

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Maths

Higher Level Algebra

It is not necessary to carry out all the activities contained in this unit.

Please see *Teachers' Notes* for explanations, additional activities, and tips and suggestions.

Theme	Higher Level Algebra
Levels	A1 – B1
Language focus	Key vocabulary, word identification, sentence structure, extracting information from text, writing text, grammar.
Learning focus	Using Maths textbooks and accessing curriculum content and learning activities.
Activity types	Matching, word identification, structuring sentences and text, cloze, multiple choice, reading comprehension, categorising vocabulary, recording learning, developing a learning resource.
Acknowledgement	Extracts from <i>Shortcuts to Success. Maths. Junior Certificate Ordinary Level. Mark Halpin. Gill & Macmillan.</i> We gratefully acknowledge Gill & Macmillan for the right to reproduce text in some of these activities.
Learning Record	A copy of the Learning Record should be distributed to each student. Students should: <ol style="list-style-type: none">1. Write the subject and topic on the record.2. Tick off/date the different statements as they complete activities.3. Keep the record in their files along with the work produced for this unit.4. Use this material to support mainstream subject learning.

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Making the best use of these units

- **At the beginning of the class**, make sure that students understand **what** they are doing and **why**. *'We are doing the exercise on page (12) to help you to remember key words / to help your writing skills / to help with grammar'* etc.
- You can create your **personal teaching resource** by printing these units in full and filing them by subject in a large ring binder.
- **Encourage students to:**
 - Bring the relevant **subject textbooks** to language support class. It does not matter if they have different textbooks as the activities in these units refer to vocabulary and other items that will be found in all subject textbooks. These units are based on curriculum materials.
 - Take some **responsibility for their own learning** programmes by:



Developing a **personal dictionary** for different subjects, topics, and other categories of language, on an on-going basis. This prompt is a reminder.

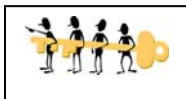


Recording what they have learnt on the **Learning Record**, which should be distributed at the start of each unit.



Keeping their own **files** with good examples of the work produced in language support for different subjects and topics. This file will be an invaluable **learning resource** in supporting mainstream learning.

- Don't forget that many of the activities in these units are suitable as **homework** tasks, for **self-study**, or for use in the **subject classroom** with the agreement of the subject teacher.



Indicates that answers may be found at the end of the unit.

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Keywords

The list of keywords for this unit is as follows:

Nouns

algebra
bracket
cost
denominator
equation
factor
fraction
information
item
newsagent
number
result
sign
single equation
square
term
type

Verbs

to add
to calculate
to change
to divide
to evaluate
to factorise
to get a result
to illustrate
to inform
to let
to multiply
to rearrange
to remember
to simplify

to solve
to write

Adjectives

common
correct
correctly
decimal
each
only (*adjective*)
quadratic
single

Adverb

always
once
only (*adverb*)
twice
when

Other

hence = so = therefore
more than
otherwise
in x = one unknown value
in x and y = two unknown values

Symbols

= equals
c cent/cents
 x^2 is x square/x squared

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Vocabulary file 1

This activity may be done in language support class or in the mainstream subject classroom.

Word	Meaning	Word in my language
x		
algebra		
factorise		
number		
term		
multiply		
write		

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Vocabulary file 1

This activity may be done in language support class or in the mainstream subject classroom.

Word	Meaning	Word in my language
equation		
to illustrate		
quadratic		
hence		
to simplify		
factor		
square		

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Level: A1

Type of activity: pairs or individual

Focus: vocabulary

Suggested time: 10 minutes



Working with words

1. Tick the correct answer



- a) this is geometry
- b) this is a fraction
- c) this is a percentage
- d) this is algebra



- a) this is geometry
- b) this is a fraction
- c) this is a percentage
- d) this is algebra

2. Tick the best answer. $x + 8 = 12$. What does x stand for?

- a. 8
- b. 12
- c. 4

3. Tick the best answer. The words stand for mean:

- a. to stand up
- b. to represent
- c. to fight for

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Level: A1
Type of activity: pairs or individual

Focus: vocabulary, basic sentence structure
Suggested time: 30 minutes



Picture Sentences

1. Tick the correct answer

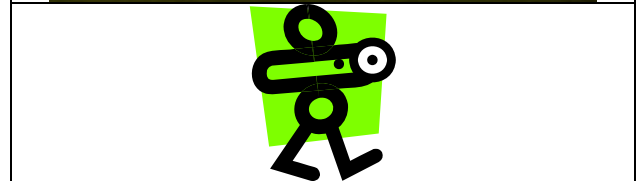
- a) This is a multiplication.
- b) This is division.
- c) This is subtraction.



