Letts Maths Dictionary Teacher's Resources
Worksheets

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$1234 \quad +\sqrt{}\times-\div$

Year 7

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6 **Powers, roots and ratios**

Year 8

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Year 9

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Worksheet 1

Name ....

Date ....

Class ....

Dictionary skills (1)

A. Dictionaries

These questions are about why we use dictionaries.

1. Why is this dictionary different from the dictionary you use in English lessons?

....

2. Do you use dictionaries in any other lessons? Which lessons?

....

3. List the dictionaries you use.

....

4. Why do you need to use a dictionary? Finish these sentences.

(a) Dictionaries help you ....

(b) Dictionaries show you ....

(c) Dictionaries tell you ....

(d) Dictionaries give you ....

B. Using your Letts Maths Dictionary

We are now going to look in more detail at the information that your Letts Maths Dictionary provides.

1. It gives you the meaning of words. What is the meaning of **factorise**?

....

2. It shows you how to spell words. Write down the headword of the **entry that follows factorise**, making sure you spell it correctly.

....

3. It gives you an example of each word being used. Write down an example of **denominator** as used in a sentence.

....

4. It tells you what part of speech each word is. What part of speech is the word **hypotenuse**?

....

5. It tells you unusual forms of the word. Write down the plural of the word **radius**.

....

6. It tells you if a word can be represented by a symbol or abbreviation. What is the symbol for **cube root**?

....

7. It tells you what topic area each word belongs to. What topic area does **population pyramid** belong to?

....

8. It lists related words that you may like to look up. List the words that are related to **index notation**.

....

Worksheet 2

Dictionary skills (2)

Name ....

Date ....

Class ....

A. Alphabetical order

All the words in a dictionary are in alphabetical order. This means that they are in the same order as the letters in the alphabet. (The alphabet is listed down the side of each page of the Letts Maths Dictionary.)

If words start with the same letter, they are in order of the *second* letter.

If the second letter is the same, then the *third* letter gives the order, and so on.

For example:
(1) day, month, year
(2) mass, mean, mode
(2) pack, pair, part
(3) percentage, perimeter, perpendicular

Can you put the following words in alphabetical order?

polyhedron   cylinder   pyramid   prism   icosahedron   cuboid   cube   dodecahedron

1. ....

2. ....

3. ....

4. ....

5. ....

6. ....

7. ....

8. ....

B. Using the guide words

The pairs of words at the very top left or top right of each page are called 'guide words' because they help you find out quickly which page contains the word you are looking for. The first guide word tells you the first word listed on the page, and the second guide word tells you the last word listed on the page.

On which page of your Letts Maths Dictionary would you find each of the 8 words listed below? You need to match them up with the 8 pairs of guide words that have also been given. The first one has been done for you.

1. consumer   pie chart – plot

2. change   per – pictograph

3. prism   complement – concentric

4. cross-section   previously – probable

5. plane   conclude – continuous data

6. pi   portion – pressure

7. concave   cosine – cube

8. predict   centre of enlargement – charge

Worksheet 3

Dictionary skills (3)

To make best use of a dictionary you must know how alphabetical order works. Here are some activities to help you practise your alphabet skills. Check your answers in your Letts Maths Dictionary when you have finished.

A. First in order

Look at the words below and write next to each list the word that comes **first** in alphabetical order.

1. rough, ruler, rhombus _____

2. exact, equal, equidistant _____

3. Celsius, chance, census _____

4. interpret, inverse, intercept _____

5. litre, likely, limit _____

6. property, probability, proportion _____

B. Out of order

The words in the following lists are listed in alphabetical order, but one word is out of place. Underline the word in each list that is **not** in alphabetical order.

1. analyse, angle, average, approximate, arithmetic

2. calculation, calculator, cancel, category, cash

3. finite, first, flat, format, fifty-fifty

4. millennium, millimetre, milligram, minimum, minus

5. transfer, transform, translation, trapezoid, trapezium

C. Arrange the words

The words in each of the boxes below relate to a particular topic area, but they have been jumbled up. Arrange the words in alphabetical order beneath the boxes.

polygon plan polyhedron pint plane	example exception exhaustive examine experiment

1. _____   1. _____

2. _____   2. _____

3. _____   3. _____

4. _____   4. _____

5. _____   5. _____

1 2 3 4 +√×⁻÷ Worksheet 4

Number skills

A. Vocabulary

Here are some words you need to know before you start working with numbers.

approximate billion calculate decrease equals information number bond pair

Complete the following statements. Then look up each word in your Letts Maths Dictionary to check what you have written.

1. Approximate means ....

2. A billion is ....

3. To calculate is to ....

4. A decrease is ....

5. If one amount equals another, ...

6. Information is ....

7. A number bond is ....

8. A pair ....

B. Pairs of words

Show that you understand the meaning of each pair of words below by completing the statements. Then check that you are right by looking up the words in your Letts Maths Dictionary.

1. Addition is .... ,
whereas **subtraction** is ....

2. The **greatest** means .... ,
but the **least** means ....

3. A **cardinal** number is .... ,
and an **ordinal** number is ....

4. Negative means .... ,
whereas **positive** means ....

5. A **factor** is .... ,
but a **multiple** is ....

6. A **digit** is .... ,
and an **integer** is ....

C. Prefixes

What do these prefixes tell you? Use your Letts Maths Dictionary to find a word that begins with each prefix, then give the meaning of the prefix. The first one has been done for you.

	Prefix	Dictionary word	What does the prefix mean?
1.	tri-	*triangle*	3
2.	tetra-		
3.	penta-		
4.	hexa-		
5.	hepta-		
6.	octa-		
7.	nona-		
8.	deca-		

1 2 3 4 +√×⁻÷ Worksheet 5

Fractions

A. Types of fractions

Complete these statements about fractions. Then look up words in **bold** in your Letts Maths Dictionary to check that you understand their meaning.

1. The **numerator** is the _____ of a fraction.

2. The **denominator** is the _____ of a fraction.

3. If the numerator is s_____ than the denominator, it is called a **proper fraction**.

4. If the numerator is l_____ than the denominator, it is called an **improper fraction**.

5. An example of a **mixed fraction** is _____ .

B. Working with fractions

Using your Letts Maths Dictionary, check that you know how to use the four operations addition, subtraction, multiplication and division which are used with fractions.

Now draw a line to connect the operation with the correct method.

1. addition   Turn second fraction upside down and multiply.

2. subtraction   The product of the numerators over the product of the denominators.

3. multiplication   Find the lowest common denominator, change to equivalent fractions and add.

4. division   Find the lowest common denominator, change to equivalent fractions and take away.

C. Fractions of a quantity

Use words for fractions to fill the gaps. The first one has been done for you.

1. 50 centimetres is _____*half*_____ of 1 metre.

2. 250 grams is q_____ of 1 kilogram.

3. 40 pence is t_____ fi_____ of 1 pound.

4. 45 minutes is th_____ q_____ of 1 hour.

5. 1 foot is a th_____ of 1 yard.

6. 180 degrees is h_____ of a revolution.

