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
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 *Shortcuts to Success. Maths. Junior Certificate Ordinary Level*. Mark Halpin.** Gill & Macmillan. 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: 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.

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:

  o 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.

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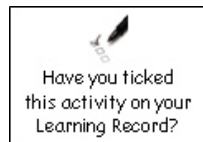
  Recording what they have learnt on the **Learning Record,** which should be distributed at the start of each unit.

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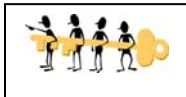
  Indicates that answers may be found at the end of the unit.

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

Vocabulary file 1

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

Word	Meaning	Word in my language
tax		
evaluate		
average		
price		
interest		
loss		
profit		

Vocabulary file 2

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

Word	Meaning	Word in my language
error		
income		
percentage		
wage		
to lodge		
gross		
net		

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 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 very 1)

3. Tick the best answer. The symbol % means:

    a. euro
    b. sterling
    c. per cent

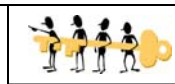|	
Level: A1 **Type of activity:** pairs or individual	**Focus:** vocabulary, basic sentence structure **Suggested time:** 30 minutes

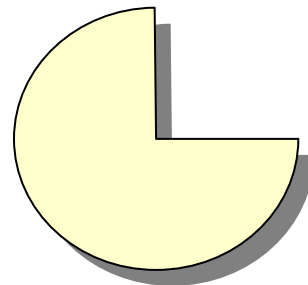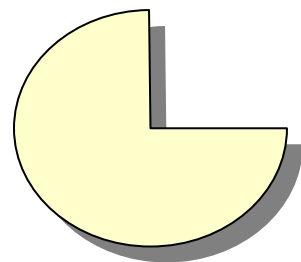# Picture Sentences

1. Tick the correct answers.

What fraction is missing?

a) a third (⅓)
b) a quarter (¼)
c) three quarters (¾)

What fraction is not missing?

a) a third (⅓)
b) a quarter (¼)
c) three quarters (¾)

What percentage is a quarter (¼)?
a) 100%
b) 25%
c) 33%
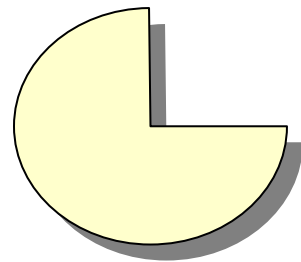
2. Put these words in the correct order to form <u>instructions</u>.

fractions express as

_____

following the examine

_____

these percentages change fractions to

_____

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*)

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.

MATHS: Percentages

Level: A1/A2 **Type of activity:** individual	**Focus:** key vocabulary **Suggested time:** 20 minutes
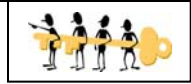
Maths Keywords

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!

_____

_____

_____

_____

_____

Level: A1 / A2 **Type of activity:** pairs or individual	**Focus:** key vocabulary, spelling **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 =

_____

Level: A2/B1 **Type of activity:** pairs or individual	**Focus:** vocabulary, sentence structure **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	

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.

Text: 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

Level: A2 / B1 Type of activity: individuals and class	Focus: writing numbers, spellings 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!

⅓ *one third*   ⅔ _____   ⅛ _____

⅜ _____   ⅝ _____   ⅞ _____

¼ _____   ½ _____   ¾ _____

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

75% *seventy five per cent*   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.
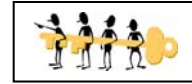
Level: A2/B1 Type of activity: individual and pairs	Focus: if clauses, sentence construction

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.

_____
_____
_____
_____
_____
_____
_____

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

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.

v	w	xyz

Word Search Level: All levels
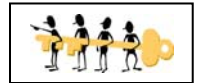
Find the words in the box below.

```
                    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
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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

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.

✂

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

gross

gross

lodged

lodged

added

added

MATHS: Percentages

always

always

profit

profit

rate

rate

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

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
1. Two thirds, one eighth, three eighths, five eighths, seven eighths, a/one quarter, a half, three quarters
2. 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.

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
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