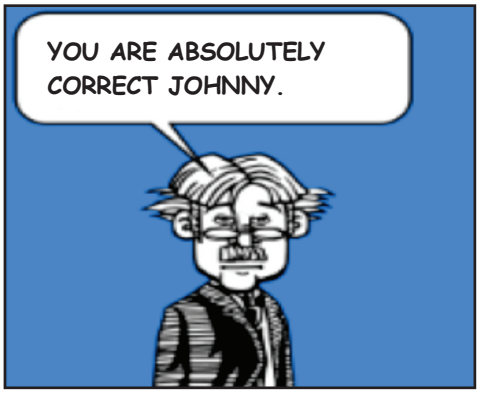






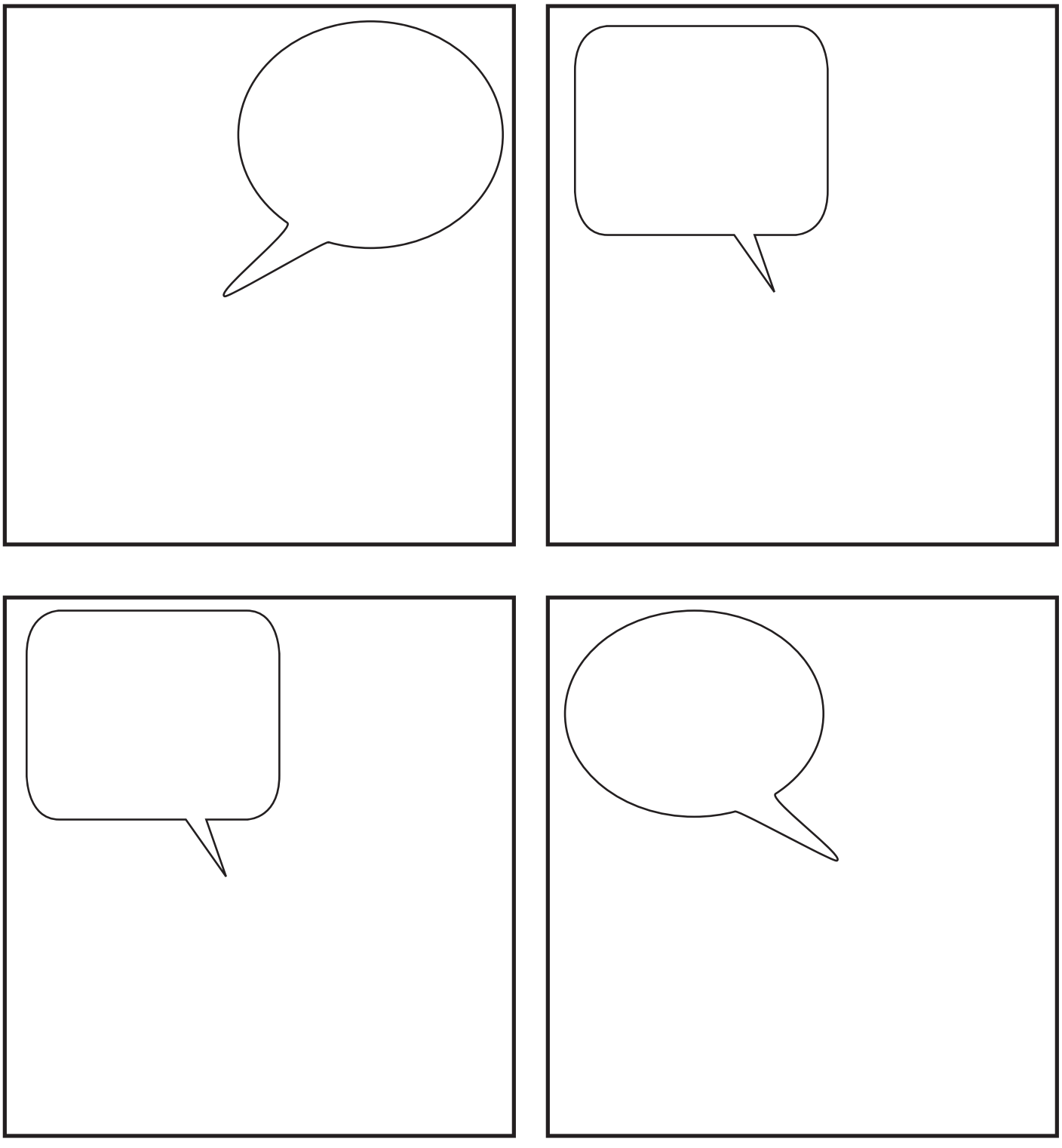






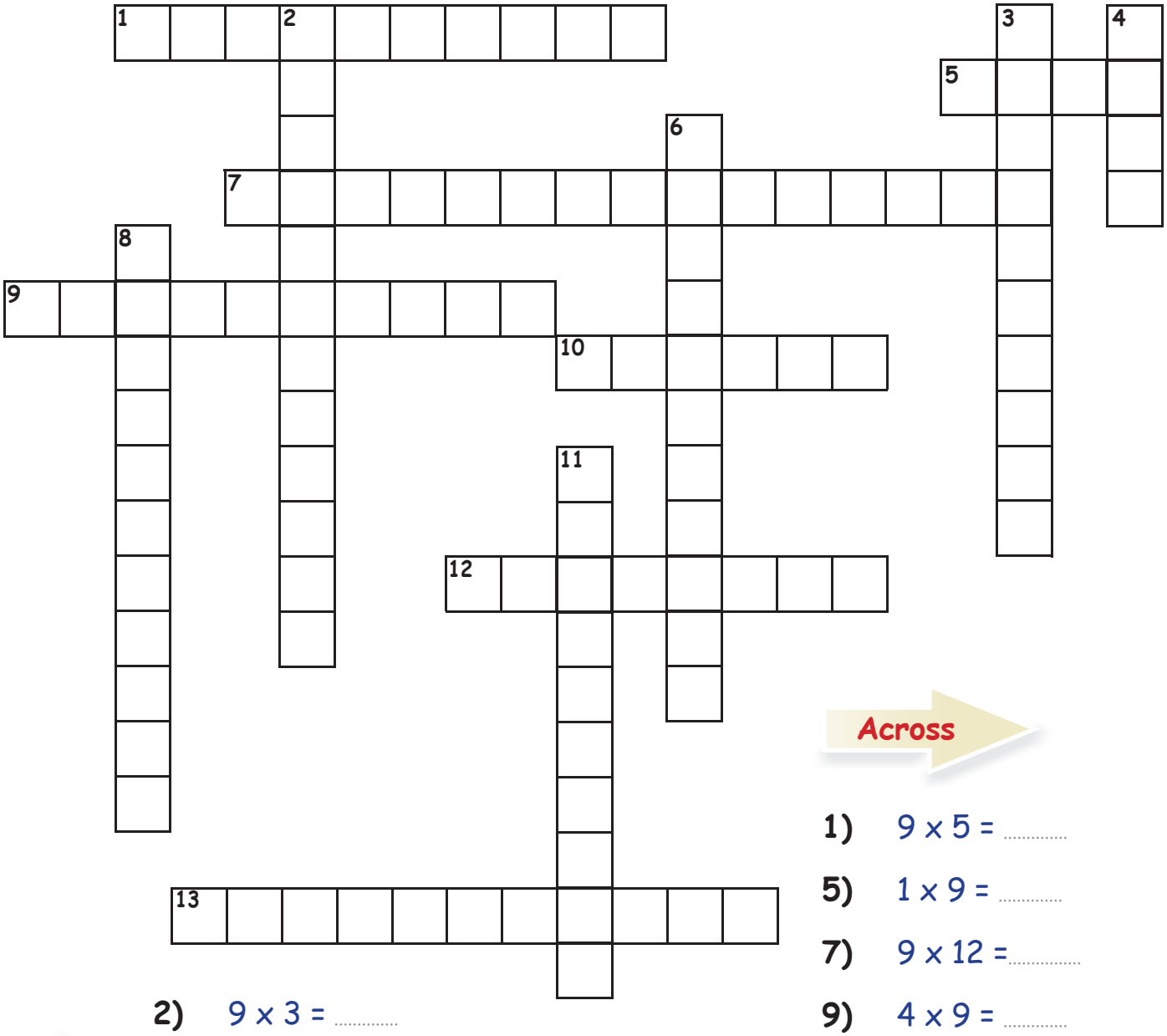
NOW create your OWN comic strip using any of the keywords in today's lesson. Use the template below

perfect square square root square number multiplication facts



Task 3: PUZZLE TIME!

Multiply. Write the number word for each product in the puzzle. Don't forget the hyphens!



Across

1) 9 x 5 = ...
5) 1 x 9 = ...
7) 9 x 12 = ...
9) 4 x 9 = ...
10) 10 x 9 = ...
12) 2 x 9 = ...
13) 9 x 11 = ...

Down

2) 9 x 3 = ...
3) 6 x 9 = ...
4) 0 x 9 = ...
6) 9 x 8 = ...
8) 7 x 9 = ...
11) 9 x 9 = ...

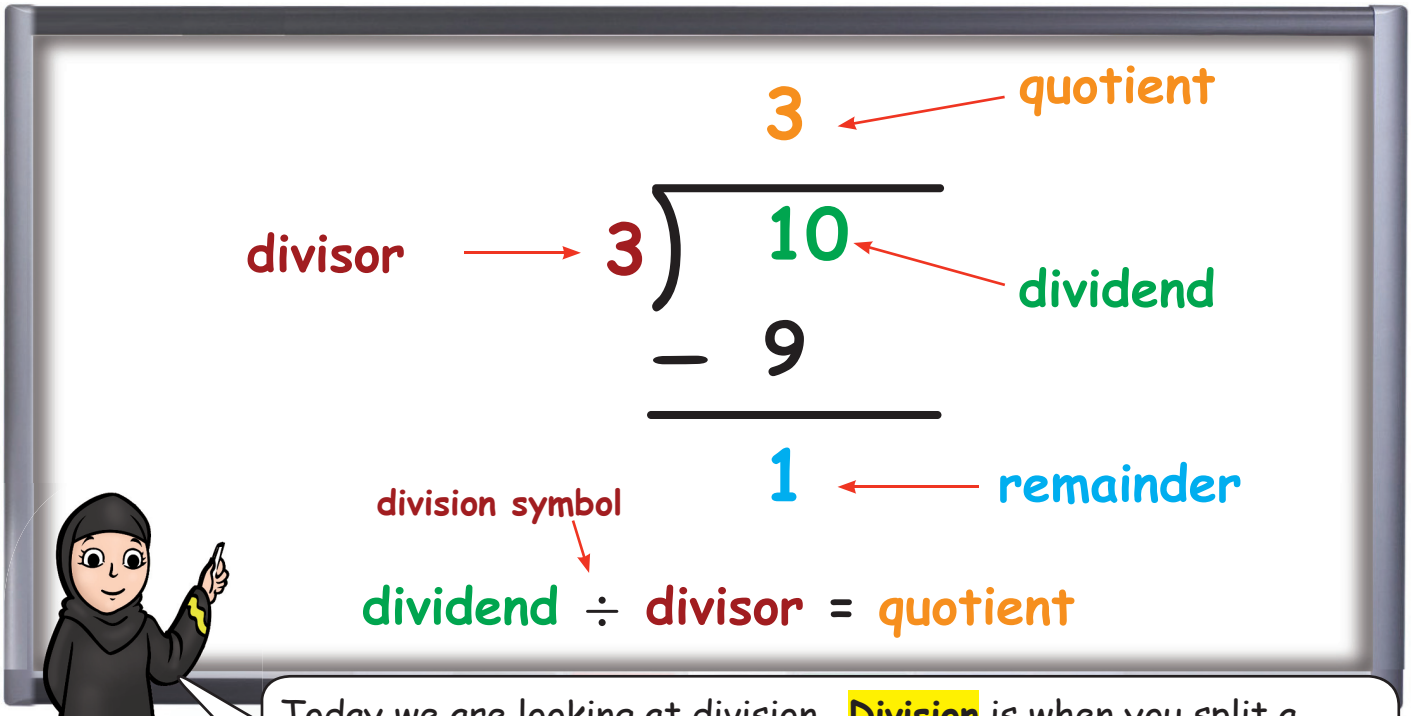
TODAY'S MATHEMATICS KEYWORDS

Look at the keywords on this chart. Write the meaning and example or draw a picture for each word in the box below.

KEYWORD	MEANING	PICTURE or EXAMPLE
perfect square		
square root		
square number		
multiplication facts		

DIVISION

KEYWORDS: division quotient divisor dividend remainder



Today we are looking at division. **Division** is when you split a large number into equal groups of smaller numbers.