7. A weekend is t_____ se_____ of a week.

8. A month is o_____ tw_____ of a year.

1234 +√×−÷ Worksheet 6

Powers, roots and ratios

A. Vocabulary

Complete these sentences. Then look up the words in **bold** in your Letts Maths Dictionary to see if you are correct.

1. A **power** or **index** tells you _____.
2. When you **square** a number you _____.
3. A **cube** number is _____.
4. A **square root** has the symbol _____.

Now try to work these out.

5. 27 is the cube of _____.
6. _____ is the square root of 16.
7. The _____ of 5 is 25.
8. The _____ of 2 is 8.

B. Index law and notation

Use your Letts Maths Dictionary to find the answers to the following questions.

1. What is the plural of **index**? _____
2. There are 2 other words used for **index**. They are synonyms (words that mean the same). What are they? _____ _____
3. Learn the index law and notation and then fill in the results below.

   $a^2 \times a^3 =$ _____

   $a^4 \div a^2 =$ _____

   $(a^2)^3 =$ _____

   $\dfrac{1}{a^2} =$ _____

   $a \times a \times a =$ _____

   $a^0 =$ _____

   $a^{\frac{1}{2}} =$ _____

C. Ratio and proportion

Complete the following table. The first one has been done for you.

		Ratio	First amount as a proportion of £1
1.	20p to 80p	1:4	1 out of 5
2.	10p to 50p		
3.	25p to 75p		
4.	5p to 75p		

1 2 3 4 +√×−÷ Worksheet 7

Number skills

A. Roman numerals

Complete the statement below. Look up the entry **Roman numerals** in your Letts Maths Dictionary if you need help.

Roman numerals are ....

Now fill in the gaps in the table below. The first one has been done for you.

1. MMII   _2002_ ....
2.   350
3.   11
4. XXXV   ....
5. DXXV   ....
6.   606
7.   1150

B. Missing words

Use your Letts Maths Dictionary to look up the meanings of these words.

   ascending   descending   index   root   loss   profit   false   true   palindrome   reciprocal

Now fill each gap in the sentences below with one of these words.

1. The numbers 2, 4, 6… are in .... order. The numbers 9, 7, 5… are in .... order.
2. The square .... of 9 is 3, and 32 is 2 to the .... of 2.
3. We managed to make 20p .... on each ruler, but the sale of pens made a ....
4. It is .... that 4 cubed is 64, but it is .... that 50 is 7 squared.
5. The .... of 4 is $\frac{1}{4}$, but 414 is a ....

C. Symbols

Complete the table below, giving the meaning of each symbol and an example of its use in a number sentence. (You may have to look up **number sentence** in your Letts Maths Dictionary.) The first one has been done for you.

	Symbol	Meaning	Number sentence
1.	+	*addition*	*4 + 3 = 7*
2.	−		
3.	÷		
4.	×		
5.	<		
6.	>		
7.	=		
8.	√		

1234 +√×−÷ Worksheet 8

Fractions, decimals and percentages

A. Decimals

Complete these definitions. Then use your Letts Maths Dictionary to check that you are right.

1. The part of the decimal number to the right of the decimal p_____ is the decimal f_____.

2. The position of the digit after the decimal p_____ is its decimal p_____.

3. A rec_____ decimal has digits in a continuous pattern.

4. A ter_____ decimal has a finite number of digits.

B. Conversion

Draw a line to connect the conversion to the correct method. The first one has been done for you.

Conversion	Method
1. fraction → decimal	multiply by 100
2. decimal → fraction	divide numerator by denominator
3. decimal → percentage	percentage over 100
4. percentage → decimal	multiply by 100
5. fraction → percentage	divide by 100
6. percentage → fraction	numerator is decimal without decimal point; denominator is 10^n where n is number of decimal places in original number

C. Place value

Look up the entry **place value** in your Letts Maths Dictionary.

Now write the numbers below in decimal form. Remember the decimal point. The first one has been done for you.

1. fifteen and twenty-three thousandths 15.023 _____

2. one and five tenths _____

3. fifteen hundredths _____

4. one hundred and thirty and a half _____

5. one thousand and five _____

$1\,2\,3\,4$ $+\sqrt{\times}\overline{}\div$ Worksheet 9

Powers, roots and ratios

A. Related words

In many entries in your Letts Maths Dictionary, after the definition and example you will be directed to entries of related words by the icon ➡. Look up the headwords in the list below, and write the related words alongside them. One has been done for you.

Headwords	Related words
1. direct proportion	
2. increase	*decrease*
3. index notation	
4. inverse proportion	
5. precise	
6. root	

B. Choose the word

In each of the following sentences, underline the correct word from the brackets. Check if you are right by looking up key words in your Letts Maths Dictionary.

1. Describe the unitary method used in (ratio, percentage, decimal) problems.

2. The (square, cube) root of 125 is 5.

3. The value of 352 to the index (0, 1, 10) equals 1.

4. A person's weight usually increases with height in (direct, inverse) proportion.

C. Topics

These words are used in different sections of Number work.

**cancel   cardinal   direct   factor   index   inverse   lowest terms
multiple   ordinal   point   recurring   root   VAT**

Write each word next to the topic below to which they belong. You may need to write more than one word next to each topic.

1. number ....

2. fractions ....

3. decimals ....

4. percentages ....

5. ratio and proportion ....

6. powers ....

1234 +√×−÷ Worksheet 10

Number skills

A. Word square

Find the hidden words. They are all in your Letts Maths Dictionary, and all are connected with number skills.

You should be able to find 18 words.

R	E	G	U	L	A	R	J	A	L
E	D	M	I	L	O	N	G	B	E
C	I	N	F	I	N	I	T	Y	A
I	E	E	D	N	I	N	E	C	S
P	I	G	R	E	A	T	E	S	T
R	Y	A	A	X	E	Q	Z	E	
O	A	T	D	R	E	R	U	E	L
C	D	I	I	N	B	I	A	R	A
A	O	V	A	L	U	O	L	O	C
L	T	E	L	O	C	R	S	X	S

B. True or false?

Are these statements true or false? You may find it useful to look up the words in **bold** in your Letts Maths Dictionary.

1. The **square root** of 36 is less than the **cube root** of 27.

true ☐ false ☐

2. The number 5.2301 equals 5.23 when corrected to 3 **significant figures**.

true ☐ false ☐

3. **Compound interest** is calculated after adding the interest each year.

true ☐ false ☐

4. The image and object are the same size after **reflection**.

true ☐ false ☐

5. 23×10^6 is in **standard index** form.

true ☐ false ☐

C. Examination terms

Underline the word or phrase that tells you what to do in the following questions. Explain to your partner what each of these words means. Then use your Letts Maths Dictionary to check that you are right.

1. Estimate the height of the door in centimetres.

2. Raise a^2 to the power 3.

3. Find the approximate answer to 915×189.

4. Simplify $2(5 + 3) - 3(7 - 3)$.

5. Calculate $81 - 22$.

6. Complete the sequence of square numbers starting with 1.

7. Define a prime factor.

8. Prove that 125 is a cube number.

1234 +√×−÷ Worksheet 11

Name ....

