

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
 MATHS: Percentages

# Maths

## Percentages

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	Percentages	
<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
	Writing	13
	Wordsearch	16
<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	15
	Play Snap	17-19
<b>Language support:</b> Additional activities for Language Support:	Grammar points	14
<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 Ordinary 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.

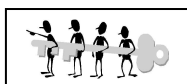


Have you ticked this activity on your Learning Record?

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

amount  
answer  
calculator  
compound interest  
cost  
credit  
cut-off  
end  
error  
example  
hour/hours (hr/hrs)  
income  
interest  
journey  
kilometre (km)  
loss  
minute (min)  
percentage (%)  
price  
profit  
rate  
speed  
tax  
VAT (Valued Added Tax)  
wage

### Verbs

to add

to calculate  
to check  
to evaluate  
to lodge  
to pay  
to sell

### Adjectives

approximate  
average  
correct  
equal  
exact  
gross  
net  
standard  
yearly

### Adverb

always

### Other

hence = so = therefore

### Symbols

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

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### Vocabulary file 1

Word	Meaning	Note or example*
tax		
evaluate		
average		
price		
interest		
loss		
profit		

\*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.

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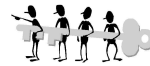
### Vocabulary file 2

Word	Meaning	Note or example
error		
income		
percentage		
wage		
to lodge		
gross		
net		



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



- a) this is a sterling pound symbol
- b) this is a fraction
- c) this is a euro symbol
- d) this is a percentage sign



- a) this is a sterling pound symbol
- b) this is a fraction
- c) this is a euro symbol
- d) this is a percentage

### 2. Tick the best answer.

The words *Per cent* mean:

- a. per ten (out of every 10)
- b. per hundred (out of every 100)
- c. per one (out of every 1)

### 3. Tick the best answer.

The symbol % means:

- a. euro
- b. sterling
- c. per cent

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

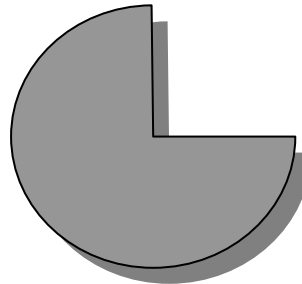


## Picture Sentences

### 1. Tick the correct answers.

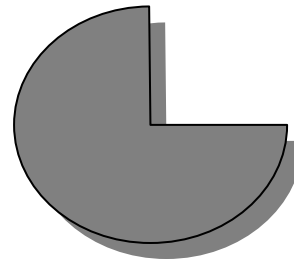
What fraction is missing?

- a) a third ( $\frac{1}{3}$ )
- b) a quarter ( $\frac{1}{4}$ )
- c) three quarters ( $\frac{3}{4}$ )



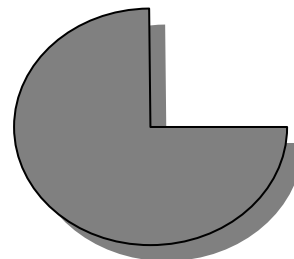
What fraction is not missing?

- a) a third ( $\frac{1}{3}$ )
- b) a quarter ( $\frac{1}{4}$ )
- c) three quarters ( $\frac{3}{4}$ )



What percentage is a quarter ( $\frac{1}{4}$ )?

- a) 100%
- b) 25%
- c) 33%



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

fractions express as

---

following the examine

---

these percentages change fractions to

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

**MATHS: Percentages**

**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**

a third	a quarter	a half	five
profit	phone	income	loss
find	search	evaluate	happy
money	drink	pay	wage

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

to change \_\_\_\_\_

to express \_\_\_\_\_

to find \_\_\_\_\_

to examine \_\_\_\_\_

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



Check that these key words are in your personal dictionary.

