

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
 MATHS: Higher Level Arithmetic

# Higher Level Maths

## Arithmetic

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	Arithmetic	
<b>All students:</b> Activities that are suitable for <b>Learning Support, Language Support</b> and the <b>Mainstream Subject Class</b> include:	Keywords	3
	Vocabulary File	4-5
	Completing Sentences	11
	Multiple Choice	12
	Wordsearch	15
<b>Learning support and Language support:</b> Activities suitable for students receiving Learning or Language Support include:	Working with words	6
	Picture Sentences	7
	Odd One Out	8
	Maths Keywords	9
	Unscramble the letters	10
	Alphaboxes	14
	Play Snap	16-19
<b>Language support:</b> Additional activities for Language Support:	Grammar points	13
<b>Levels for Language Support</b>	<b>A1 – B1</b> The language level of each activity is indicated in an information box.	
<b>Learning focus</b>	Using Maths textbooks and accessing curriculum content and learning activities.	
<b>Acknowledgement</b>	The <i>English Language Support Programme</i> acknowledges the permission of Gill and Macmillan to reproduce excerpts from <i>Shortcuts to Success. Maths. Junior Certificate Higher Level</i> by Mark Halpin.	

**Note:** The categorisation of activities is indicative only and should not prevent teachers from using any activities that are considered suitable for a particular group of students.

## Making the best use of these units

### Learning Record

A copy of the Learning Record should be distributed to each learning support and language support student.

Students should:

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.

**Introduction** of a topic or activity should ensure that students understand **what** they are doing and **why**. Many students will have some difficulty in understanding both the language in the activity and the instructions/purpose for carrying out the activity.

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 learning/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:



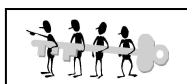
Developing a **personal dictionary** for different subjects, topics, and other categories of language, on an on-going basis. This prompt is a reminder.



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 for different subjects and topics. This file will be an invaluable **learning resource** in supporting mainstream learning.



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

Don't forget that many of the activities in these units are also suitable as **homework** tasks or for **self-study**.

## Keywords

The list of keywords for this unit is as follows:

### Nouns

answer  
calculator  
compound interest  
cost  
end  
error  
estimation  
example  
factor  
HCF (Highest Common Factor)  
index  
interest  
LCM (Lowest Common Multiple)  
multiple (*noun*)  
notation  
numbers  
principal  
price  
problem  
questions  
ratio  
share  
start  
tax  
type  
value  
VAT (Value Added Tax)

### Verbs

to amount to  
to calculate  
to check  
to complete

to earn  
to estimate  
to evaluate  
to express  
to lodge  
to pay  
to receive  
to sell  
to simplify  
to use

### Adjectives

approximate  
common  
compound  
correct  
decimal  
equal  
exact  
lowest  
prime  
standard  
total

### Adverb

again

### Other

hence = so = therefore

### Symbols

= equals  
+ plus  
€ euro/euros  
% percent/percentage

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

### Vocabulary file 1

Word	Meaning	Note or example*
number		
factor		
earned		
calculate		
evaluate		
simplify		
estimate		

\*You may wish to write a sentence or phrase, make a note of the page in your textbook where this word appears or, if English is not your first language, provide a translation into your language.



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

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

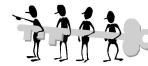
## Vocabulary file 2

Word	Meaning	Note or example
calculator		
estimation		
problem		
approximate		
compound		
decimal		
prime		



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

Language Level: A1  
Type of activity: pairs or individual  
Suggested time: 10 minutes



### Working with words

1. Tick the correct answer

$$5:3$$

- a) this is geometry
- b) this is ratio
- c) this is a percentage
- d) this is an equation

$$5(2x-1) = 35$$

- a) this is geometry
- b) this is ratio
- c) this is a percentage
- d) this is an equation

2. Tick the best answer.

*Ratio is used to compare*

- a. quantity
- b. quality
- c. ideas

3. Tick the best answer.

*Equations always involve*

- a. money
- b. diagrams
- c. symbols

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

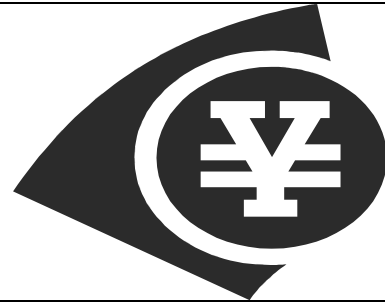
Language Level: A1  
Type of activity: pairs or individual  
Suggested time: 30 minutes