Date ....

Class ....

Fractions, decimals and percentages

A. Missing words

Fill in the missing words in the sentences below.

1. Seventy-five pence is th_____ q_____ of one pound.
2. Two thirds of a metre equals si_____ si_____ and two thirds per cent of a metre.
3. V_____ A_____ T_____ is charged at seventeen and a half per cent on the total bill.
4. Per cent means out of a h_____.
5. A percentage can be written as a fraction with a den_____ of a hundred.

B. Increase/decrease

Complete these statements.

An increase is _____.

A decrease is _____.

Look up **increase** and **decrease** in your Letts Maths Dictionary and see if you are correct.

Now write either **increase** or **decrease** in the following statements so that they are correct.

1. 85% is a/an _____ of 15% from the whole amount.
2. 125% is a/an _____ of 25% from the whole amount.
3. 103% is a/an _____ of 3% from the whole amount.
4. 90% is a/an _____ of 10% from the whole amount.
5. 105% is a/an _____ of 5% from the whole amount.
6. 80% is a/an _____ of 20% from the whole amount.
7. 130% is a/an _____ of 30% from the whole amount.
8. 88% is a/an _____ of 12% from the whole amount.

C. Conversion

Draw a line to connect each item in the left-hand column to its correct conversion in the right-hand column. The first one has been done for you.

$\frac{1}{4}$	$\frac{1}{3}$
$33\frac{1}{3}\%$	0.666…
0.75	0.4
0.125	0.111…
$\frac{2}{3}$	0.25
40%	$\frac{1}{8}$
$\frac{1}{9}$	1
100%	$\frac{3}{4}$

1234 +√×−÷ Worksheet 12

Powers, roots and ratios

A. True or false?

Are these statements true or false? You may need to look up the words in **bold** in your Letts Maths Dictionary. The instruction book for your calculator may also be useful.

1. There are two **square roots** of a positive integer.　　　true ☐ false ☐

2. Both of the **square roots** in question 1 are positive.　　true ☐ false ☐

3. The **cube root** of a positive number is positive.　　　true ☐ false ☐

4. The **cube root** of a negative number is positive.　　　true ☐ false ☐

5. The calculator button x^y calculates **powers**.　　　true ☐ false ☐

6. The calculator button $\sqrt{}$ calculates **cube roots**.　　true ☐ false ☐

B. Relationships

Complete the following statements. You may need to look up the words in **bold** in your Letts Maths Dictionary.

1. When numbers change in **direct proportion**, the ratio _____.

2. **Inverse proportion** shows that _____.

3. A **ratio** of 1:2:3 has _____ parts.

4. A **ratio** c_____ quantities.

5. The **ratio** of the sides of the _____ figures is 2:3.

C. Information

Look up these words in the Letts Maths Dictionary. You will find some interesting information about each word. Write down what you find.

1. per cent _____

_____

2. salary _____

_____

3. interest _____

_____

4. zero _____

_____

5. decimal point _____

_____

_____

$x = a^2$ **Worksheet 13**

Sequences

A. Vocabulary

Here are some words used with number patterns:

consecutive   finite   generate   *n*th term   sequence   term

Complete the following statements. Then look up each word in your Letts Maths Dictionary to check if you are correct.

1. A **sequence** is a ....

2. The next 2 **terms** in the sequence 1, 5, 9, 13... are .... , ...

3. In the sequence 7, 14, 21, 28... 7*n* is the ....

4. **Consecutive** means ....

5. To **generate** is ....

6. A **finite** sequence is ....

B. Rules for the nth term

Complete the following definition:

The nth term is the ....

Now look up **nth term** in your Letts Maths Dictionary to check that you are right.

Express **in words** the *n*th term of the following sequences. The first one has been done for you.

1. The *n*th term of the sequence 7, 14, 21, 28, 35...   is *seven times n* ....

2. The *n*th term of the sequence 6, 11, 16, 21, 26...   is ....

3. The *n*th term of the sequence 9, 19, 29, 39, 49...   is ....

4. The *n*th term of the sequence 40, 30, 20, 10, 0...   is ....

5. The *n*th term of the sequence 5, 9, 13, 17, 21...   is ....

6. The *n*th term of the sequence 1, 3, 5, 7, 9...   is ....

7. The *n*th term of the sequence 5, 8, 11, 14, 17...   is ....

8. The *n*th term of the sequence 5, 10, 15, 20, 25...   is ....

Space for working

$x = a^2$ **Worksheet 14**

Equations and formulae

A. Vocabulary

Here are some words used in algebra:

brackets equation expression formula solution term unknown value variable

Complete the following statements to show that you understand the meaning of these words. Then check their meaning in your Letts Maths Dictionary.

1. An **unknown** is ....
2. A **variable** is ....
3. The difference between an **equation** and an **expression** is

   ....
4. A **formula** is ....
5. In algebra, **brackets** are ....
6. Another word for **solution** is ....
7. You find the **value** of the formula when you ....
8. A **term** is a ....

B. Expressions

This is an expression: $n + 3$
We can write this in words as: Add three to a number.

Now write the following expressions in words.

1. $5 - n$ ....
2. $n + 1$ ....
3. $2n - 3$ ....
4. $6 - 2n$ ....
5. $n \div 3$ ....
6. $4(n + 1)$ ....
7. n^2 ....
8. $2n^3$ ....

C. Inverse

Your Letts Maths Dictionary will help you find the meaning of **inverse**.

Does it have any synonyms (words that mean the same)? Write them here:

....

The words on the right are all operations used in algebra. Write the inverse operation alongside each term. The first one has been done for you.

	Operation	Inverse operation
1.	addition	*subtraction*
2.	division	
3.	factorise	
4.	multiplication	
5.	multiply out brackets	
6.	square	
7.	square root	
8.	subtraction	

$x = a^2$ Worksheet 15

Graphs

A. Vocabulary

Here are some words you need to know before you start to draw graphs:

axis   coordinates   graph   intercept   origin   plot

Complete the following statements about these words. Then look them up in your Letts Maths Dictionary to see if you are correct.

   1. A **graph** is a way of ....
   2. An **axis** is ....
   3. The **origin** is the ....
   4. **Coordinates** are ....
      They are given in the form ....
   5. To **plot** points for a graph means ....
   6. An **intercept** is the ....

B. Straight-line graphs

Complete the following statements about straight-line graphs. Then use your Letts Maths Dictionary to check that you are right.

   1. A .... graph has a general equation $y = mx + c$.
   2. The slope of a straight-line graph is the g.............................. .
   3. In the equation $y = mx + c$, 'm' represents the ....
   4. In the equation $y = mx + c$, 'c' represents the ....

Give the values of 'm' and 'c' in these equations:

   5. $y = 6x + 1$ $m =$ .... $c =$ ....
   6. $y = 2x - 5$ $m =$ .... $c =$ ....
   7. $y = 3 - x$ $m =$ .... $c =$ ....

C. Coordinates

Check the meaning of **coordinates** in your Letts Maths Dictionary. A table of coordinates gives the values needed to plot points for a graph.