Do you remember the special names for each number in division that we use, Nasser?

Yes Mrs. Amna, I do! dividend ÷ divisor = quotient

example: 12 ÷ 3 = 4
12 is the dividend
3 is the divisor
4 is the quotient

Well done, Nasser! You remember everything!

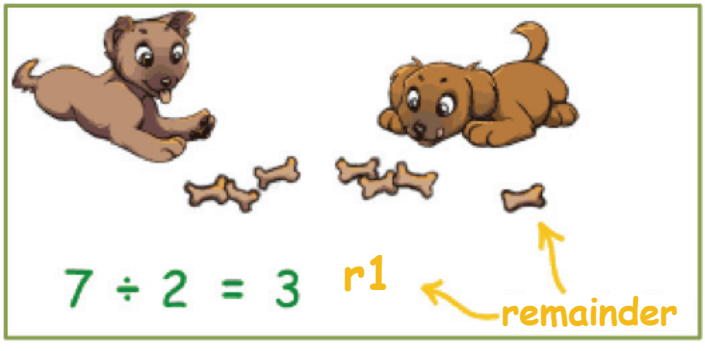
The **dividend** is the number we want to **divide**. ÷

The number of groups is the **divisor**, and the amount in each group is the quotient.

The **quotient** is the answer in division .

Sometimes you cannot divide things up evenly. There may be something left over.

For example: There are 7 bones to share with 2 pups. But 7 cannot be divided exactly into 2 groups, so each pup gets 3 bones, but there will be **1 left over**.



I know, Mrs Amna. The amount left over after we divide is called the **remainder**.

Great job, class!

Sometimes when dividing, there is something left over. It is called the remainder.

19 ÷ 5 = 3 r4

Task 1: **Label the equation.** Use the words in the box below.

dividend divisor quotient remainder

$$\begin{array}{r} 4 \\ 4\overline{)19} \\ -\,16 \\ \hline 3 \end{array}$$

Task 2: **My Keywords!**

Read the word problem and complete each blank.

My Keywords dividend divisor quotient

Nasser has 36 ducks in his pond.
They live in groups. Each group has 9 ducks.
How many duck groups are there?

The total number of ducks is ..... . This number represents the .....

There are ..... ducks in each group. This number represents the .....

The number of groups living in the pond represents the .....

My Drawing!

Can you draw a picture to represent Nasser's word problem? Don't forget to label your drawing with the keywords.

My drawing!

Task 3: Vocabulary check.

Match each word with the correct meaning or example.

1. division symbol
2. dividend
3. divisor
4. quotient
5. remainder

a) $12 \div 3 = 4$

b) The number that is being divided.

c) The number that is left over after we divide.

d) The result of a division problem.

e) ÷

TODAY'S MATHEMATICS KEYWORDS

Create your own vocabulary cards for today's keywords. The first one is done for you.

quotient

$76 \div 4 = 19$

The answer to a division problem.

divisor

dividend

remainder

division

PROBLEM SOLVING

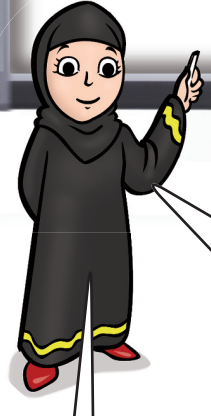
KEYWORDS: **understand** **plan** **solve** **check**

The Bactrian camel has two humps,
while the Dromedary camel has only one.
Amina counted 19 camels with a total of 27 humps.
How many camels of each type are there?

1. understand
2. plan
3. solve
4. check

Bactrian

Dromedary



Class, in this lesson we will be working on problem solving. Problem solving lets us use what we have learned in real life. Today we will use our addition and multiplication skills. Look at the board.

Mrs. Amna, there are lots of words in that problem. I don't know what to do first. Can you help me?

It's easy to follow the steps of problem solving. Step 1 is **understand**. **Understand** means to make sure you know all the information that the problem is giving you, and what the question is asking you to find.

The Bactrian camel has **two humps**,
while the Dromedary camel has only **one hump**.
Amina counted **19 camels** with a total of **27 humps**.
How many camels of each type are there?

The second step is **plan**. **Plan** means to decide what strategy you should use.

I know! My **plan** is guess and check. I am going to try different combinations, until I find the right answer.

Guess: 10  and 9 
Check: 10 x 2 = 20 humps
9 x 1 = 9 humps
20 + 9 = 29 (too high)

Guess: 7  and 12 
Check: 7 x 2 = 14 humps
12 x 1 = 12 humps
14 + 12 = 26 (too low)

Very good, Fatma! Keep guessing and checking until you **solve** the problem . **Solve** means to find the answer.

The answer is
8  and 11  .

Guess: 8  and 11 
Check: 8 x 2 = 16 humps
11 x 1 = 11 humps
16 + 11 = 27 ✔

Don't forget to **check** your answer. **Check** means to look back and make sure your answer is correct.

8 + 11 = 19 camels.

16 + 11 = 27 humps.

Task 1: Label.

Label each problem solving step.

understand | plan | solve | check

Alaa sees 14 wheels on 6  .

How many  are there?

Guess: 4  and 2 
Check: 4 x 2 = 8 wheels
2 x 3 = 6 wheels
8 + 6 = 14 ✔

4 + 2 = 6 
8 + 6 = 14 wheels

Guess: 5  and 1 
Check: 5 x 2 = 10 wheels
1 x 3 = 3 wheels
10 + 3 = 13 (too low)

Guess: 3  and 3 
Check: 3 x 2 = 6 wheels
3 x 3 = 9 wheels
10 + 9 = 15 (too high)

Task 2: LET'S TALK!

What does understand mean?

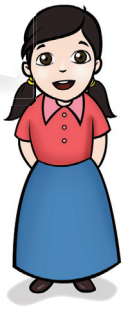
How do you make a plan?

What does solve mean?

How can you check your answer?

It means . . .

I . . .



Task 3: MATCH!

1	understand	**a)** to decide what strategy you should use.
2	solve	**b)** to find the answer.
3	check	**c)** making sure you know all the information that the problem is giving you, and what the question is asking you to find.
4	plan	**d)** to look back and make sure your answer is correct.

TODAY'S MATHEMATICS KEYWORDS

Complete the table . Match the keywords listed below with either the meaning, picture or example. Fill in all blanks in all columns: keywords, meaning, picture or example.

understand plan solve check

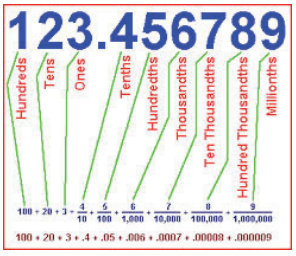
KEYWORD	MEANING	PICTURE or EXAMPLE
	Making sure you know all the information that the problem is giving you, and what the question is asking you to find.	
		Guess and Check Guess: 5  and 1  Check: 5 x 2 = 10 wheels 1 x 3 = 3 wheels 10 + 3 = 13 (too high)
solve		
	To make sure your answer is correct.	4 + 2 = 6  8 + 6 = 14 wheels

GRADE 5 SEMESTER 1 REVIEW

Task 1: Can you remember the keywords?

Write the correct keyword for each definition from the box below.

standard form expanded form word form
place value chart

KEYWORD	DEFINITION	PICTURE or EXAMPLE
	A chart that shows how much each digit in a number is worth.	
	The way we usually write numbers.	429
	The way we say our numbers.	Four hundred twenty-nine
	A way to write numbers that shows the place value for each digit.	400 + 20 + 9

Task 2: **Use the keywords from the box below to label these pictures.**

dividend	divisor	quotient

Read and solve the word problem. Use the keywords to complete the graphic organizer.

Our class of 20 students will go on a trip to the zoo. We will need to divide equally into 5 cars. How many students will ride in each car?

$20 \div 5 =$ ____

20 students	5 cars	4 students in each car
_____	_____	_____

Task 3: **MATCHING**

Draw lines to match the words with the correct numbers or picture

1. multiple
2. common factor
3. prime number
4. composite number

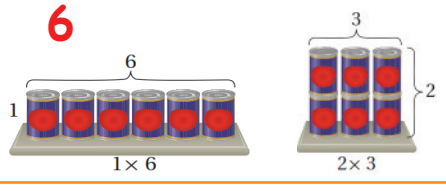
a)

18	1,	2,	3, 6, 9, 18
20	1,	2,	4, 5, 20

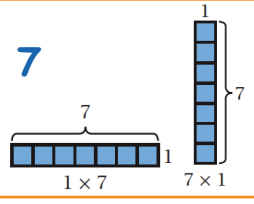
b)

7	14	21	28	35	42	49	56	63	70

c)



d)



Task 4: MULTIPLE CHOICE!

Complete the sentences. Choose a, b or c.

1. The number that is left after dividing is the .....

   a) partial products **b)** remainder **c)** compatible numbers

2. The ..... of 327 is 300 + 20 + 7.

   a) remainder **b)** compatible numbers **c)** expanded form

3. Numbers that are easy to work with mentally are .....

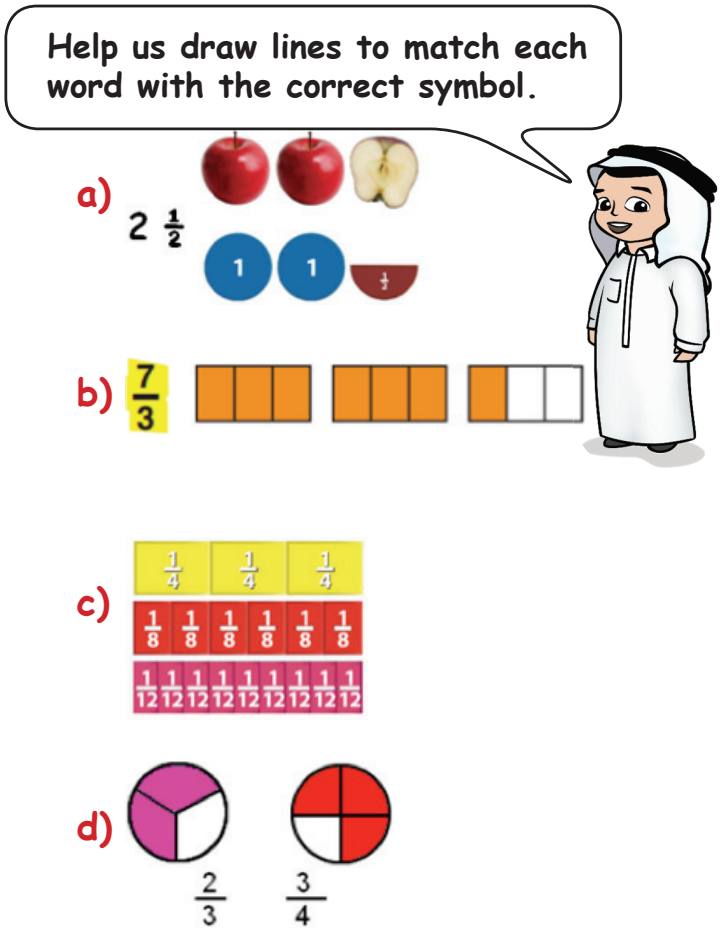
   a) compatible numbers **b)** expanded form **c)** partial products

4. We use ..... when we multiply each place value separately and then add them together.

   a) expanded form **b)** partial products **c)** remainder

Task 5: MATCHING .

1. equivalent fractions
2. unlike fractions
3. mixed number
4. improper fraction



Task 6: **LET'S DRAW!** **Choose any keyword that you learned this year. What is your favorite? Draw a poster to show the meaning of the word.**

My favorite keyword is

.....

decimal point

A number with a decimal point that separates the whole number from the fraction.

perfect square

product

division

An operation on two numbers in which the first number is split into the same number of equal groups as the second number.

hundredths

38.194

The second place to the right of the decimal point.

mixed number

fraction

place value chart

WHOLE NUMBERS				DECIMAL POINT	DECIMAL NUMBER		
thousands	hundreds	tens	ones		tenths	hundredths	thousandths
2	3	9	7	•	5	6	3

A place value chart tells us how much each digit in a number is worth.

C

check
(pg. 92)

4 + 2 = 6

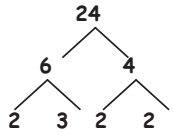
8 + 6 = 14 wheels

To look back and make sure your answer is correct.

compare fractions $\frac{1}{4} < \frac{1}{2}$
(pg. 35)

To decide which fraction is greater than, less than or equal to another

composite number
(pg. 12)



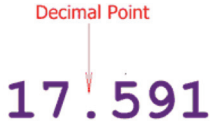
A number with more than 2 factors.
Ex: 24 is a composite number.