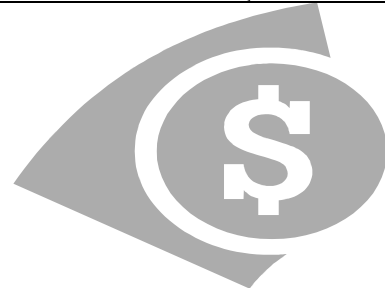
## Picture Sentences

### 1. Tick the correct answer

- a) This is the US dollar.
- b) This is the Japanese yen.
- c) This is UK sterling.



- a) This is the US dollar.
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- a) This is the US dollar.
- b) This is the Japanese yen.
- c) This is UK sterling



### 2. Put these words in the correct order to form sentences.

\$200 to euros change

---

certain €1 a = day \$1.31 on

---

you many how would get euros \$100 for?

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NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

Language Level: A1 / A2  
Type of activity: pairs or individual  
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**

lowest                      car                      multiple    common

number                      shower                      prime                      multiple

notation                      decimal                      music                      index

estimate                      approximate                      exact                      dog.

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

to calculate \_\_\_\_\_

to check \_\_\_\_\_

to complete \_\_\_\_\_

to estimate \_\_\_\_\_

to simplify \_\_\_\_\_



Check that these key words are in your personal dictionary.



NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

**MATHS: Higher Level Arithmetic**

Language Level: A2 / B1  
Type of activity: individual  
Suggested time: 10 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.

com\_\_und \_\_\_\_\_

si\_\_li\_y \_\_\_\_\_

no\_\_ti\_n \_\_\_\_\_

ap\_\_ox\_ma\_e \_\_\_\_\_

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

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NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

Language Level: A1 / A2  
Type of activity: pairs or individual  
Suggested time: 20 minutes



## Unscramble the letters

1. Money paid regularly, at a special rate, to pay for a loan  
STRINETE

**Answer** \_\_\_\_\_

2. Something that belongs to more than one person or thing  
OMCMNO

**Answer** \_\_\_\_\_

3. When you make something easier  
MIYSIFPL

**Answer** \_\_\_\_\_

4. The solution to a Maths question  
WARNSE

**Answer** \_\_\_\_\_



## Solve the secret code

English=	A	D	E	F	I	N	O	S	T	U	X	A
Code=	B	Z	Y	H	G	Q	R	K	L	W	J	B

example: (code) HGQZ = FIND (English)

GQZYJ QRLBLGRQ GK HWQ =

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NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

Language Level: A2/B1  
Type of activity: pairs or individual  
Suggested time: 30 minutes



### Completing sentences

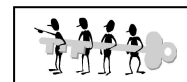
The sentences on this page are all instructions from your textbooks. Fill in the blanks in these sentences. Use words from the Word Box below.

1. How \_\_\_\_\_ dollars would you get for €650?
2. Calculate the \_\_\_\_\_ as a percentage of the cost price.
3. 9 metres of cloth cost €13.05. \_\_\_\_\_ is the cost of five metres of the same cloth?
4. \_\_\_\_\_ €480 in the ratio 5:3.
5. How much does it \_\_\_\_\_ one adult and two children to travel from Dublin to Cork?
6. €4,800 is \_\_\_\_\_ among John, Anne and Mary. John gets half of the money. Mary gets one third. How much does Anne get?
7. The price of a holiday is \_\_\_\_\_ by 6% to €1,537. What was the original cost of the holiday?
8. VAT at 21% is added to a bill of €102. \_\_\_\_\_ the total bill.
9. €10,000 was \_\_\_\_\_ for one year and amounted to €10,110 at the end of the year. Calculate the rate of interest per annum.
10. What sum of money will earn €37.50 interest if it is invested at 3% per \_\_\_\_\_ for one year?

Word box:

increased	many	annum	divide	calculate
what	cost	divided	profit	invested

Language Level: A2 / B1  
Type of activity: individual  
Suggested time: 30 minutes



## Multiple Choice

*Read the text and choose the best answer.*

With compound interest, the interest earned in year 1 is added to the principal in year 1 to give the principal at the start of year 2 and so on.

### Example 1

€300 is lodged for two years at 4% compound interest. Calculate how much it amounts to at the end of that time.