Fill in the table of coordinates below for the graph of $y = 3x - 2$. The first pair of coordinates has been done for you.

x	−1	0	1	2	3	4	5
$3x$	−3						
−2	−2						
y	−5						

Now draw the axes, plot these points and draw the line of $y = 3x - 2$ on the graph paper on the right.
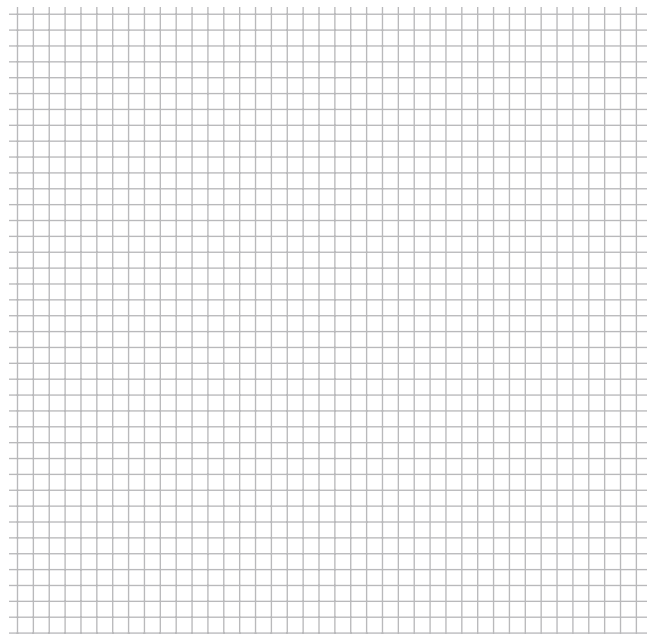
$x = a^2$ **Worksheet 16**

Sequences

A. Pascal's triangle

Answer the following questions about Pascal and Pascal's triangle. You may need to look up the entry in your Letts Maths Dictionary.

1. Who was Pascal? ....

2. What is Pascal's triangle used for? ....

3. Write down Pascal's triangle in the box on the right until you reach a row of 10 numbers.

4. Find the sum of each row.

....

5. What do you notice about these amounts? Are they connected in any way?

....

....

....

....

B. Fibonacci sequence

Answer the following questions about Fibonacci and the Fibonacci sequence. You may need to look up the entry in your Letts Maths Dictionary.

1. Who was Fibonacci? ....

2. How did Fibonacci generate his sequence? ....

....

3. Write down the Fibonacci sequence until you reach the 10th term.

....

C. Codes

Complete the following definition. Then look up **code** in your Letts Maths Dictionary to see if you are correct.

A code is ....

In a code that changes numbers to letters, each letter of the alphabet is replaced by the number of its position. For example, D is replaced by 4.

Here are three words in code. Can you translate them? They are all connected with sequences.

1. 3, 15, 14, 19, 5, 3, 21, 20, 9, 22, 5 ....

2. 6, 9, 14, 9, 20, 5 ....

Now can you translate these three words into number code?

3. INCREASE ....

4. PATTERN ....

$x = a^2$ **Worksheet 17**

Equations and formulae

A. Solutions

What does **solution** mean? Complete the following definition, then check it in your Letts Maths Dictionary.

A **solution** is ....

To find the solution of this number puzzle, you need to translate the words into numbers and symbols to form an equation. This example has been done for you.

Think of a number. Multiply it by 7, take away 3 and you will get 11.

What is the original number?

Solution:

Let the number be *x*.

$7x - 3 = 11$

$7x = 14$

∴ The original number is 2.

Now find the solution of these 2 puzzles. Write them out as number equations, as in the example above.

1. 2 numbers added together make 14. The difference between the 2 numbers is 2. What are the 2 numbers?

2. My lawn is rectangular. The length is twice the width. The perimeter is 66 m. What is the width of my lawn?

B. Brackets

Check the meaning of **bracket** and **multiply out** in your Letts Maths Dictionary. Now solve the following equations. The first has been done for you.

1. $3(2x - 5) = 21$ $6x - 15 = 21, ∴ 6x = 36, giving x = 6$

2. $y + (y + 5) = 75$

3. $2(a - 1) = 8$
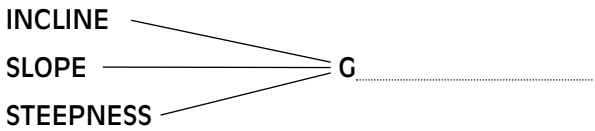
4. $3(b + 2) - 2 = 19$

5. $7 - 2(y + 1) = 5$

$x = a^2$ **Worksheet 18**

Graphs

A. On a slope

The words below are all similar but are used in different contexts. There is one word for a ratio connecting all of them. Write this word in the space.

INCLINE

SLOPE ———— G ....

STEEPNESS

How do you work out the ratio of a slope?

....

Draw a line with a positive ratio.   Draw a line with a negative ratio.

B. Define and illustrate

Write definitions of the following words, and add an illustration as an example. Make sure you choose the appropriate definition for graphs. Then check the entries in your Letts Maths Dictionary.

Headword	Definition	Illustration
1. axis		
2. coordinate		
3. intercept		
4. linear graph		
5. plot		
6. quadrant		
7. straight-line graph		

$x = a^2$ Worksheet 19

Name ....

Date ....

Class ....

Sequences

A. Quadratic sequences

Complete the following definition. Then look up **quadratic sequence** in your Letts Maths Dictionary to see if you are right.

A quadratic sequence is based on comparing a sequence with s........................ numbers.

Now answer these questions.

1. Continue this sequence until the 10th term: 1, 4, 9... ....

2. Complete the following procedure for generating a quadratic sequence by filling in the gaps.

1	2	3	4	5	n	(number of term)
1^2	2^2	....	....	....		(square numbers)
3	6	11	18	27		(quadratic sequence)
$2 + 1^2$	$2 + 2^2$	....	....	....		(compare sequence with squares)

3. Continue this sequence of cubes until the 10th term: 1, 8, 27...

....

....

....

4. Are the sequences in the previous questions **ascending** or **descending**? You may need to look up these words in your Letts Maths Dictionary.

....

5. Give one example of an ascending sequence and one of a descending sequence.

....

....

B. Rules

Each sequence follows a **rule**. The following sentences show you how to find the rule. Fill in the gaps in the sentences. You may need to use your Letts Maths Dictionary to check definitions.

1. Find the diff........................ between terms.

2. Is there a connection between con........................ terms?

3. Number the position of each term in the se........................ .

4. Compare each t........................ with the number of its position.

5. If there is no common diff........................ between t........................, compare with the s........................ of sq........................ numbers.

$x = a^2$ Worksheet 20

Equations and formulae

A. Formula

Answer the following questions, filling in the missing words where required. Then use your Letts Maths Dictionary to see if you are right.

1. A **formula** is ....

2. What is the plural of formula? ....

3. Why are the temperature scales called F......................... and C......................... ?

....

4. An important formula is used to convert temperature from F......................... to C......................... . What is the formula used for the conversion? ....

5. Use this formula to change a temperature of 82°F to °C. Round it to the nearest degree. What do you notice about the two temperatures?