D

decimal 17.591
(pg. 55)

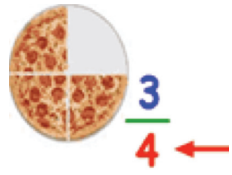
A number with a decimal point that separates the whole number from the fraction.

decimal point
(pg. 35, 55)



A period separating the ones and the tenths in a decimal number.

denominator
(pg. 19)



The bottom number in a fraction; it tells us how many parts in the whole.

difference 5.774 - 2.171 = 3.603
(pg. 63)

The answer in a subtraction problem.

digit
(pg. 48)

The symbols 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 that are used to write a whole number.

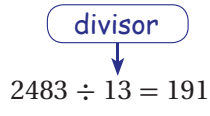
dividend
(pg. 87)

The number we want to divide.

division 3682÷21= 175 r7
(pg. 87)

An operation on two numbers in which the first number is split into the same number of equal groups as the second number.

divisor
(pg. 87)

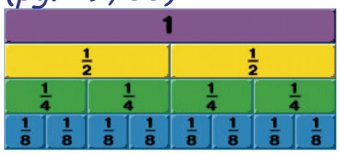


The number of groups you want to divide a number into.

GLOSSARY

E

equivalent fractions
(pg. 29, 35)

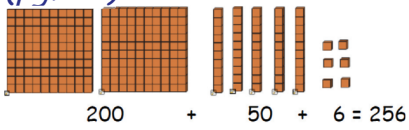


Fractions that have the same value.

estimate
$5.774 \approx 6$
(pg. 63)

Finding a number that is close to the exact value.

expanded form
(pg. 48)



A way to write numbers that shows how us how the different place values add up to make the total number.

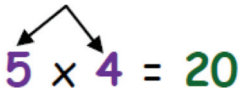
F

fact family
(pg. 63)

A group of related facts using the same numbers.

2, 3, 6
2 x 3 = 6
3 x 2 = 6
6 ÷ 2 = 3
6 ÷ 3 = 2

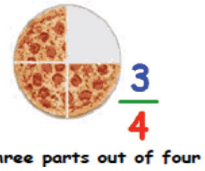
factor
(pg. 12, 75)



A number that is multiplied by another number

fraction
(pg. 19, 55)

A number that describes part of a whole or part of a set.



H

hundredths
38.194
(pg. 42)

The second place to the right of the decimal point.

I

improper fraction
Larger (or equal) → 9/5 ← Smaller (or equal)
(pg. 19)

The numerator is greater than or equal to the denominator.

GLOSSARY

L

like fractions

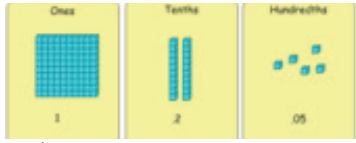
(pg. 29, 35)
Fractions that have the same denominator.

M

mixed number $2\frac{1}{2}$

(pg. 29, 35)
A mixed number has a whole part and a fraction part.

model 1.25 =



(pg. 55)
To make an example.

multiple

Multiples of 5 are 5, 10, 15, 20, 25, ...
Multiples of 15 are 15, 30, 45, ...

(pg. 12)
The product of a number and any other whole number.

multiplication

$$\begin{array}{r} {\scriptstyle 132} \\ {\scriptstyle 11} \\ 7275 \\ \times\ 52 \\ \hline 14550 \\ +\ 363750 \\ \hline 378300 \end{array}$$

(pg. 75)
An operation on two numbers to find their product. It can also be thought of as repeated addition.
3 x 6 = 18; 6 + 6 + 6 = 18

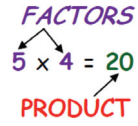
multiplication facts

(pg. 81)
The times tables from 0 x 0 = 0 to 10 x 10 = 100.

multiplication sentence 3 x 12 = 36

(pg. 75)
A math statement with numbers and the signs x and =.

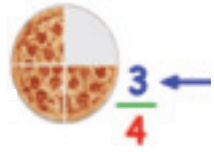
multiply



(pg. 7)
To find the product of two or more numbers.

N

numerator



(pg. 19)
The top number in a fraction; it tells us how many parts we have.

O

ones

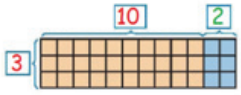
	DECIMAL	
ones	POINT	tenths
7	●	5

(pg. 42)
The first place to the left of the decimal point.

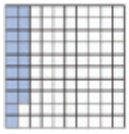
GLOSSARY

order fractions
(pg. 35)
To put fractions in place according to a rule.

P

partial products


(pg. 75)
Finding the products of each place value separately, and then adding the products together.

percent %


(pg. 55)
Parts per 100. Always used with a number.

percentage
(pg. 55)
A general statement, without a number, of parts per hundred. Example: A high percentage of the students passed the test.

perfect square
(pg. 81)
A number made by squaring another number.

period
(pg. 48)

THOUSANDS Period			ONES Period		
hundred thousands	ten thousands	thousands	hundreds	tens	ones
		1 ,	8	1	3

The name given to each group of three digits on a place-value chart.

place value
(pg. 48)

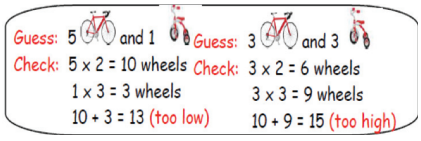
Thousands	Hundreds	Tens	Ones
5	8	9	5

The place of each digit in a number tells you how much that digit is worth.

place value chart
(pg. 48)

WHOLE NUMBERS				DECIMAL POINT	DECIMAL NUMBER		
thousands	hundreds	tens	ones		tenths	hundredths	thousandths
2	3	9	7	.	5	6	3

A place value chart tells us how much each digit in a number is worth.

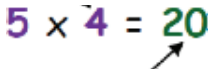
plan


(pg. 92)
To decide what strategy you should use to solve a problem.

prime number
The first ten prime numbers are:
2 3 5 7 11 13 17 19 23 29
(pg. 12)
A number with only two factors, 1 and itself.

GLOSSARY

product *(pg. 75)*



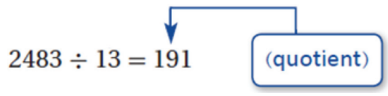
The answer in a multiplication problem.

proper fraction *(pg. 19)*

A fraction in which the numerator is always less than the denominator.

Q

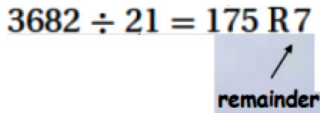
quotient *(pg. 87)*



The answer to a division problem.

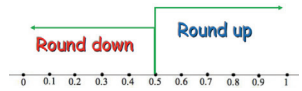
R

remainder *(pg. 87)*



The number that is left over after one whole number is divided by another.

round/rounding *(pg. 63, 69)*



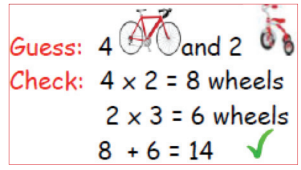
To change a number to another number that is easier to work with.

S

simplify *(pg. 35)*

To divide the numerator and denominator by a common factor.

solve *(pg. 92)*

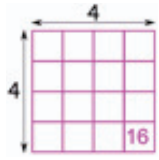


To find the answer.

square root *(pg. 81)*

The value that, when multiplied by itself, gives that number.

square number *(pg. 81)*



The product of a number multiplied by itself.

Example: 4 x 4 = 16

GLOSSARY

standard form 256
(pg. 48)
The way we usually write numbers, using digits.

sum 23.147 + 5.8 = 28.947
(pg. 63)
The answer in an addition problem.

T

tenths
(pg. 42)

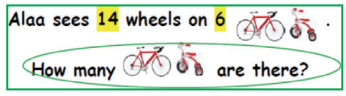
	DECIMAL POINT	
ones		tenths
7	•	5

The first place to the right of the decimal point.

thousandths 69.327
(pg. 42)
The third place to the right of the decimal point

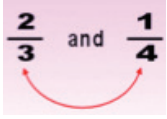
U

understand
(pg. 92)



Making sure you know all the information that the problem is giving you, and what the question is asking you to find.

unlike fractions
(pg. 29, 35)



Fractions that have different denominators.

W

word form two hundred fifty-six
(pg. 48)
The way we say or write numbers in words.

SCIENTIFIC ENGLISH

SCIENCE

GRADE 5

GRADE 4 VOCABULARY REVIEW

TODAY'S SCIENCE KEYWORDS

Look at some of the keywords from grade 4! Write the meaning of the word and draw a picture or give an example. The first one is done for you!

KEYWORD	MEANING	PICTURE or EXAMPLE
reptiles		
waterland		
tropical rain forest		
pollution		

GRADE 4 VOCABULARY REVIEW

KEYWORD	MEANING	PICTURE or EXAMPLE
solid/liquid/gas		
condensation		
magnetic		
magnet		
sound vibrations		
sound reflectionn		

BASIC NEEDS

KEYWORDS: organism offspring food air water shelter

Hello! Today we are talking about **basic needs**!.

What does that mean, Faisal?

I know about basic needs for organisms. If something is living, we call it an **organism**. An organism needs the following: **food**, **air**, **water**. and a **shelter** (to protect it self from other organisms and the weather, for example, a burrow for a rabbit!). Organisms can produce offspring – this is how they increase in numbers. Can you discuss the picture on the screen and tell us how these needs are met?

Task 1: NOW IT'S YOUR TURN TO WRITE!

Work in pairs and write your answers!

Food	
Water	
Air	
Shelter	

Task 2: MULTIPLE CHOICE!

Choose the correct answer. Is it a, b or c?

1. A / An ..... is a living thing.

   a) organism **b)** clock **c)** mobile phone

2. In order to increase their numbers, organisms have more...

   a) food **b)** offspring **c)** shelter

3. A ..... is a place where rabbits shelter.

   a) burrow **b)** nest **c)** den

Task 3: LET'S LISTEN AND DRAW!

Draw a picture of two different organisms. Describe your picture so your partner can draw it. Write on the side how your organisms get:

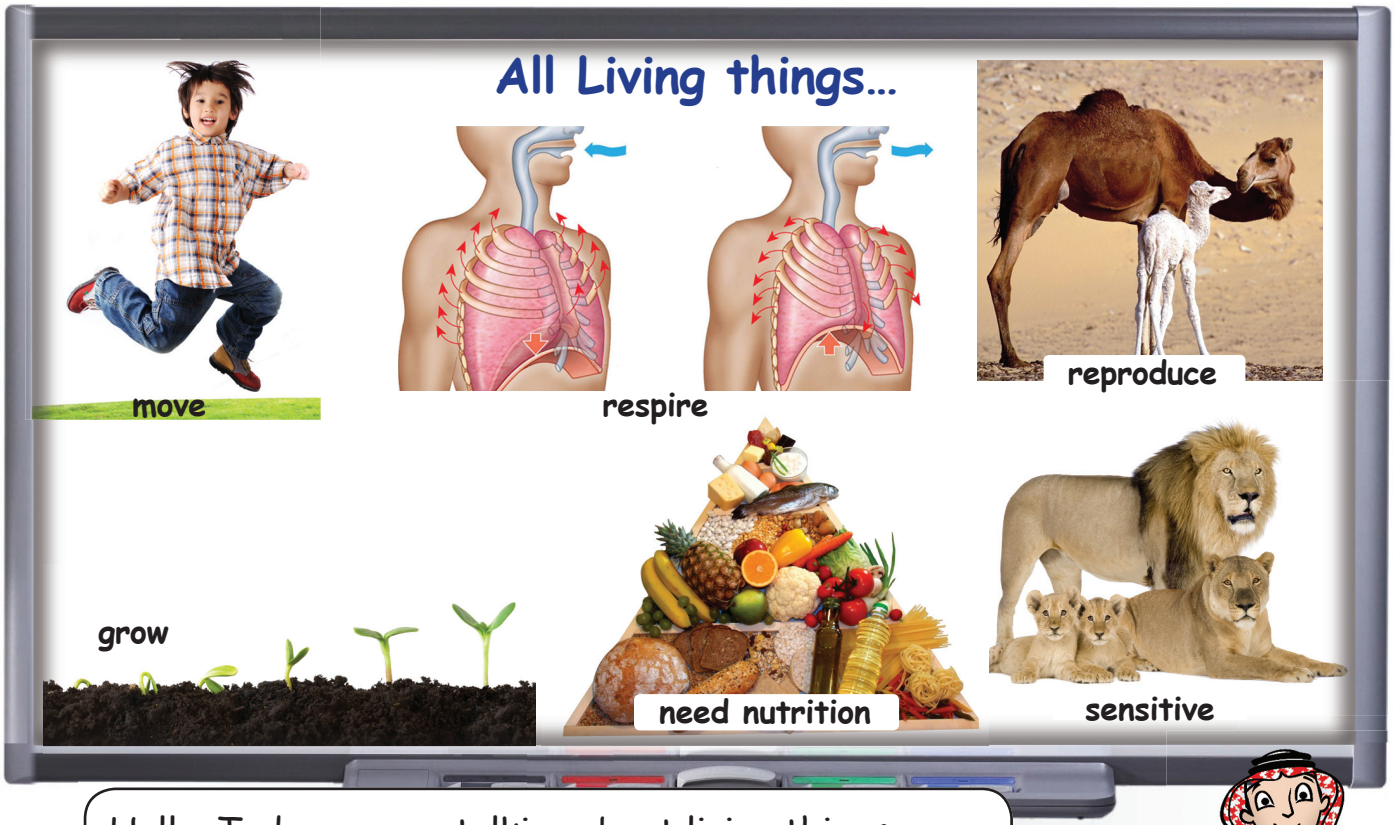
water air water shelter

Compare the pictures.