- a) This is a multiplication.
- b) This is division.
- c) This is subtraction.



- a) This is a multiplication.
- b) This is division.
- c) This is subtraction.



2. Put these words in the correct order to form instructions.

consider problem the

numbers letters for substitute

add subtract and terms like

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Level: A1 / A2

Type of activity: pairs or individual

Focus: word identification, vocabulary

Suggested time: 20 minutes

Odd One Out



1. Circle the word which does not fit with the other words in each line.

Example: *apple* *orange* *banana* **taxi**

geometry algebra cat maths

divide speak multiply subtract

a quarter one a third a half

solve find remember fraction

2. Find these words in your textbook. Then put them in short sentences in your own words. Use a dictionary if necessary.

to stand for _____

to substitute _____

to remove _____

to simplify _____

to consider _____



Check that these key words are in your personal dictionary.

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Level: A2 / B1
Type of activity: individual

Focus: key vocabulary, writing
descriptive text
Suggested time: 20 minutes



Maths Keywords

1. Fill in the missing letters of the keywords listed below.

On the line next to the keywords, write down whether this word is a noun, an adjective or a verb.

fac__ri_e _____

qua__at_c _____

equ__ion _____

fa__ors _____

2. Write as many words as possible related to **algebra** / **this unit**. You have 3 minutes!

NAME: _____ DATE: _____

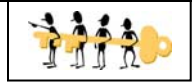
MATHS: Higher Level Algebra

Level: A1 / A2

Type of activity: pairs or individual

Focus: key vocabulary, spelling

Suggested time: 20 minutes



Unscramble the letters

1. When you organise things more than once ARANERERG

Answer _____

2. Another way of saying that something is right RCOTERC

Answer _____

3. Two Maths phrases that are equal QEANTIUO

Answer _____

4. The part of Maths where letters and symbols are used to represent numbers GABLRAE

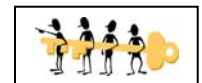
Answer _____



Solve the secret code

English=	A	B	E	F	G	I	L	N	R	S	U
Code=	C	X	Y	H	J	Q	K	O	M	P	W

example: (code) JQMK = GIRL (English)



CKJYXMC QP HWO! =

NAME: _____ DATE: _____

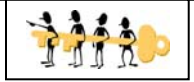
MATHS: Higher Level Algebra

Level: A2/B1

Type of activity: pairs or individual

Focus: vocabulary, sentence structure, reading comprehension

Suggested time: 30 minutes



Completing sentences

The sentences on this page are all instructions from your textbooks. Fill in the blanks in these sentences. Use words from the Word Box below.

1. Write each of the following without using the _____ sign.
2. _____ each of the following by adding like terms.
3. Find the _____ (length all round) of each of the following figures.
4. Remove the _____ in each of the following.
5. _____ each of the following as a single term to a power.
6. _____ the brackets and simplify each of the following.
7. _____ each of the following.
8. Multiply out and simplify _____ of these.
9. If $x = 2$ and $y = 4$, find the _____ of:
10. _____ out the length of this perimeter when $a=9$ and $b=3$.

Word Box

work	multiply	brackets	simplify	write	multiplication
		perimeter	remove	each	value

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Level: A2 / B1

Type of activity: individual

Focus: key vocabulary, topic information, reading comprehension

Suggested time: 30 minutes



Multiple choice

Read the text below and choose the best answers.

Question 2

(a) In a newsagent:

2 pens and 3 rulers cost 85c.

3 pens and 4 rulers cost €1.20.

Write two equations, in x and y , to illustrate the above information. Hence, calculate the cost of each item.