....

B. Pairs of words

Show that you understand the meaning of each pair of words below by completing the definitions. Then check that you are right by looking up the words in **bold** in your Letts Maths Dictionary.

1. An **equation** is .... , whereas an **inequality** is ....

2. A **linear expression** has .... , but a **quadratic expression** has

....

3. The **square** of n means .... , whereas the **cube** of n means ....

4. A **formula** is .... , but a **function** is ....

5. A **factor** is .... , but a **common factor** is the ....

C. Simultaneous equations

1. Complete the following definition. Check by looking in your English dictionary.

Simultaneous means ....

2. Complete the following definition. Check by looking in your Letts Maths Dictionary.

An **equation** is ....

3. Write down a possible reason why **simultaneous equations** have been given this name.

....

4. Form simultaneous equations from the following sentences:

In 3 years' time Alisha's mother will be twice as old as Alisha. ....

In 10 years' time, the difference between their ages will be 18. ....

Work out how old Alisha is now. ....

$x = a^2$ Worksheet 21

Graphs

A. Curves

In your Letts Maths Dictionary, look up the definitions of the words in **bold**. You will then be able to answer the questions.

1. What is the connection between the words **parabola** and **quadratic function**?

2. Sketch a parabola with a **maximum point**.

3. What is the difference between a **quadratic function** and a **cubic function**?

4. Sketch a cubic function with a **minimum point**

B. Cub-

How many words beginning with **cub** are there in your Letts Maths Dictionary? ....

Make two lists of these words below, writing the meaning alongside each word.

List **A** (words connected to algebra)

Word: .... Meaning: ....

Word: .... Meaning: ....

Word: .... Meaning: ....

Word: .... Meaning: ....

List **B** (all other words)

Word: .... Meaning: ....

Word: .... Meaning: ....

Word: .... Meaning: ....

Word: .... Meaning: ....

Word: .... Meaning: ....

Word: .... Meaning: ....

Word: .... Meaning: ....

What is the connection between all these words?

....

C. Inequalities

Underline the correct word in brackets in each of the following statements.

1. Inequalities are shown by the (symbols, points) $<, \leq, \geq, >$.

2. Simplify an inequality before (operating, solving) it.

3. Inequalities have a range of (results, solutions).

4. This range has both maximum and minimum (qualities, values).

⌺ Worksheet 22

Angles, triangles and solids

A. Angles

Draw an example of each type of angle listed below. Then look them up in your Letts Maths Dictionary to see if you are correct.

1. acute angle   **2.** obtuse angle   **3.** reflex angle

4. right angle   **5.** angles at a point   **6.** angles on a straight line

B. Triangles

Draw a line connecting the name of each triangle to its description. The first one has been done for you. Then look up these terms in your Letts Maths Dictionary to see if you are right.

Triangle	**Description**
1. acute triangle	one right angle
2. equilateral triangle	three different sides
3. isosceles triangle	one obtuse angle
4. obtuse triangle	three equal sides
5. right-angled triangle	two equal sides
6. scalene triangle	three acute angles

C. Nets

1. Complete this statement:

A net is a _____ .

2. Underline the solids in the list below that can be made from a net:

**cube   cuboid
sphere   tetrahedron**

You may need to check the definitions in your Letts Maths Dictionary.

3. Choose one of the solids in the list above and draw the net on the squared paper on the right.
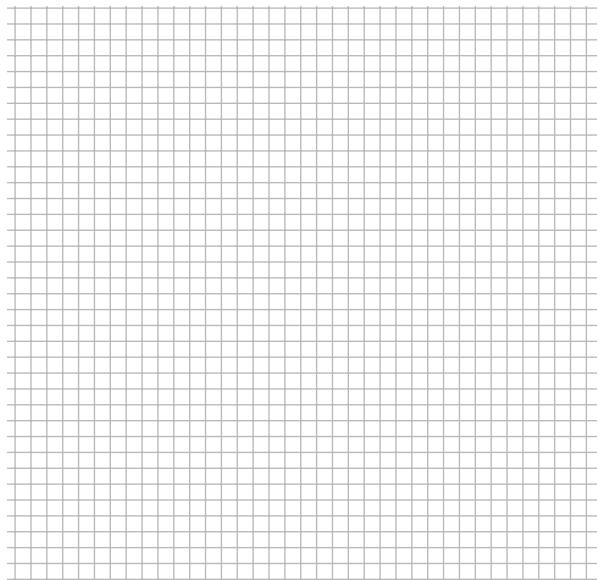
📏 Worksheet 23

Name ....

Date ....

Class ....

Polygons and polyhedrons

A. Quadrilaterals

Fill in gaps in these sentences, which describe the features of some quadrilaterals. If you need help, look up the words in **bold** in your Letts Maths Dictionary. Note that the first gap in each sentence is a number.

1. A **square** has _____ equal sides and 4 r_____ a_____.

2. A **rectangle** has _____ pairs of equal p_____ sides.

3. A **rhombus** has _____ e_____ sides.

4. A **kite** has _____ pairs of equal ad_____ sides.

5. A **trapezium** has _____ pair of p_____ sides.

6. An **isosceles trapezium** has _____ pair of e_____ sides.

7. An **arrowhead** has _____ pairs of e_____ ad_____ sides.

8. A **parallelogram** has _____ pairs of op_____, e_____ and p_____ sides.

B. Solids

Join each **solid** to the correct number of faces. You will find the answers in your Letts Maths Dictionary. The first one has been done for you.

1. cube		20
2. cuboid		12
3. tetrahedron		5
4. pentahedron		6
5. decahedron		4
6. dodecahedron		6
7. icosahedron		10

C. Spelling

In each of the following sets of words, one word is spelt incorrectly. Circle it and then write the correct spelling in the space provided. Use your Letts Maths Dictionary to check that you are right.

1. base, hieght, line _____

2. conkave, convex, curve _____

3. horisontle, perpendicular, vertical _____

4. cube, cuboid, silinder _____

5. prizum, pyramid, sphere _____

6. object, image, reflecshon _____

Worksheet 24

Area, volume and measure

A. *Different meanings*

Here is a list of pairs of words that are close to each other in the Letts Maths Dictionary. Write one sentence explaining what the difference is in their meaning. The first one has been done for you.

1. centigram/centigrade *A centigram is a measure of weight, but centigrade is a measure of temperature.*

2. cube/cuboid

3. kilometre/kilogram

4. millilitre/millimetre

5. minute/millennium

6. prism/pyramid

B. *Missing words*

Fill in the missing words. Then look up the words in **bold** in your Letts Maths Dictionary to see if you are right.

1. The area of a **rectangle** is l_____ times b_____.

2. The v_____ of a **cuboid** is length times breadth times h_____.

3. A **tetrahedron** has 4 t_____ faces.

4. A **hemisphere** is half a s_____.

5. The **perpendicular** height is drawn at r_____ a_____ to the base.

6. The plural of **vertex** is v_____.

C. *Abbreviations*

Join each measure to its abbreviation with a line. The first one has been done for you. Check the entries in your Letts Maths Dictionary to see if you are right.