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**Language Level:** A1/A2  
**Type of activity:** individual  
**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.

per\_\_nta\_e \_\_\_\_\_

ave\_\_ge \_\_\_\_\_

ex\_\_ple \_\_\_\_\_

ca\_\_ul\_te \_\_\_\_\_

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

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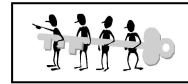
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Language Level: A1 / A2  
Type of activity: pairs or individual  
Suggested time: 20 minutes



## Unscramble the letters

1. When you are exchanging goods for money LGISELN

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

2. This is a measure of distance LOKETREIM

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

3. A financial gain after buying and selling are finished TOFPRI

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

4. This is something that is accepted as normal NRTADASD

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



## Solve the secret code

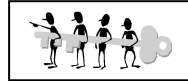
English=	A	E	F	G	I	O	P	R	S	T
Code=	B	X	Y	C	K	Q	J	M	L	W

example: (code) YKMLW = FIRST (English)

JMQYKW KL CMXBW =

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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.

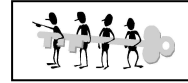
1. What \_\_\_\_\_ of each of the following figures is shaded?
2. Express the \_\_\_\_\_ percentages as fractions.
3. Change the percentages to \_\_\_\_\_.
4. \_\_\_\_\_ the following fractions as percentages.
5. Write these percentages as \_\_\_\_\_.
6. If 11% of a number is 77, find the \_\_\_\_\_.
7. If 20% of a sum of money is €70, find the \_\_\_\_\_ of money.
8. A worker with a weekly wage of €320 got an increase of €16 per week. What percentage \_\_\_\_\_ did she get?
9. By \_\_\_\_\_ a bicycle for €360 a shopkeeper makes a loss of 10%. What did the shopkeeper pay for the bicycle?
10. Find the percentage \_\_\_\_\_ on the cost price of articles bought at €12 for 50, and sold at €3.60 per dozen.

### Word Box

decimals    following    express    sum    selling    percentage  
profit    increase    number    fractions

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Percentages

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



### Multiple choice

*Read the text below and choose the best answers.*

#### PERCENTAGE QUESTIONS

(a) An amount of money is lodged at 14% interest. If there is €31.92 in the bank at the end of the year, calculate how much was lodged.

(b) At 08.50 hrs Tom started to cycle around his home town of Tuam. He cycled at an average speed of 18 km/hr and finished the journey at 15.20 hrs. Calculate the total length of his trip that day.

(c) A watch costs €70 before VAT is included and costs €79.80 after VAT is added. Evaluate:

(i) The percentage of VAT added.

(ii) The cost of the watch if 34% VAT was included.

1. What rate of interest is paid on the money lodged?

- |         |        |
|---------|--------|
| a) none | b) 31% |
| c) 14%  | d) 92% |

2. What was Tom doing around his home town of Tuam?

- |             |            |
|-------------|------------|
| a) driving  | b) cycling |
| c) swimming | d) walking |

3. What are you asked to calculate about Tom's trip around Tuam?

- |                     |                      |
|---------------------|----------------------|
| a) its total length | b) its total breadth |
| c) its total depth  | d) its smell         |

4. Should you evaluate the percentage of VAT added to the watch?

- |        |       |
|--------|-------|
| a) Yes | b) No |
|--------|-------|

5. Should you add 34% VAT to the cost of the watch?

- |        |       |
|--------|-------|
| a) Yes | b) No |
|--------|-------|

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
MATHS: Percentages

Language Level: A2 / B1  
Type of activity: individuals and whole class  
Suggested time: 40 minutes



## Writing

1. Write out each of the fractions below as numbers. The first one is done for you. Check your spellings!

$\frac{1}{3}$ <u>one third</u>	$\frac{2}{3}$ _____	$\frac{1}{8}$ _____
$\frac{3}{8}$ _____	$\frac{5}{8}$ _____	$\frac{7}{8}$ _____
$\frac{1}{4}$ _____	$\frac{1}{2}$ _____	$\frac{3}{4}$ _____

2. Write out each of the percentages below as numbers. The first one is done for you. Check your spellings!

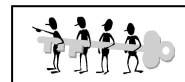
75% <u>seventy five per cent</u>	25% _____
10% _____	99% _____
100% _____	12½% _____
15% _____	48% _____
21% _____	5% _____

3. Now it's your turn! Take a sheet of paper and write down ten fractions or percentages (in numbers). Pass the sheet to another student. You must each write out the numbers and check your spellings before correcting one another's work.