#### Year 1

Start of year 1 = €300

Interest Earned

4% of €300 = €12

End of year 1 = €300 + €12

= €312

#### Year 2

Start of year 2 = €312

Interest earned

4% of €312 = €12.48

End of year 2 = €312 + €12.48

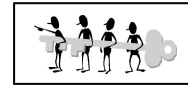
= €324.48

Therefore, at the end of the second year there is €324.48 in the bank.

1. With compound interest, what is the interest earned added to?
  - a) your bank account
  - b) the principal
  - c) nothing
  - d) your bill
2. How long is €300 lodged for?
  - a) one year
  - b) 4 years
  - c) two years
  - d) two months
3. What is the percentage of compound interest?
  - a) 2%
  - b) 4%
  - c) 300%
  - d) 12%
4. Should you calculate the amount of money at the end of the second year?
  - a) Yes
  - b) No
5. Should you increase the rate of compound interest?
  - a) Yes
  - b) No

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

Language Level: B1  
Type of activity: individual and pairs  
Suggested time: 40 minutes



## Grammar points

### Prepositions

1. Study the use of prepositions in the examples below.

A sum of money is invested for a year.

A sum of money is invested in a bank.

A sum of money is invested at 4% per annum.

2. Read the following questions from your text book and insert the missing prepositions.

- What sum of money will earn €46 interest if it is invested \_\_\_ 3% per annum \_\_\_ one year?
- If you invest €4,000 \_\_\_ one year \_\_\_ 7% you get 7% of €4,000 and add it on to €400.
- €350 is invested \_\_\_ one year \_\_\_ 6% per annum. Find the amount \_\_\_ the end of the first year.
- If you invest €500 \_\_\_ a building society \_\_\_ 6% per annum you will have €500 x 1.06 i.e. €530
- John invested €7500 \_\_\_ 6.5% per annum compound interest. What does the investment amount to \_\_\_ the end of three years?

3. Now it's your turn. Go to your maths textbooks and the unit you are studying now. Rewrite 5 sentences without the prepositions. Swap sentences with another student and practise using prepositions.

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

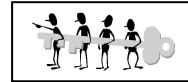
## Alphaboxes

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

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

## Word Search



Find the words in the box below.

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

ANSWER	INDEX
APPROXIMATE	INTEREST
CALCULATE	LCM
CALCULATOR	LOWEST
COMMON	MULTIPLE
COMPOUND	MULTIPLES
DECIMAL	NOTATION
EARN	NUMBER
END	SIMPLIFY
ESTIMATE	VALUE
EVALUATE	
EXACT	
EXAMPLE	
HCF	
HIGHEST	

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

### Play Snap:

Make Snap cards with 2 sets of the same keywords. See *Notes for teachers* for ideas about how to use the cards.



factor	factor
notation	notation
compound	compound



NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

<b>prime</b>	<b>prime</b>
<b>index</b>	<b>index</b>
<b>express</b>	<b>express</b>

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

<b>calculate</b>	<b>calculate</b>
<b>lowest</b>	<b>lowest</b>
<b>interest</b>	<b>interest</b>

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

value	value
earned	earned
decimal	decimal

## Answer key

### Working with words, page 6

1. b, d
2. a
3. c.

### Picture sentences, page 7

1. b, a, c
2. Change €200 to euros.  
On a certain day €1 = 1.31.  
How many euros would you get for \$100?

### Odd One Out, page 8

Car, shower, music, dog

### Maths key words, page 9

Compound (adjective and noun), simplify (verb), notation (noun), approximate (adjective)

### Unscramble the letters, page 10

Interest, common, simplify, answer  
Secret Code: index notation is fun

### Completing Sentences, page 11

1. many
2. profit
3. what
4. divide
5. cost
6. divided
7. increased
8. calculate
9. invested
10. annum

### Multiple Choice, page 12

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

### Grammar points, page 13

- What sum of money will earn €46 interest if it is invested at 3% per annum for one year?

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Higher Level Arithmetic

- If you invest €4,000 for one year at 7% you get 7% of €4,000 and add it on to €400.
- €350 is invested for one year at 6% per annum. Find the amount at the end of the first year.
- If you invest €500 in a building society at 6% per annum you will have €500 x 1.06 i.e. €530
- John invested €7500 at 6.5% per annum compound interest. What does the investment amount to at the end of three years?

Word Search:

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