1. millimetre   g

2. gram   km²

3. centilitre   cm²

4. square kilometre   mm

5. litre   kg

6. square centimetre   min

7. minute   l

8. kilogram   cl

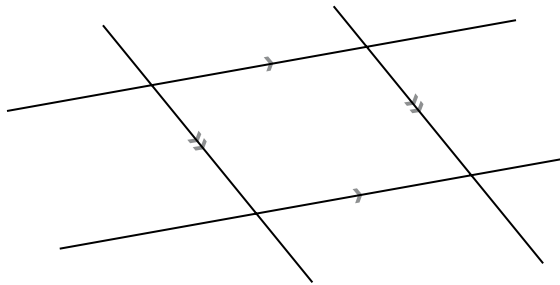# ⟪ruler⟫ Worksheet 25

Constructing

A. Angles on parallel lines

Use your Letts Maths Dictionary to find out about these angles:

alternate angles   corresponding angles   interior angles   vertically opposite angles

Mark a pair of each type of angle
on these parallel lines:

B. Bisect

Make sure you know what **bisect** and **bisector** mean by looking them up in your Letts Maths Dictionary. Then complete the following statements.

1. When an angle of 64^0 is bisected, the result is two angles of _____.

2. The bisector of a line measuring 4.8 cm forms 2 line se_____ of
_____ cm each.

3. The bisector passes through the m_____ of the line.

4. The perp_____ bisector of the base of a isosceles triangle forms 2 equal
smaller triangles. These are con_____.

C. Word crosses

Two words with the same middle letter can be arranged in the form of a cross. For example:

```
              A
              N
    R  I  G  H  T
              L
              E
```
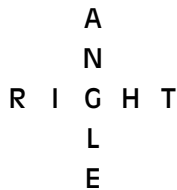
Form a word cross from each of the pairs of definitions below. Note that the words do not
have to be the same length.

1. An angle between zero
and ninety degrees + a
word meaning identical.

2. A triangle with three
different sides + an
instrument for drawing
a straight line.

3. A word meaning a
figure + another word
for a reflection.

📏 Worksheet 26

Polygons and polyhedrons

A. Polygons

Complete these words to form the name of a polygon. Then write down the number of sides for each polygon. The first one has been done for you. If you need help, look in your Letts Maths Dictionary.

1. quad*rilateral*　4

2. penta

3. hexa

4. hepta

5. octa

6. nona

7. deca

8. dodeca

B. All mixed up

Sort out these words to make sense, and write out the sentences. If you need help, look up the words in **bold** in your Letts Maths Dictionary.

1. Five has vertices a **pentagon**.

2. A pattern is polygons of a **tessellation**.

3. A has pair of angles a opposite equal **kite**.

4. A is quadrilateral shape almost a **delta**.

5. Two parallel pairs of a **rhombus** has sides.

6. Dimensions a three **solid** has.

7. Shape vertices of a **diagonal** joins two a.

8. **Supplementary** polygon interior angle the angle exterior are a and of.

C. Sketch these words

Draw a small sketch to illustrate each of these words. Then compare them with the diagrams in your Letts Maths Dictionary.

1. arrowhead

2. set square

3. cuboid

4. hemisphere

5. hexagon

6. kite

7. isosceles trapezium

8. cube

9. rhombus

⊞ Worksheet 27

Measures and measuring

A. Missing measures

Fill in the missing words in the sentences below. Use your Letts Maths Dictionary to see if you are right.

1. Bearings are measured in d_____.

2. Area can be measured in h_____.

3. A tonne measures _____.

4. Measure time in s_____, m_____ and h_____.

5. There are three f_____ in a yard.

6. A year has _____ days, _____ weeks and _____ months.

B. Choosing words

Underline the correct word from the words in the brackets.

1. The man was 6 (inches, feet, yards) tall.

2. Measure bearings in a (clockwise, anticlockwise) direction from (north, south, east, west).

3. Jack lives 400 (millimetres, centimetres, metres) from his school.

4. Jenny took 20 (seconds, minutes, hours) to walk across town.

5. She bought a 500 (litre, millilitre, centilitre) carton of milk at the supermarket.

6. The field measured 50 (square metres, square centimentres, hectares).

C. Abbreviations

Join the measure to its correct abbreviation with a line. The first one has been done for you. Check the words in your Letts Maths Dictionary to see if you are right.

1. cubic millimetre   lb

2. ounce   gal

3. pound   pt

4. foot   m³

5. cubic centimetre   mm³

6. pint   oz

7. cubic metre   cm³

8. gallon   ft

▭ Worksheet 28

Name ....

Date ....

Class ....

Angles and triangles

A. *Right angles*

You may need to check the definitions of the words in **bold** in your Letts Maths Dictionary before you start this sheet.

1. Draw a **right-angled triangle** in the box opposite.
2. Mark the **right angle** in the correct way.
3. Label the **hypotenuse**.
4. Mark another angle. Label the sides **adjacent** and **opposite** to this angle.

B. *Pythagoras' theorem*

1. Complete the definition of Pythagoras' theorem below. Look up this theorem in your Letts Maths Dictionary to check that you are right.

   In a r_____ triangle, the
   sq_____ on the h_____ is
   equal to the s_____ of the
   sq_____ on the other
   t_____ sides.

2. Copy the diagram in the Dictionary on the right.

C. *Trigonometry*

Can you remember the trigonometry ratios? If not, look up **SOHCAHTOA** in your Letts Maths Dictionary.

Now complete these ratios, using the words **opposite**, **adjacent** and **hypotenuse**:

1. sine =

2. cosine =

3. tangent =

D. *Applying what you know*

Now solve these problems using the facts that you have learnt on this worksheet.

1. DEF is a right-angled triangle with ∠F = 90°. Find the missing side if EF = 3 cm and FD = 4 cm.
2. XYZ is a right-angled triangle with ∠Z = 90°, ∠X = 73° and XY = 8.5 cm. Find YZ.
3. PQR is a right-angled triangle with ∠Q = 90°, the hypotenuse is 18 cm and PQ = 14 cm. Find QR.

⬜📏 Worksheet 29

Constructing and transforming figures

A. Transformations

Complete the following definitions. Then look up the words in **bold** in your Letts Maths Dictionary to see if you are right.

1. An **enlargement** is _____.

2. **Reflection** is _____.

3. **Rotation** is _____.

4. **Translation** is _____.

B. Constructions

When you are asked to **construct** a figure, what do you have to do? If you cannot remember, check the definition in your Letts Maths Dictionary.

The words below are names of pieces of equipment you may need to construct a figure, but the letters are jumbled up. Write the correctly spelt words in the spaces. The first one has been done for you.

1. euler _____*ruler*_____

2. nciple _____

3. pesasoscm _____

4. ractorprot _____

5. epn _____

6. burbre _____

7. est arsqeu _____

8. rashpreen _____

C. Circle

Complete this description by writing the correct word from the circle in the gaps provided.