Your picture.	Your partner's picture.

LIFE PROCESSES

KEYWORDS: sensitive move reproduce excrete respiration growth nutrition



Hello. Today we are talking about living things. Faisal, what do living things do?

All living things **move**, **grow**, **reproduce**, **excrete**, **breathe**, need **nutrition** and are **sensitive** to other things. What do these words mean, Faisal?

Well, **sensitive** means to see or feel something and then take action. For example, plants move to the light. Some animals use their hearing to catch food. Some use smell, like lions. **Reproduce** means to have babies. Nutrition means to eat and drink. **Excrete** means to get rid of waste. For example, we breathe out CO^2 and we go to the bathroom to excrete what our bodies don't need. **Respiration** is taking in oxygen. Living things take in oxygen in different ways. For example, fish use gills.

Task 1: NOW IT'S YOUR TURN!

Match the boxes to form correct sentences.

1 Sensitive means to	a) have young or babies.
2 Reproduce means to	b) means to get rid of waste.
3 Excrete	c) means food and drink.
4 Nutrition	d) see or feel something and then react.

Task 2: MULTIPLE CHOICE!

Choose the correct word to complete the sentences . Is it a, b,c or d?

1 Living things need to eat and drink. We say they need ..... .

a) nutrition b) shelter c) respiration d) excretion

2 Living things get rid of waste. We say they ..... waste.

a) grow b) breathe c) respond d) excrete

3 Living things get bigger. This is called ..... .

a) excretion b) growing/growth c) moving d) nutrition

Task 3: TRUE OR FALSE?

Circle the correct answer!

1. Plants respond to light. **True** **False**
2. Some living things can't move. **True** **False**
3. All living things grow. **True** **False**
4. Animals and plants breathe. **True** **False**

Task 4:

The following sentences have an incorrect word. Cross out the incorrect word, and then write the correct one.

1. Living things move, grow and need ~~television~~. **nutrition**
2. Humans ~~respond~~ in oxygen and breathe out CO^2. .....
3. Plants ~~excrete~~ towards the light. .....
4. Plants ~~breathe~~ by making seeds that grow into small plants. .....

Task 4: LET'S TALK!

Ask and answer the following questions:

What do living things do?

What does nutrition mean?

Give me an example of an animal using its sensitivity...

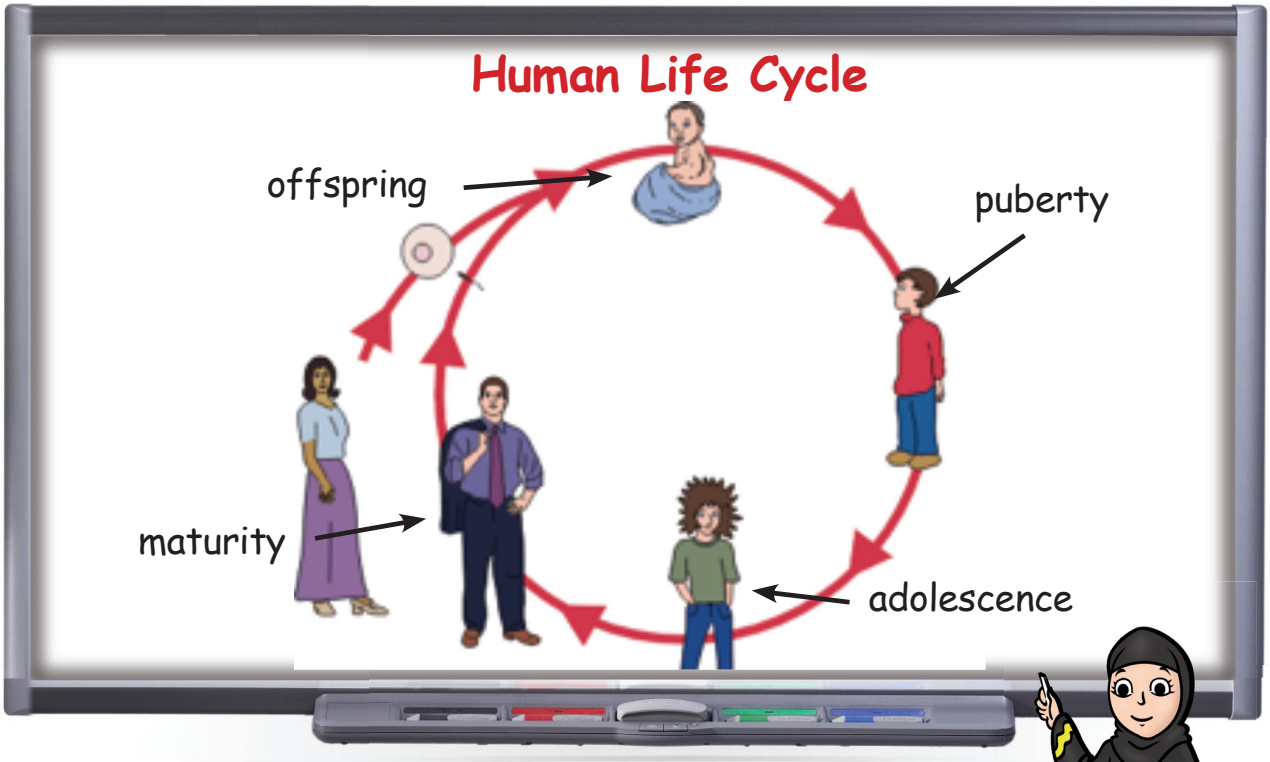
They all...

It means...

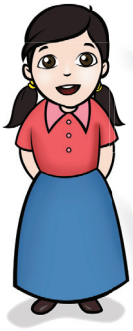
Ah...

STAGES OF LIFE CYCLE

KEYWORDS: puberty maturity adolescence offspring life cycle



Hello! Today we are looking at the life cycle of humans.



What's a **life cycle**? Can you help me please, Fatima?

Yes, I can. A **life cycle** shows us how living things have babies, the babies grow into adults and the adults have babies. Look at the smartboard.

So **offspring** are babies, **puberty** is when the body changes into an adult body at 10-13 years old and **adolescence** is between 12-14. Adolesence is when we are getting closer to being adults or **maturity**. Finally, we become adults.

Task 1: NOW IT'S YOUR TURN!

What stage of the life cycle do these pictures represent. Complete the words.




1 a .....

2 p .....

3 p .....

4 m .....

Task 2: MULTIPLE CHOICE!

Choose the correct word to complete the following sentences.

1 Humans have ..... also known as babies.

a) adults **b)** offspring **c)** kittens

2 A child reaches ..... at about 10-13 years old.

a) puberty **b)** old age **c)** adolescence

3 Adolescence is the time when we are close to ..... .

a) old age **b)** birth **c)** maturity

4 Humans reach maturity and become ..... .

a) babies **b)** adults **c)** adolescents

Task 3: LET'S WRITE AND TALK!

Can you remember the life cycle? Fill in the gaps and then try to remember the words. Tell your partner. (The first letter of each word is given).

Adults have o ..... . They grow up and at 10 years or more they reach p ..... .

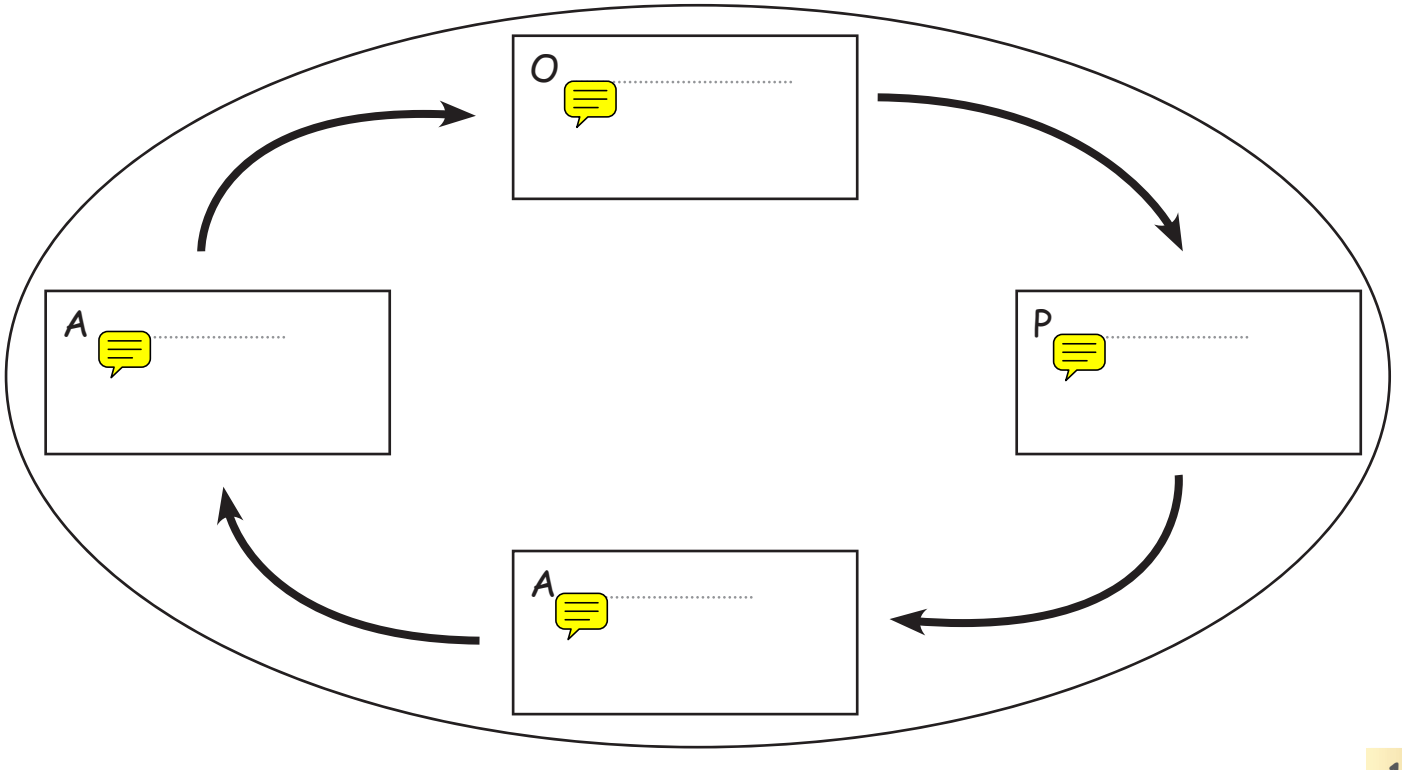
Their body changes into an adult body. Then they grow until they get close to m ..... .

This is a ..... . Then they reach m ..... and become a ..... .

Task 4: LET'S DRAW!

Fill in the gaps and draw the pictures in the correct box. How old are they?

The Human Life Cycle



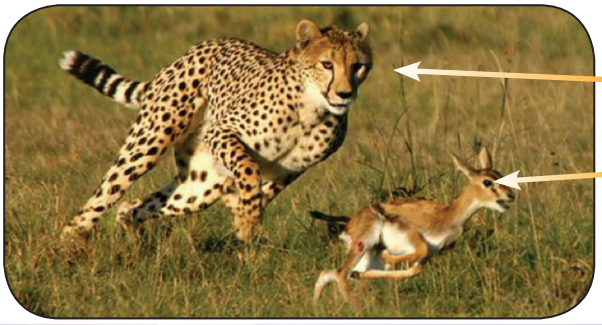
PREDATORS AND PREY

KEYWORDS: predator prey carnivore herbivore omnivore habitat

herbivore

omnivore

carnivore



predator

prey

Hello, Faisal! Today we are talking about what living things eat! Please draw some animals and tell me about them! Different animals live in different **habitats**. They hunt and find the food they need in their habitat.