(b) Simplify $3x^2 - 4x - 4$

$9x^2 - 4$

(c) Solve for x : $-2(4x - 1) + 2 = 3(-2x + 1)$

Question 3

(a) Factorise each of the following:

(i) $3ax + 6xb - 2ay - 4by$

(ii) $4x^2 - 25y^2$

(b) Solve for a and b :

$3a + 2b = 16$

$4a - 3b = -7$

(c) When twice the square of a number is added to nine times the number, the result is five. Letting the number = x , write a single equation in x , and hence evaluate x .

1. Along with rulers, what is sold in the newsagent?

a) pencils

b) pencil cases

c) pens

d) paper

2. How many equations are you asked to write in Question 2 (a)?

a) none

b) two

c) one

d) twelve

3. What should you solve Question 3 (b) for?

a) a and b

b) b and c

c) b and d

d) nothing

4. In Question 3 (c), should you let the number = y ?

a. Yes

b. No

5. Should you evaluate x in Question 3 (c)?

a) Yes

b) No

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Level: B1

Type of activity: individual and pairs

Focus: identifying verbs and nouns

Suggested time: 30 minutes



Grammar points

1. Verb Hunt

Circle the 10 verbs in these lists. Score 4 points for each correct answer. Who will score the highest? Perhaps you will. Good luck!

substitute

algebra

solve

geometry

divide

equation

multiplication

simplify

only

consider

remove

change

division

addition

write

correctly

false

introduce

correct

true

perimeter

Score: _____ points

2. Verbs and nouns

Change all the verbs into nouns. Careful, some of them are tricky! Check with another student before looking at your dictionary.

multiply → multiplication

remove →

divide →

correct →

simplify →

change →

consider →

arrange →

subtract →

substitute →

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Levels A1 and A2 - Alphaboxes

Using your textbook, find **one** word beginning with each of the letters of the alphabet. Write the word in the relevant box. You could also write the word in your own language.

a	b	c
d	e	f
g	h	i
j	k	l
m	n	o
p	q	r
s	t	u
v	w	xyz

Do you understand all these words?



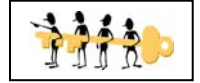
Get your teacher to check this, then file it in your folder so you can use it in the future.

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Word Search

Level: All levels



Find the words in the box below.

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

AMOUNT	EXAMPLE	KILOMETRE	QUADRATIC
CORRECT	FACTOR	MULTIPLY	REARRANGE
COSTS	FACTORISE	NUMBER	SIGN
CREDITS	HENCE	PERCENTAGE	SPEED
CUTOFF	INCOME	PRICE	WRITE
EQUATION	INTEREST	PROFIT	

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Play Snap:

Do up Snap cards with 2 sets of the same keywords on them, shuffle them and let your students play cards.

Get the students to write the words for you.



equation	equation
factors	factors
quadratic	quadratic

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

algebra	algebra
correct	correct
number	number

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

solve	solve
rearrange	rearrange
multiply	multiply

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

hence	hence
sign	sign
term	term

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Answer key

Working with words, page 6

1. d, a
2. c
3. b

Picture sentences, page 7

1. a, c, b
2. Consider the problem.
Substitute letters for numbers. Or. Substitute numbers for letters.
Add and subtract like terms.

Odd One Out, page 8

Cat, speak, one, fraction

Maths key words, page 9

factorise (verb), quadratic (adjective), equation (noun), factors (noun)

Unscramble the letters, page 10

Rearrange, correct, equation, algebra

Secret Code: algebra is fun

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Completing Sentences, page 11

Write each of the following without using the **multiplication** sign.

Simplify each of the following by adding like terms.

Find the **perimeter** (length all round) of each of the following figures.

Remove the **brackets** in each of the following.

Write each of the following as a single term to a power.

Remove the brackets and simplify each of the following.

Multiply each of the following.

Multiply out and simplify **each** of these.

If $x = 2$ and $y = 4$, find the **value** of:

Work out the length of this perimeter when $a=9$ and $b=3$.

Multiple choice, page 12

1c, 2b, 3a, 4b, 5a

Grammar points, page 13

1. Verbs: substitute, consider, correct, divide, simplify, remove, solve, change, write, introduce

2. Verbs and nouns

remove → removal

divide → division correct → correction

simplify → simplification change → change

consider → consideration arrange → arrangement

subtract → subtraction substitute → substitution

NAME: _____ DATE: _____

MATHS: Higher Level Algebra

Word Search

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