A circle is a _____ _____. The distance from the _____ to the circumference is the _____. The diameter is _____ the radius. A _____ is a straight line joining the ends of an _____. It divides the circle into a _____ and a _____. The _____ of a circle is found from the formula C = 2πr.

centre
major segment
radius   shape
circumference   arc
minor segment
round   twice
chord
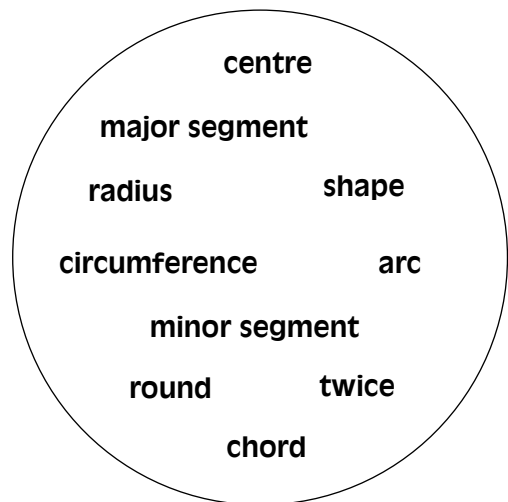
Worksheet 30

Name ....

Date ....

Class ....

Area, volume and measure

A. Cross-sections

Complete the definitions of these solids, then check them in your Letts Maths Dictionary.

1. The uniform cross-section of a **triangular prism** is a t_____.

2. The uniform cross-section of a **cube** is a s_____.

3. The uniform cross-section of a **sphere** is a c_____.

4. The uniform cross-section of a **cylinder** is a c_____.

5. The uniform cross-section of a **cuboid** is a r_____.

B. Compound measures

Fill in the gaps in the following statements with the correct measures. You may need to look up the words in **bold** in your Letts Maths Dictionary.

1. **Average speed** is total d_____ per total t_____.

2. **Density** is m_____ per unit v_____.

3. **Pressure** is f_____ per unit a_____.

4. A car's fuel consumption is **miles per** g_____ or l_____ per k_____.

C. Find the word

Find the hidden words. All are in your Letts Maths Dictionary and all are connected with shape, space and measures.

B	R	E	A	D	T	H	Z	U	Q
A	E	D	E	E	P	S	B	O	U
S	R	F	X	N	H	I	E	S	J
E	U	O	E	S	T	G	A	S	A
V	S	R	T	I	D	H	R	A	R
O	S	C	R	T	I	T	I	M	E
L	E	E	E	Y	W	K	N	U	A
U	R	B	V	L	E	N	G	T	H
M	P	E	R	I	M	E	T	E	R
E	B	E	C	N	A	T	S	I	D

You should be able to find 18 words.

▙▟▖ Worksheet 31

Data and averages

A. Vocabulary

Here are some words that you need to use when you collect and analyse data:

**data experiment frequency information questionnaire
statistics survey table tally**

Complete the following statements about these words. You may need to look up the entries in your Letts Maths Dictionary.

1. Information is another word for ....

2. A **survey** is a way of ....

3. A **questionnaire** is useful because ....

4. An **experiment** is a ....

5. Statistics is a word describing ....

6. A **table** is used for ....

7. When you **tally**, you ....

8. The **frequency** is the ....

B. Averages

Complete this definition:

An **average** value is ....

Now look this word up in your Letts Maths Dictionary. At the end of the entry you are referred to three other entries. What are they?

1. .... **2.** .... **3.** ....

When you are analysing data, you will use these three different averages for different situations. Look up the separate entries and write down the definitions. The definitions should include the methods used to calculate each average.

1. Name of average: .... Definition: ....
....

2. Name of average: .... Definition: ....
....

3. Name of average: .... Definition: ....
....

C. Words

Open your Letts Maths Dictionary at any page. Count 100 words. Record the number of words of each length in the table below.

No. of letters	1	2	3	4	5	6	7	8	9	10	11	12
No. of words												
Total letters												

Now work out the average number of letters in a word on the page you have opened. Which average will you use?

▁▄▆▃ Worksheet 32

Tables and charts

A. Representing data

Put 'chart', 'graph', 'polygon' or 'table' after the following words to give 8 different ways of representing data. There are 3 entries for 'frequency'; it is not a mistake! Refer to your Letts Maths Dictionary if you need help.

1. tally ....

2. bar ....

3. bar-line ....

4. frequency ....

5. frequency ....

6. frequency ....

7. pie ....

8. picto ....

B. Tallying

Use your Letts Maths Dictionary to help you answer the following questions.

1. What is the meaning of **tally**? ....

....

2. Which language does the word **tally** come from? ....

3. What is the history of the word **tally**? ....

4. ....

This table shows tally marks and numbers. Fill in the gaps.

Tally	Number
||||	....
....	25
....	12
ℍℍ |||	....
....	31

C. Drawing bar charts

Look up **bar chart** and **bar-line graph** in your Letts Maths Dictionary.

Sketch the following charts. Label the axes and give a title to each one.

1. A horizontal bar chart	**2.** A vertical bar chart	**3.** A bar-line graph

⊞⊟ **Worksheet 33**

Probability

A. Opposites

There are a number of words used in probability that are made into their opposites by adding a prefix. Add a prefix to each headword below to form the opposite. You will find your Letts Maths Dictionary useful for checking. The first one has been done for you.

(Opposite words are also called **antonyms**.)

	Headword	+	Prefix	=	Opposite
1.	certain	+	*un*	=	*uncertain*
2.	likely	+		=	
3.	possible	+		=	
4.	fair	+		=	
5.	biased	+		=	

B. Probability

Look up **probability** in your Letts Maths Dictionary, then complete the following statements. You may have to look up additional words.

1. The probability of an event occurring is ....
....

2. Probability can be given in three forms: ....
....

3. Probability is found by ....
....

4. The symbol used for probability is ....
....

5. A probability scale is ....
....

6. If an event is certain, its probability equals ....
....

7. If an event is impossible, its probability equals ....
....

C. Outcomes

Outcomes can be **certain**, **likely**, **unlikely**, **impossible**.

Check the meanings of these words in your Letts Maths Dictionary and then match them to the following statements.

1. I will get a score of 15 when I throw 2 dice. ....

2. You will eat an apple today. ....

3. Monday will follow Sunday next week. ....

4. He will score 4 goals in the next match. ....

5. I will pick a red queen from the pack of cards. ....

6. The sun will set in the west tomorrow. ....

┗┲┓ Worksheet 34

Gathering data

A. Types of data

The words in the left-hand column below all relate to handling data. Their meanings have been given in the right-hand column, but in the wrong order. Draw a line from each term to connect it to the correct meaning. Then use your Letts Maths Dictionary to check if you are right.

1. sample		the limits of a group
2. hypothesis		arranged in groups with no gaps
3. discrete data		information organised in groups
4. continuous		a group of observations
5. grouped data		a theory tested by investigation
6. class interval		separate items or groups of data

B. Sources

Complete this statement, then look up the words in **bold** in your Letts Maths Dictionary to see if you are right.

A **primary source** of data is ....,
whereas a **secondary source** of data is found ....
....

An example of a secondary source is a reference book.
List 5 more secondary sources below.