Animals are different in what they eat. A **herbivore** only eats green plants, a **carnivore** only eats meat but an **omnivore** eats both meat and green plants! A **predator** looks for or **hunts** animals, then eats them. These animals are **prey**.

Task 1: NOW IT'S YOUR TURN!

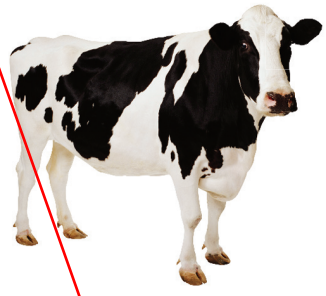
Fill in the gaps and match the words with the pictures, (using arrows).

1 p..... and p.....

2 c.....

3 h.....

4 o.....



Task 2: MULTIPLE CHOICE!

Choose the correct word/s to complete the following sentences .

Is it a, b or c?

1 A carnivore eats ..... .

a) meat b) vegetables c) plants and meat

2 A herbivore eats ..... .

a) plants b) plants and meat c) fish

3 An omnivore eats ..... .

a) only meat b) only vegetables c) plants and animals

4 A predator ..... .

a) buys food b) hunts for food c) always eats plants

5 A cat hunts and eats a bird. The bird is the ..... .

a) predator b) prey c) hunter

Task 3: LET'S READ AND DRAW!

Draw the animal(s) in the boxes. What are they eating?

A herbivore is eating food.	A predator is hunting prey.
An omnivore is eating food.	A carnivore is eating food.

Task 4: PAIRWORK!

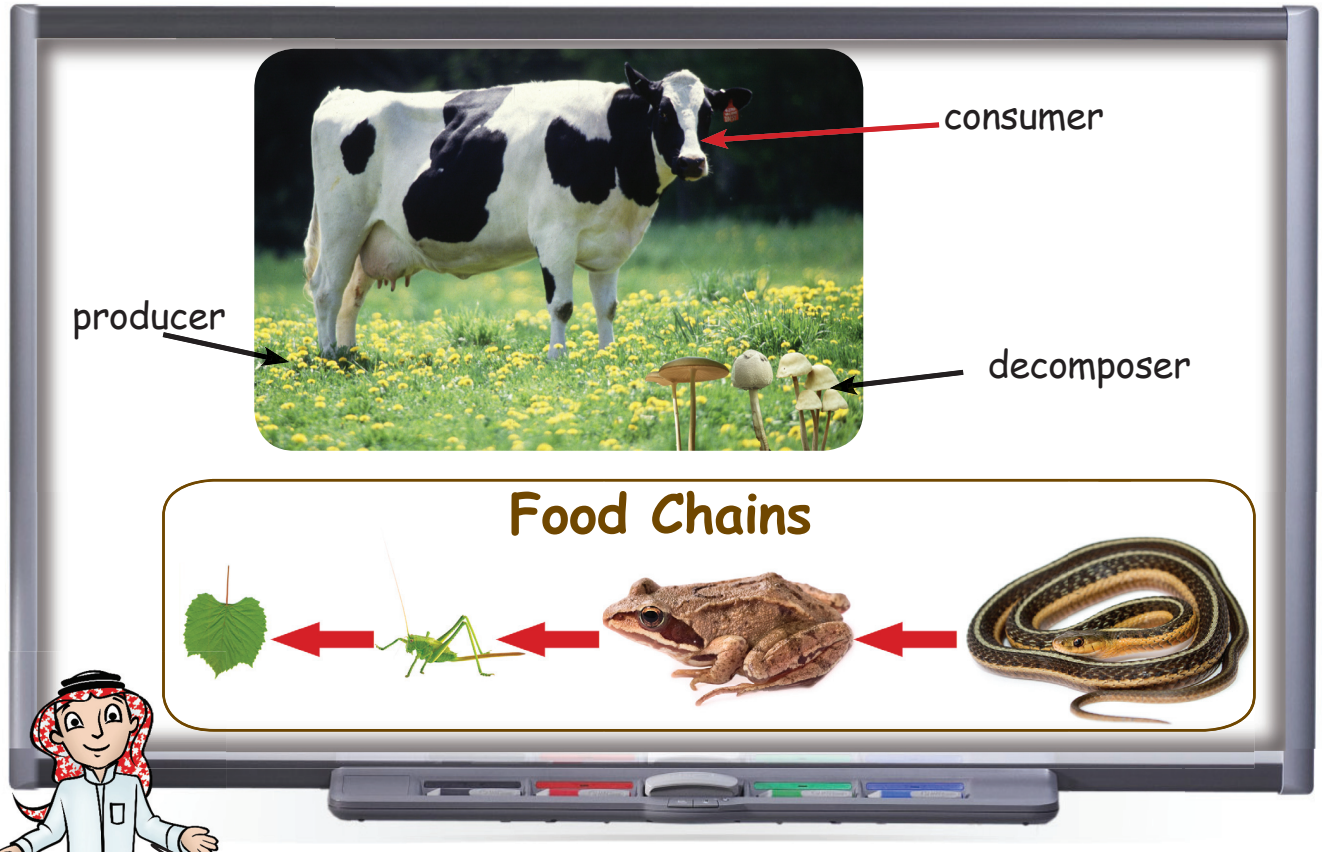
Ask your partner the following questions.

1. Can you name 3 carnivores?
2. What is your favourite animal? Why?
3. Do you like camels / tigers / elephants ?

   (What do they eat? Are they omnivores or carnivores?)

FOOD CHAINS

KEYWORDS: producer consumer scavenger decomposer food chain habitat



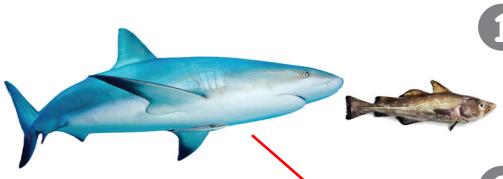
Hello, Faisal and Nasser. Today we are looking at **food chains**. Tell me about them please.

A **food chain** shows what living animals eat in their habitats. The food chain usually begins with plants and ends with carnivores!

Plants are **producers**. They make their own food. All animals are **consumers**. They eat plants or animals. A **scavenger** is an animal that eats dead animals, such as a vulture. A **decomposer** is a plant, like fungus, or a microorganism that eats dead plants or animals and recycles them. Look at the smart board!

Task 1: NOW IT'S YOUR TURN!

Fill in the gaps and match the words with the pictures.



1 s.....

2 d.....

3 c.....

4 p.....

I'm a consumer and so are you.

Task 2: MULTIPLE CHOICE!

Choose the correct word to complete the following sentences. Is it a, b or c?

1 A vulture is a ..... .

a) scavenger b) consumer c) decomposer

2 A plant is a ..... .

a) decomposer b) producer c) consumer

3 A fungus is a ..... .

a) producer b) decomposer c) consumer

4 A food chain shows how living things ..... .

a) get food b) buy food c) cook food

Task 3: LET'S READ AND DRAW!

Draw an example of the living thing in the boxes.

A decomposer.	A consumer is eating a producer.
A scavenger is eating food.	A carnivore is eating a herbivore.

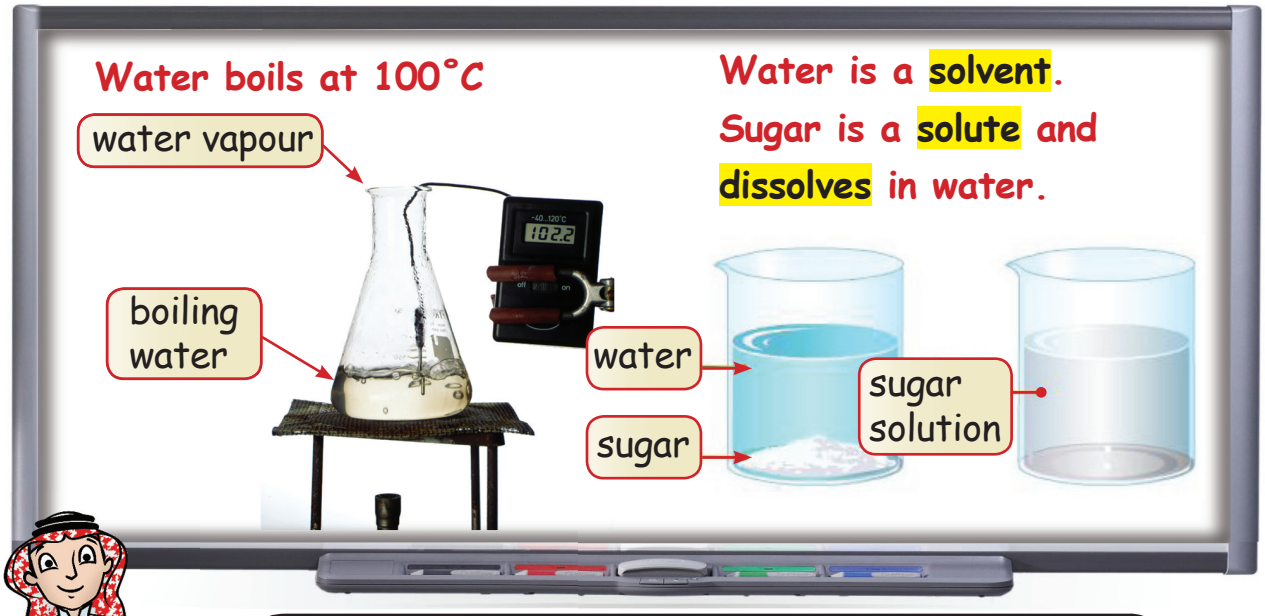
Task 4: PAIRWORK!

Ask your partner the following questions.

1. Can you think of a food chain?
2. Can you tell me 3 consumers and 3 producers?
3. Are you a consumer?

DISSOLVING

KEYWORDS: boil, water vapour, solute, solvent, dissolve, soluble, insoluble



Hello. Today we are looking at dissolving in water. Nasser, what do you know about dissolving?

Water **boils** at 100°C. It then changes to water vapour. Water is a **solvent** to some materials, like sugar and salt, which can **dissolve** and become part of the liquid. This is a **solution**.

Sugar and salt are soluble in water, but olive oil, for example, is insoluble – it does not mix into the water.

Task 1: NOW IT'S YOUR TURN!

Match the boxes to complete the following sentences.

1 Water boils		a) solute.
2 Sugar is a		b) in water.
3 Water is a		c) solution.
4 Sugar dissolves		d) solvent
5 Sugar and water make a		e) at 100°C.
6 Oil is insoluble		f) in water

Task 2: MULTIPLE CHOICE!

Choose the correct word to complete the sentences. Is it a, b or c?

1 Water ..... at 100°C.

a) boils b) freezes c) travels

2 Sugar ..... in water.

a) boils b) freezes c) dissolves

3 If we put sugar in water, sugar is the ..... .

a) solute b) solution c) solvent

4 If we put salt in water, water is the ..... .

a) solvent b) solution c) solute

Task 3: LET'S TALK!

Ask and answer the following questions.

What happens when water boils?

What is a solute?

What does sugar and water make?

Does plastic dissolve in water?
Is oil soluble or insoluble in water?

It changes to...

It dissolves in a...

It makes a...

No, it doesn't.

It ...