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

**MATHS: Percentages**

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



### Grammar points

'If' clause type one

1. Study the following instructions from a maths unit on percentages:

- If 11% of a number is 77, find the number.
- If 20% of a sum of money is 470, find the sum of money.
- If 15% of the price of a car is €2,275, find the price of the car.

**If + the simple present tense + the simple present tense**

This is often used in maths and in science to talk about things that are always true.

2. Complete these simple scientific and mathematical laws (the first one is done for you).

1. If you mix blue and yellow, *you get green.*
2. If you mix red and yellow you get \_\_\_\_\_
3. If air gets warmer \_\_\_\_\_
4. If water gets colder \_\_\_\_\_
5. If you multiply 12 by 3 \_\_\_\_\_
6. If you divide twenty by 2 \_\_\_\_\_

3. Now write six more scientific or mathematical laws using *if*.

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## Alphaboxes

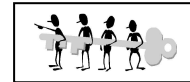
Using your textbook, find one word beginning with each of the letters of the alphabet. Write the word in the relevant box. You could also write the word in your own language.

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.



## Word Search

Find the words in the box below.

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

ADDED	CUTOFF	KILOMETRE	RATE
ALWAYS	EVALUATE	LODGE	SPEED
AVERAGE	EXAMPLE	MINUTE	STANDARD
CALCULATE	GROSS	NETT	TAX
COSTS	INCOME	PERCENTAGE	VALUE
CREDITS	INTEREST	PRICE	VAT
	JOURNEY	PROFIT	WAGE

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
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## Play Snap

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



average	average
cut-off	cut-off
VAT (value added tax)	VAT (value added tax)

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

MATHS: Percentages

gross	gross
lodged	lodged
added	added

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

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<b>always</b>	<b>always</b>
<b>profit</b>	<b>profit</b>
<b>rate</b>	<b>rate</b>

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
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## Answer key

### Working with words, page 6

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

### Picture sentences, page 7

b,c,b

Express as fractions.

Examine the following.

Change these fractions to percentages. **or** Change these percentages to fractions.

### Odd One Out, page 8

Five, phone, happy, drink

### Maths key words, page 9

Percentage (noun), average (noun or adjective), example (noun), calculate (verb)

### Unscramble the letters, page 10

Selling, kilometre, profit, standard

Secret Code: profit is great

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### Completing Sentences, page 11

What **percentage** of each of the following figures is shaded?

Express the **following** percentages as fractions.

Change the percentages to **decimals**.

**Express** the following fractions as percentages.

Write these percentages as **fractions**.

If 11% of a number is 77, find the **number**.

If 20% of a sum of money is €70, find the **sum** of money.

A worker with a weekly wage of €320 got an increase of €16 per week.

What percentage **increase** did she get?

By **selling** a bicycle for €360 a shopkeeper makes a loss of 10%. What did the shopkeeper pay for the bicycle?

Find the percentage **profit** on the cost price of articles bought at €12 for 50, and sold at €3.60 per dozen

### Multiple choice, page 12

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

### Writing, page 13

- Two thirds, one eighth, three eighths, five eighths, seven eighths, a/one quarter, a half, three quarters
- twenty five percent, ten per cent, ninety nine per cent, one hundred per cent, twelve and a half per cent, fifteen per cent, forty eight per cent, twenty one per cent, five per cent

### Grammar points, page 14

- If you mix blue and yellow, you get green.
- If you mix red and yellow you get orange.
- If air gets warmer it evaporates.
- If water gets colder it freezes.
- If you multiply 12 by 3 you get 36.
- If you divide twenty by 2 you get ten.

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_  
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Word Search:

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