1. ....

2. ....

3. ....

4. ....

5. ....

C. Questionnaires

When you design a questionnaire, you should remember the following points:

1. Make your questions short and give a choice of answers.

2. Questions should not be too complicated.

3. Questions should have a definite answer; they should not be too open.

4. Do not give your opinion; that would be a leading question.

5. Questions should be in a logical order.

Design a questionnaire to survey how useful students find the Letts Maths Dictionary. Include at least 5 questions.

⌷⌷⌷ **Worksheet 35**

Tables and charts

A. Representing data

Put **chart**, **diagram**, **graph**, **pyramid** or **table** after the following words to give 8 different ways of representing data. Refer to your Letts Maths Dictionary if you need help.

1. distance–time ....

2. line ....

3. population ....

4. scatter ....

5. stem-and-leaf ....

6. two-way ....

7. picto..

8. pie ....

B. Illustrating data

Choose 4 of the methods in section A. Look them up in your Letts Maths Dictionary.

Draw an illustration of each of them, making sure that you label the axes and give them a title.

1.

2.

3.

4.

C. Charts

Which chart would you use to represent data in each of the following activities? Look up the words in section A in your Letts Maths Dictionary if you need help.

1. Illustrate a survey of cars. ....

2. Compare the different breads sold in the supermarket. ....

3. Compare English and French examination marks. ....

4. Illustrate a train journey. ....

5. Compare the population of two cities. ....

╷╷╷╷╷ Worksheet 36

Probability

A. Chance

Complete this statement: Chance is another word for p_____.

Check your answer in your Letts Maths Dictionary.

Now answer the following questions.

1. If the probability equals zero, what do you know about the event? ....

2. What would the opposite situation be? ....

3. If there is a poor chance of something happening, what is the range of probability?

....

4. What is the probability of an even chance? ....

5. What does the term 'fifty-fifty chance' mean? ....

B. Probability

Open your Letts Maths Dictionary at any page. Count 100 words. Record the number of words of each length in the table below.

No. of letters	1	2	3	4	5	6	7	8	9	10	11	12
No. of words												

Work out the probabilities of words of a particular length occurring on that page. For example, if there were 11 words with 5 letters in your sample, the probability of a 5-letter word occurring would be 11/100.

P(2 letter word) = ... P(8 letter word) = ...

P(3 letter word) = ... P(9 letter word) = ...

P(4 letter word) = ... P(10 letter word) = ...

P(5 letter word) = ... P(11 letter word) = ...

P(6 letter word) = ... P(12 letter word) = ...

P(7 letter word) = ...

C. Experimental and theoretical probability

Complete these statements, then check them against the relevant entries in your Letts Maths Dictionary.

Experimental probability is found by ....

Theoretical probability is found by ....

The National Lottery draw uses balls numbered 1 to 49. The theoretical probability of the first ball being an even number is 24/49. What is the theoretical probability of the first ball being each of the following?

1. P(odd number) = ... **3.** P(prime number) = ...

2. P(multiple of 3) = ... **4.** P(includes digit 0) = ...

How would you do an experiment to test these probabilities?

....

📊 Worksheet 37

Data and sampling

A. Recording data

Use each of the following words or phrases in a sentence to show the meaning clearly. Your Letts Maths Dictionary will help you if necessary.

analyse   database   data collection sheet   questionnaire   raw data

1. ....
2. ....
3. ....
4. ....
5. ....

You have been asked to conduct a survey into which sports people play or follow in their leisure time.

What different aspects of sport will you need to mention in your questionnaire?

....

....

....

....

B. Sampling

Complete the following statements on sampling and answer the questions. Your Letts Maths Dictionary will help you.

1. You should select a ra_____ sample. Why? _____
   ....

2. It should be a rep_____ sample. Why? _____
   ....

3. You must make sure your sample is not bi_____. Why? _____
   ....

4. There is a sample of the pop_____ taken every _____ years called a c_____. Why might this be useful? _____
   ....

C. Sources

Below are some different kinds of secondary sources, but the letters in each word are jumbled up. Can you unscramble them? To help you, the capital letter marks the beginning of each word.

1. dEpcyenoclai _____
2. tenternI _____
3. cRenefeer skobo _____
4. sCrodm _____
5. weaNsprsep _____
6. dePtrin bleats _____

Name	....
Date	....
Class	....

▁▂▃ **Worksheet 38**

Tables and charts

A. Analysing data

Fill in the missing words in the statements below. Then check them in your Letts Maths Dictionary.

1. All data collected is shown in a t_____.

2. Represent the data in a g_____, c_____ or d_____.

3. These can be drawn or generated on a co_____.

4. To compare results from two different surveys use fr_____ p_____.

5. To compare two variables draw a sc_____ g_____.

6. When all points have been plotted, draw a l_____ of b_____ f_____.

7. The variables are connected by cor_____.

8. Grouped data is sometimes represented in a cu_____ fr_____ g_____.

B. Cumulative frequency

1. Complete the following definition. Check by looking in your English dictionary.
   Cumulative means _____.

2. Complete the following definition. Check by looking in your Letts Maths Dictionary.
   The **frequency** is _____.

3. Write down a possible reason why **cumulative frequency** has been given this name.
   _____.

If you are going to draw a **cumulative frequency graph**, you need to know what the following words mean. Look them up in your Letts Maths Dictionary.

interquartile range   lower quartile   median   ogive   quartile   upper quartile

4. Sketch a cumulative frequency graph below and label the **quartiles** and **median**.

Now complete these 2 statements:

5. You calculate the **interquartile range** by _____.

6. **Ogive** is a special name for _____.

⊞⊞ **Worksheet 39**

Probability

A. *Events*

Complete the following definitions. Then look up the words in **bold** in your Letts Maths Dictionary to check if you are right.

1. **Mutually exclusive** events are ....

2. **Independent** events are ....

3. We use the '**or**' **rule** for .... events.

4. We use the '**and**' **rule** for .... events.

State whether you would use the 'and' rule or the 'or' rule to calculate the probability of each of these 2 events:

5. Find the probability of picking a red or blue ball from a bag containing 4 blue, 7 red and 2 green balls.

I'd use the .... *rule.*

6. Find the probability of picking a red ball and then putting it back, before picking a blue ball from a bag containing 4 blue, 7 red and 2 green balls.

I'd use the .... *rule.*

Now work out the probabilities.

B. *Relative frequency*

Complete these statements, then check the entry in your Letts Maths Dictionary to see if you are right.

1. **Relative frequency** is a way of ....

2. The formula for relative frequency is ....

Now work out the following:

3. How many times would you get heads when you toss a coin 10 times?

....

4. How many times would you get heads when you toss a coin 2000 times?

....

C. *Tree diagrams*

1. Complete these sentences about tree diagrams.

A tree diagram is a way of ....

.... It is used when more than one event is taking place. It has br........................... like a tree. Each pair of branches is used to show P(event) and P(~~event~~). Remember that P(event) = 1 – P(~~event~~).

2. Look up **tree diagram** in your Letts Maths Dictionary and copy the diagram below.