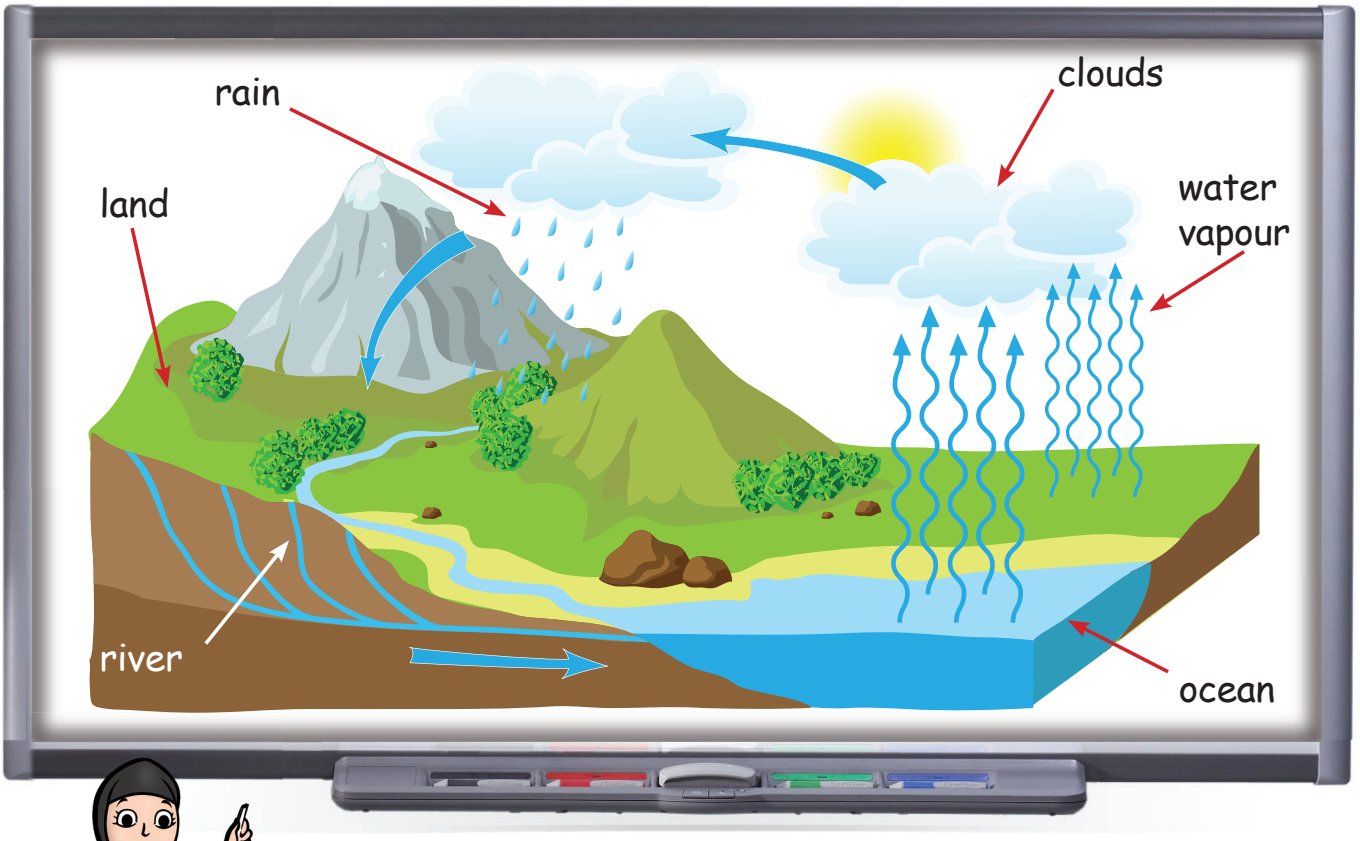
Task 4: READ AND DRAW.

Read the sentences and draw the pictures. Ask your partner the questions.

The water is 100°C. What is it doing? What is the water changing to?	Sugar is put into water. What happens?

THE WATER CYCLE

KEYWORDS: water cycle water vapour clouds evaporation condensation

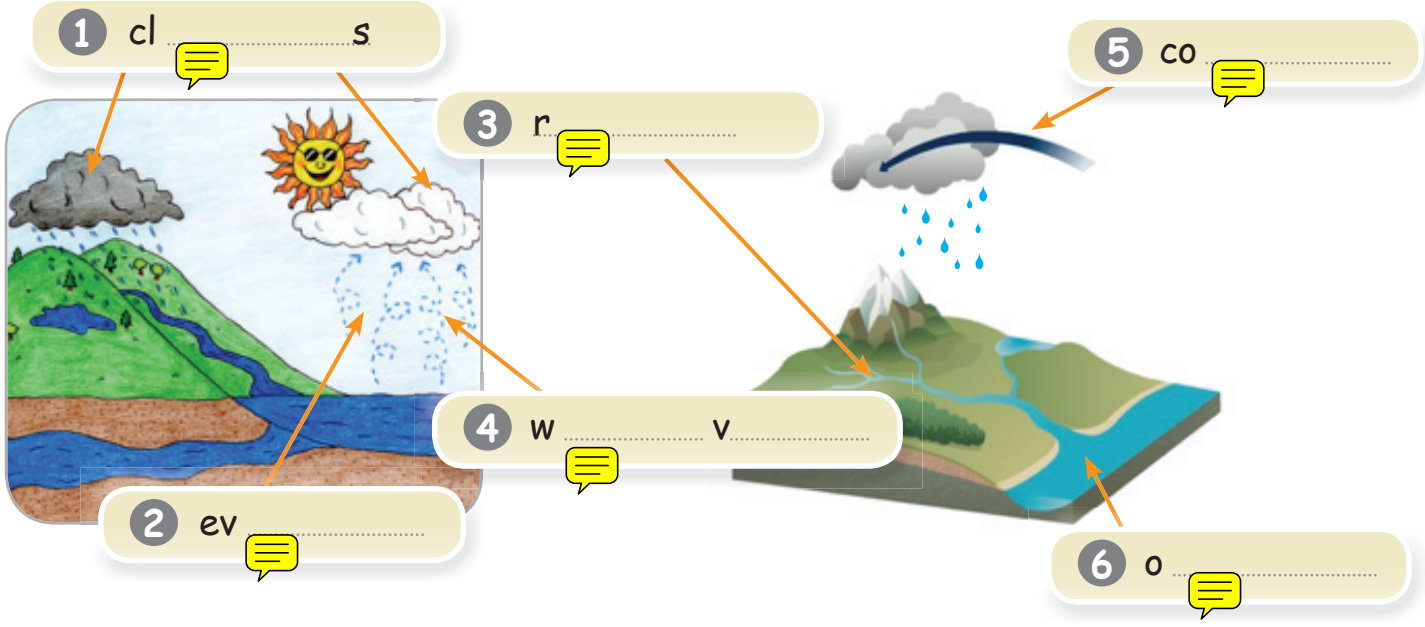


Hello. Today we are talking about the **water cycle**. Nouf, what is the **water cycle**? Look at the smart board.

The **water cycle** is how water moves from the **land** to the **sky** and back again. The sun warms the **oceans** and the **water vapour** rises to the **sky**. This is called **evaporation**. Then, it cools and makes **clouds**. This is called **condensation**. The clouds then drop rain onto the **land** and the water goes back into the **rivers** and **oceans**.

Task 1: NOW IT'S YOUR TURN!

Ask and answer. Work in pairs.
Point to a picture and ask your partner 'What's this?'
Write the words in the boxes.



Task 2: MULTIPLE CHOICE!

Choose the correct word to complete the following sentences . Is it a, b or c?

1 The sun heats the water and water vapour rises to the sky.

This is ..... .

a) condensation **b)** evaporation **c)** rain

2 The water vapour cools and makes clouds. This is ..... .

a) evaporation **b)** boiling **c)** condensation

3 Water goes from the land to the sky and back again.

This is the ..... .

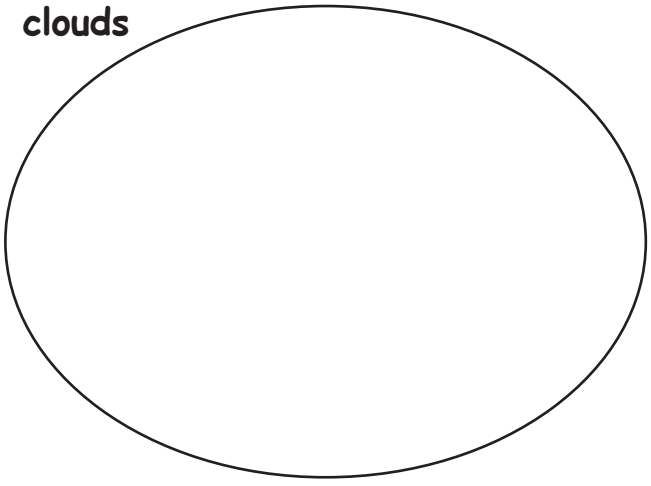
a) water vapour **b)** water cycle **c)** life cycle

Task 3: LET'S WRITE AND DRAW!

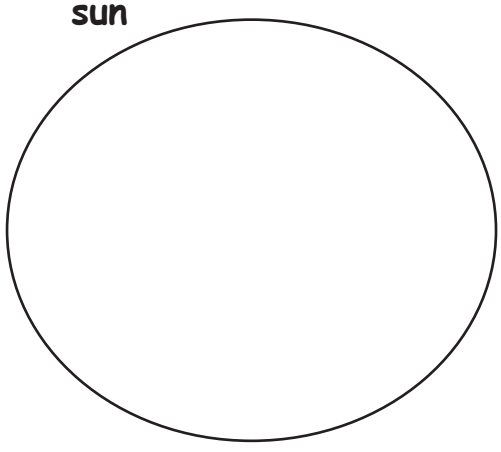
Complete the sentences below and then draw the pictures.

The W..... C.....

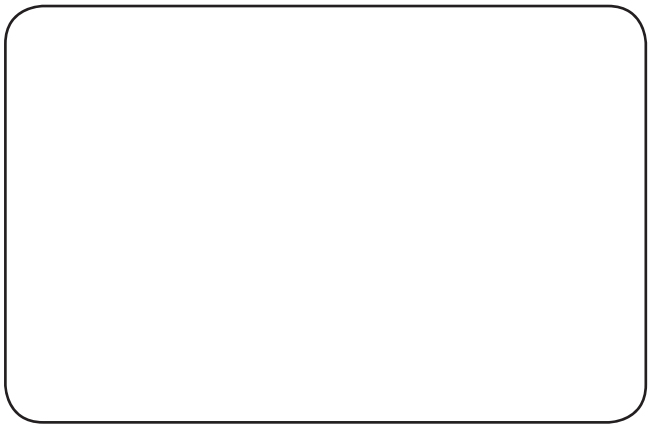
clouds



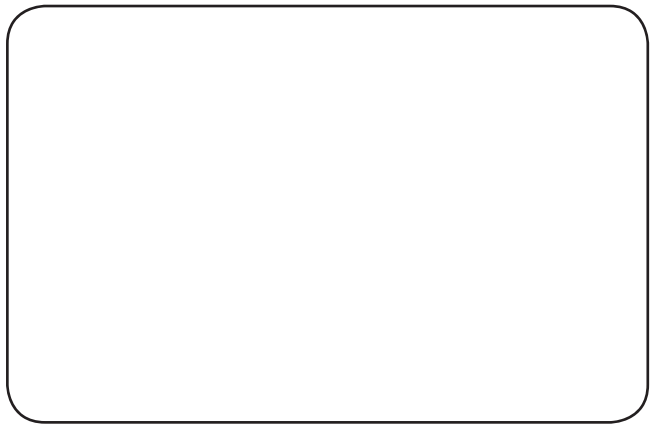
sun



land



ocean



a) The ..... warms the oceans.

b) ..... vapour rises in the sky.

c) The water vapour makes ..... .

d) Rain falls on the ..... .

e) The rain water goes into the rivers and ..... .

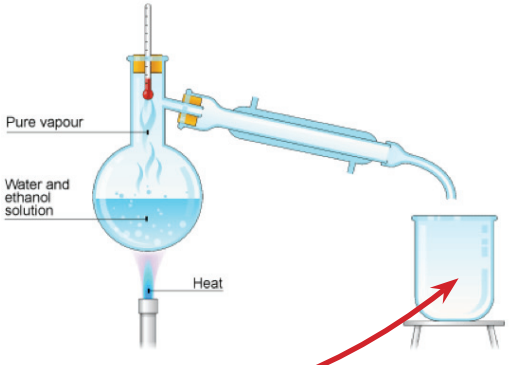
POLLUTION

KEYWORDS: pollute / pollution sewage distillation

Hello. This week we are studying **pollution**. What is **pollution** and how do we **pollute** the environment?

Our environment is the land, sea and air. **Pollution** is adding things to our environment that will be bad for all the living organisms. It can be **rubbish** from our homes, **sewage** or dirty water, **oil spills** from ships and **factory waste** like smoke. Cars pollute the air too. So how do we get pure water?

One process of purifying water is to use **distillation**. This is when the water is boiled, made into water vapor and then cooled in order for condensation to take place. Now we ONLY have the water, and the impurities are left behind.



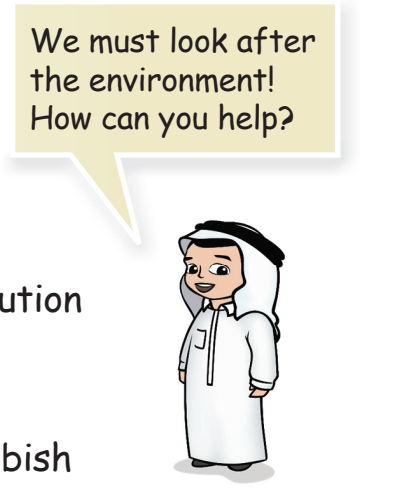
Task 1: NOW IT'S YOUR TURN!

Draw lines to complete the sentences.

1	The environment is	a)	living things.
2	Rubbish, oil spills and factory waste	b)	pollutes our rivers and seas.
3	Pollution hurts	c)	all pollute our environment.
4	Sewage is dirty water and	d)	the land, sea and air.
5	Distillation is a process to	e)	purify water.

Task 2: MULTIPLE CHOICE!

Choose the correct word to complete the following sentences. Is it a, b or c?



1 ..... is very bad for our environment.

a) Water b) Pollution c) Solution

2 Sewage is dirty ..... .

a) water b) air c) rubbish

3 ..... spills can pollute our seas and oceans. Many fish, mammals and birds die.

a) Water b) Oil c) Air

4 The land, sea and air is called the ..... .

a) habitat b) environment c) ocean

5 Our drinking water in Qatar has been ..... .

a) taken directly from the sea to our homes

b) collected from the rain c) purified by distillation

Task 3: LET'S TALK!

Ask and answer the following questions!

What is pollution?

What's the environment?

What does pollution do?

Are cars good for the environment?

How can we help the environment?

It...

No, they aren't! (because)....

We can help by...

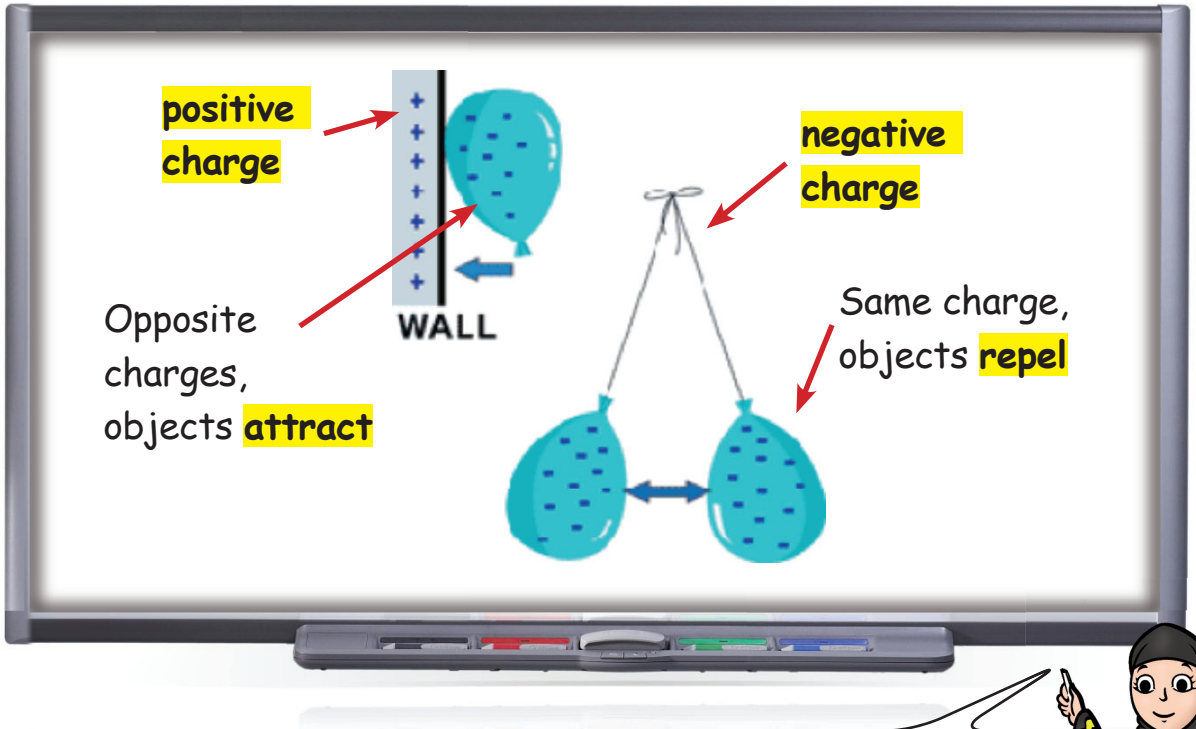
Task 4: LET'S READ AND DRAW!

Work with your partner.

An oil spill in an ocean.	The distillation process.

STATIC ELECTRICITY

KEYWORDS: attract repel discharge positive /negative charge lightning



Hello. This week we are studying static electricity. Have you ever felt a small shock when you take off a sweater or your thowb? These sparks are a smaller version of **lightning** and are known as static **discharge**.

Ok. So static electricity is a build-up of **charge** on an object.

When an object has been rubbed, it builds up electrons. These electrons want to jump to reach the ground. This is what causes a spark.

Task 1: MULTIPLE CHOICE!

Choose the correct word to complete the following sentences. Is it a, b or c?

1. Static electricity is a kind of ..... .

   a) current b) charge c) circuit

2. When electrons jump across objects, it is known as ..... .

   a) discharge b) jumping c) attraction

3. Objects with the same charge ..... .

   a) repel b) attract c) spark

4. Lightning is known as ..... .

   a) negative charge b) positive charge c) static discharge

Task 2: NOW IT'S YOUR TURN!

Draw lines to match the words with their meaning.

1 Repel	a) to draw near, bring closer.
2 Discharge	b) an opposing force, to push away.
3 Attract	c) occurs when electrons jump across objects.
4 Lightning	d) an example of static electricity.

Task 3: LET'S READ AND DRAW!

Work with your partner.

Read the sentences and draw a picture to match the statement.

A positively charged balloon is placed next to another positively charged balloon.	A negatively charged balloon is placed near positively charged pieces of paper.

Task 4: LET'S TALK!

Ask and answer the following questions.

What is static electricity?

Static electricity is...

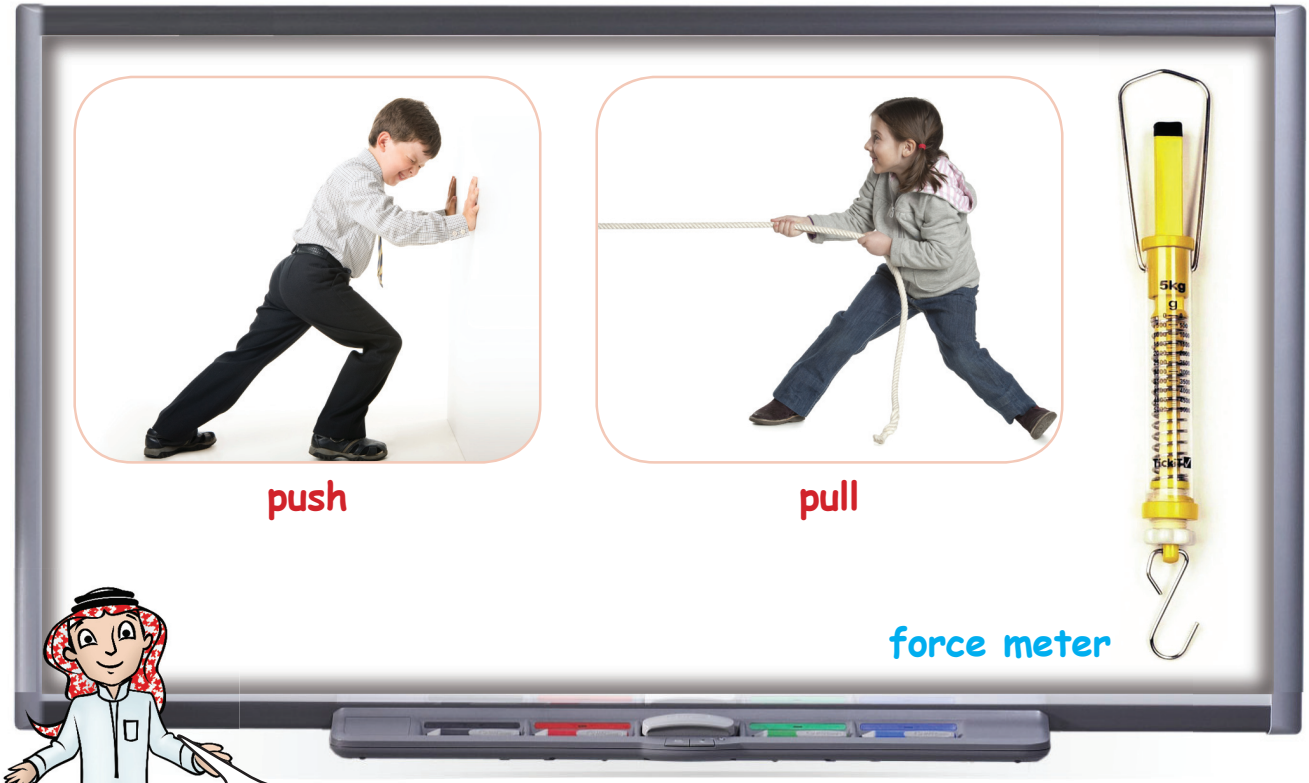
Tell me about a time you experienced static electricity.

I saw an example of static electricity....

I have felt static electricity when...

FORCES

KEYWORDS: force Newton force meter



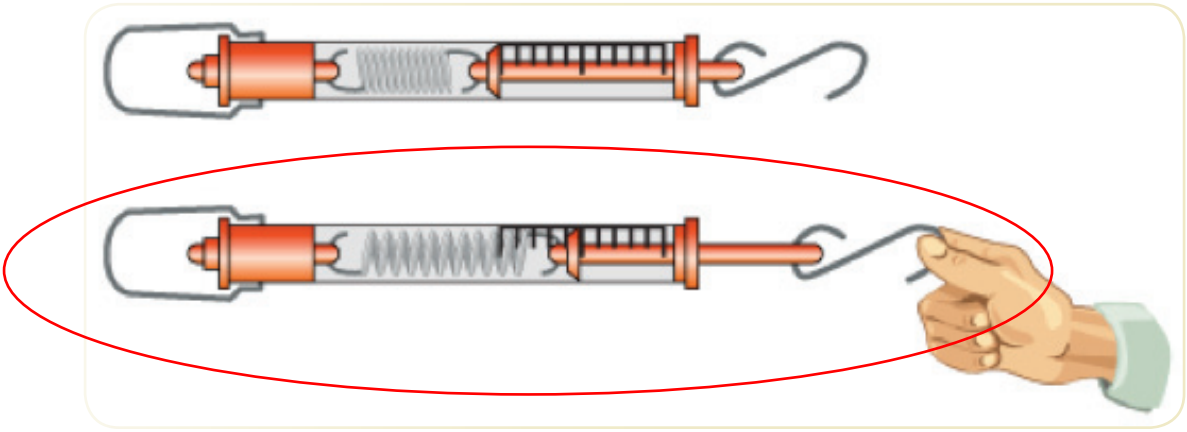
A **force** is a **push** or a pull.

We measure force in **Newtons** (N) with a **force meter**. The heavier the object the more force we need to move it.

Which reading would be bigger?

Task 1: NOW IT'S YOUR TURN!

Which force meter do you think is pulling a heavier object?



Task 2: MULTIPLE CHOICE!

Choose the correct answer. Is it a, b or c?

1. A force can ..... .

   a) push or pull **b)** eat or drink **d)** run or walk

2. A pull force can ..... something. e.g a spring

   a) push **b)** stretch **c)** keep still

3. A push force ..... something.

   a) stretches **b)** pulls **c)** compresses

4. A ..... measures force.

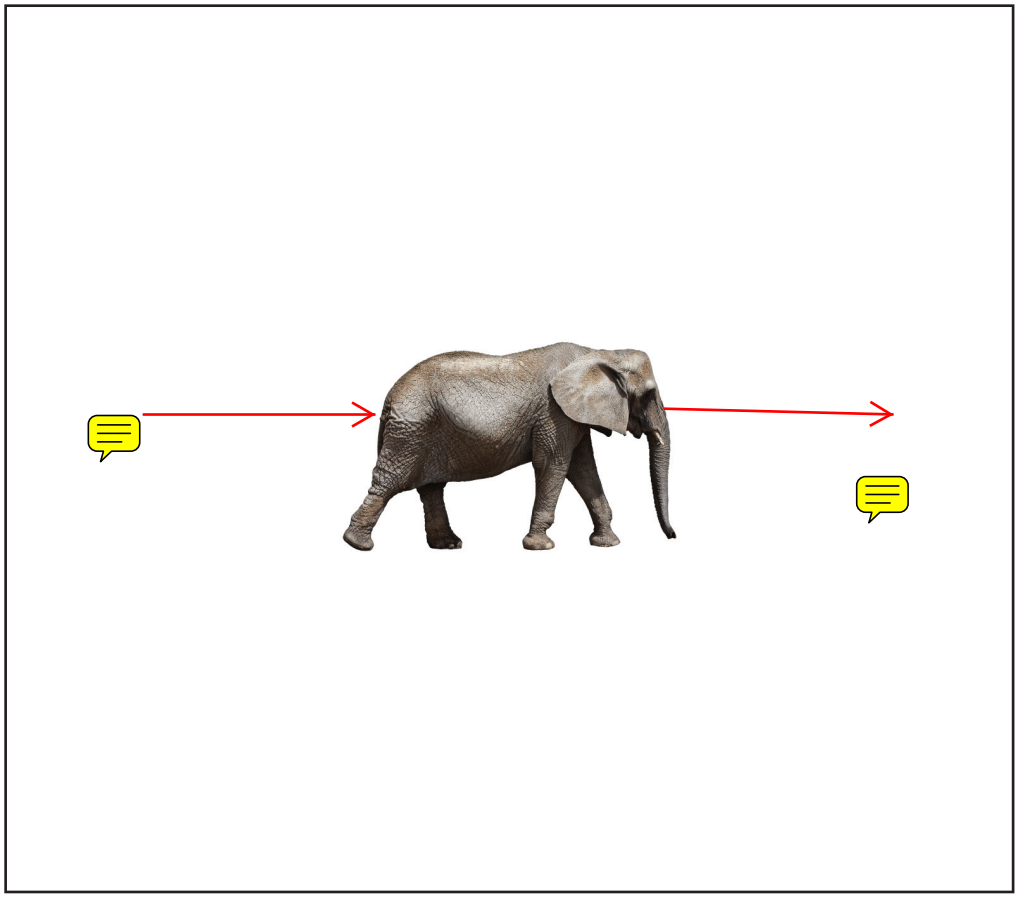
   a) clock **b)** force meter **c)** thermometer

5. Force is measured in ..... .

   a) Newtons **b)** minutes **c)** seconds

Task 3: LET'S DRAW!

Read the sentences and draw the picture. Label the forces.



At Doha Zoo.
An elephant doesn't want to go into its cage. Three people are pushing him and five people are pulling him!

Task 4: LET'S TALK!

Ask and answer the following questions! Make new questions for your partner.

What is a force?

How do we measure force?

What objects and things use springs?

What do springs do?

A force can...

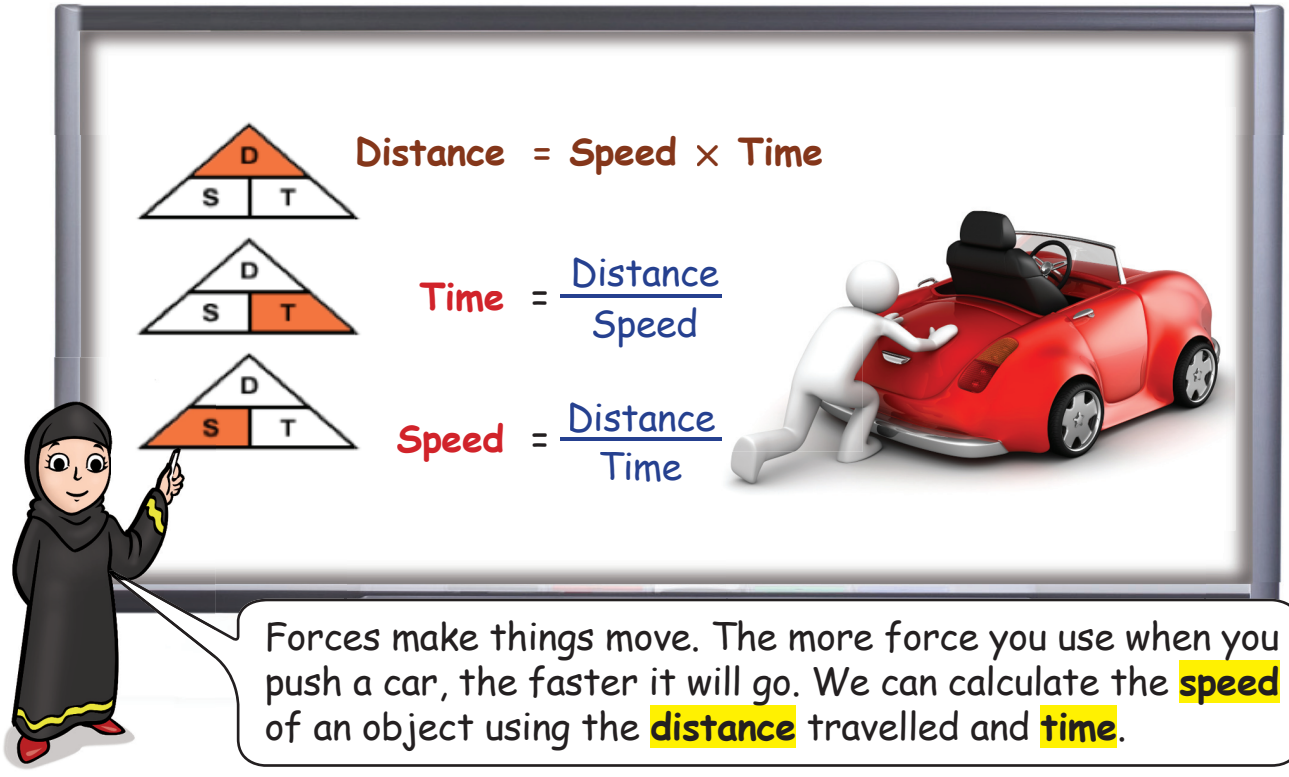
We measure force with a...

Lots of things use springs, like...

A spring can...

FORCES MOVE OBJECTS

KEYWORDS: speed distance time



Forces make things move. The more force you use when you push a car, the faster it will go. We can calculate the **speed** of an object using the **distance** travelled and **time**.

Task 1: NOW IT'S YOUR TURN!

Answer the following questions.

Remember to use the formula triangle.

1. Ahmed rides his bicycle at 9km / hour. If he rides for 3 hours, how far does he go?

   Distance = speed × time

   Distance = 9 × 3

   Distance = 27 km

2. Mona runs along the Corniche from 3:50pm to 4:50pm. She runs at 6 km / hour. How far does she go?

.....

.....

3 A train goes 600km in 3 hours. What is the speed of the train?

4 Faisal drives his car for 400km at a speed of 80 km / hour.
How long was the journey?

Task 2: MULTIPLE CHOICE!

Choose the correct word to complete the following sentences.
Is it a, b or c?

1 Distance = ...

a) speed × time **b)** speed × distance **c)** time × distance

2 Time = ...

a) $\frac{\text{Speed}}{\text{Distance}}$ **b)** $\frac{\text{Distance}}{\text{Speed}}$ **c)** $\frac{\text{Time}}{\text{Distance}}$

3 Speed = ...

a) $\frac{\text{Distance}}{\text{Time}}$ **b)** $\frac{\text{Time}}{\text{Speed}}$ **c)** $\frac{\text{Time}}{\text{Distance}}$

Task 3: LET'S DRAW!

Read the sentences and draw a picture! Can you answer the following question?

Ahmed and Faisal are going to Doha.

Ahmed lives 250 km away from Doha. Faisal lives 300 km away from Doha. Ahmed is driving a car at 75 km / hour. Faisal is riding a motorbike at 100 km / hour.

Who will arrive first?

How long will it take Faisal?

How long will it take Ahmed?

Task 4: LET'S TALK!

Ask and answer the questions!

What is speed?

What is distance?

What is time?

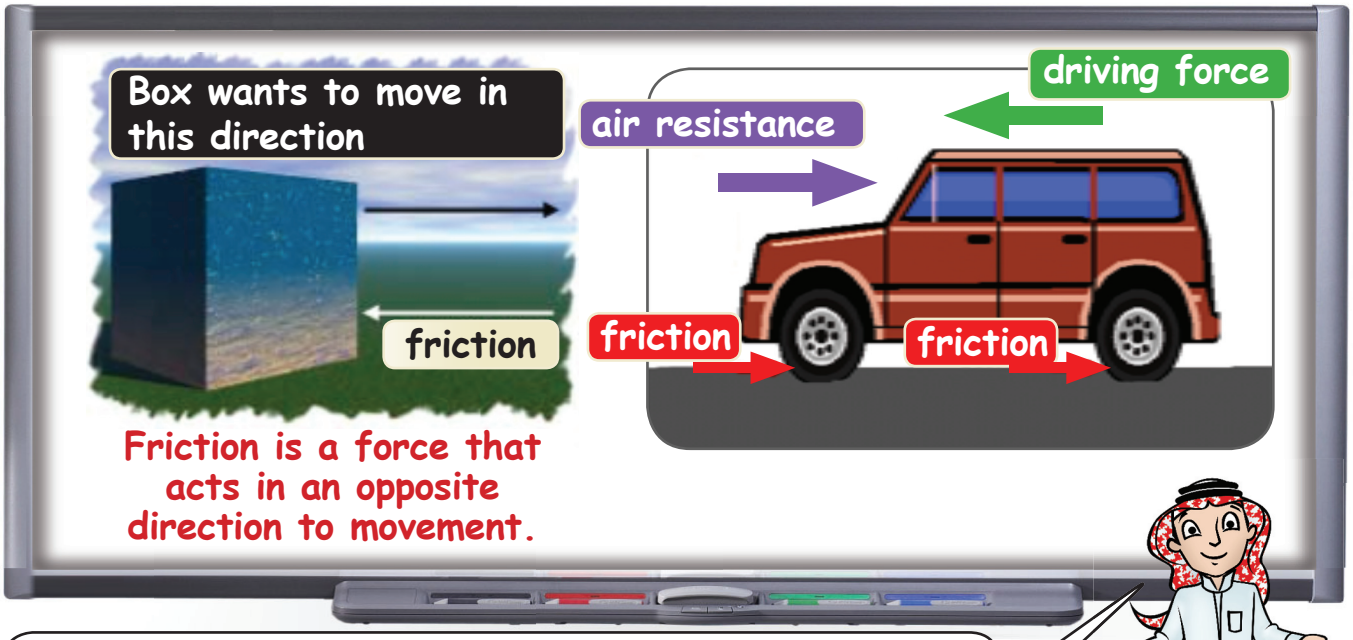
What is the formula triangle?

It is how...

It tells us how speed equals...

FRICTION

KEYWORDS: streamlined resistance dynamic static friction



Hello. Today we are looking at **friction**. **Dynamic friction** is a force on moving things and **static friction** is a force on things that are not moving. Faisal, are you listening? What is **friction**?

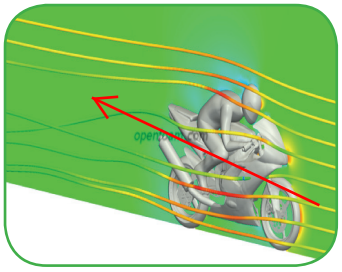
Hmm... I think it is a force that stops things moving or slows things down.

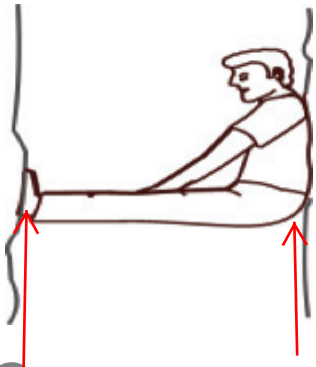
A moving car is slowed down by **dynamic friction** on the ground and by **dynamic friction** from the air or **air resistance**. Boats are slowed down by **water resistance!**

Good. Now, to reduce friction, we make objects **streamlined**. This is when we make the object thin and small so it can go through the air or water more easily.

Task 1: NOW IT'S YOUR TURN!

Explain where the friction is and draw an arrow to show its direction.





1 a .....

2 s ..... f .....

3 d .....

4 w .....

Task 2: MULTIPLE CHOICE!

Choose the correct word to complete the following sentences.

Is it a, b or c?

1 Dynamic friction slows down ..... objects.

a) static b) moving c) happy

2 Static friction is a force on objects that are ..... .

a) not moving b) sad c) moving

3 ..... resistance slows down aeroplanes.

a) water b) air c) heat

4 ..... resistance slows down boats.

a) air b) heat c) water

Task 3: LETS READ AND DRAW!

Read the sentences and draw a picture.

There is an aeroplane flying over a busy road and a river. There are cars on the road and a boat on the river. Label the different frictions!

Task 4: LET'S TALK!

Ask and answer the following questions!

What is friction?

What kinds of friction are there?

What slows a car?

What slows a plane or a boat?

Friction is...

There are... kinds of friction.

... slows a...

Corrections

Page NO.	Note	Amendment

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