Maths
Working with Sets

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.**

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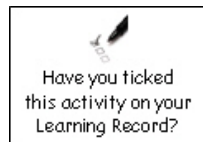
    Recording what they have learnt on the *Learning Record,* which should be distributed at the start of each unit.

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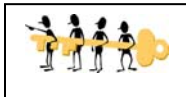
    Indicates that answers may be found at the end of the unit.

Keywords

The list of keywords for this unit is as follows:

Nouns
bracket
class
collection
complement
diagram
element
information
intersection
pupils
sets
subsets
union
Venn diagram

Verbs
to calculate
to complete
to copy
to describe
to draw
to examine
to fill
to give/given
to illustrate
to involve

to like
to list
to look
to prefer
to state
to study

Adjectives
above
below
both
favourite
given
less
neither
particular
popular
similar
written

Other
hence = so = therefore
if
if there are
whether

Vocabulary file 1

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

Word	Meaning	Word in my language
set		
subset		
element		
Venn diagram		
union		
brackets		
intersection		

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

Vocabulary file 2

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

Word	Meaning	Word in my language
find		
illustrate		
complete		
draw		
copy		
both		
neither		

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

Level: A1 **Type of activity:** pairs or individual	**Focus:** vocabulary **Suggested time:** 10 minutes

Working with words

1. Tick the correct answer

☐ a) a set of cars

☐ b) a set of traffic

☐ c) a set of traffic signs

☐ d) a set of hands

☐ a) a set of racing cars

☐ b) a set of traffic

☐ c) a set of family cars

☐ d) a set of bikes

2. Think of another word for **set**:

    a. collection

    b. mixture

    c. circle

3. A set can have many **elements** (cars, traffic signs, odd numbers, even numbers). Think of another word for **element**.

    a. people

    a. member

    b. group

MATHS: Working with Sets

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

Picture Sentences

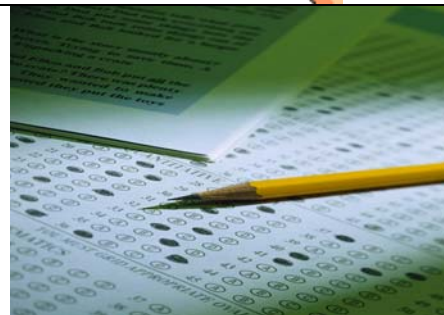**1. Tick the <u>verb</u> to match the picture.**

a) to draw
b) to find
c) to shade in

a) to draw
b) to find
c) to shade in

a) to draw
b) to find
c) to shade in

2. Put these words in the correct order to form <u>instructions</u>.

elements list the a of set

_____

each sets of describe these

_____

following copy statements the

_____

Level: A1 **Type of activity:** pairs or individual	**Focus:** vocabulary **Suggested time:** 30 minutes

Odd One Out

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

Example: *apple*   *orange*   *banana*   (*taxi*)

draw   illustrate   copy   car

set   subset   cat   element

Monday   December   Wednesday   Friday

computer circle   square   triangle

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

to examine   _____

to list   _____

to describe   _____

to state   _____

to copy   _____

Check that these key words are in your personal dictionary.

Level: A1 / A2	Focus: key vocabulary
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.

ill_ _tra_e   _____

el_ _ent_   _____

s_bs_t _____

int_ _se_ _ion _____

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

_____

_____

_____

_____

_____

_____

Focus: key vocabulary, spelling
Suggested time: 20 minutes

Unscramble the letters

1.   When you liked one thing more than another   FEEDERRRP

Answer _____

2.   To be an element of, or to belong to

MMBEER

Answer _____

3.   A pair of marks that are used to enclose figures   CRAEBTSK

Answer _____

4.   Use a picture to make something clear   TRIUSLTAEL
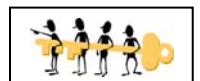
Answer _____

Solve the secret code

English=	A	D	E	G	I	M	R	S	T
Code=	B	X	Y	F	U	Q	W	O	L

example: (code) FBQY = GAME (English)

XUBFWBQO BWY FWYBL! =

_____

Level: A2/B1 **Type of activity:** pairs or individual	**Focus:** vocabulary, basic 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. Which of the following could be described as mathematical _____?

2. List the _____ of the following sets.

3. _____ in words each of these sets.

4. State whether each of the following is true or _____.

5. Copy and _____ the symbol in each of the following.

6. State if each of the _____ is a null set.

7. _____ the Venn diagram on the right.

8. _____ at the Venn diagram and say if each of the following is true or false.

9. _____ the Venn diagram and list the elements of the following sets.

10. Describe the _____ area in each of the sets below.

Word box:

shaded	copy	false	examine	insert	sets
look	describe	elements	following		

Multiple choice
Read the text below and choose the best answers

Text: 2-SET VENN DIAGRAMS

There are two types of written problems which may be asked involving 2-set Venn diagrams. They are very popular and must be known.

Type 1
There are 30 pupils in a class. Each pupil is asked to name their favourite soccer player. 16 said Damien Duff and 12 said Robbie Keane, while 5 liked both players. Illustrate the information on a Venn diagram and hence find:

(i) How many like neither player.
(ii) How many like Damien Duff only.

1. How many types of written problems involving 2-set Venn diagrams are there?
   - a)   one
   - b)   two
   - c)   none
   - d)   16

2. What do we call the members of a class at school?
   - a)   Robbie Keane
   - b)   Damien Duff
   - c)   pupils
   - d)   soccer players

3. What did 5 of the pupils like?
   - a)   Venn diagrams
   - b)   nothing
   - c)   Robbie Keane
   - d)   both players

4. Should you use a Venn diagram to make a picture from this information?
   - a)   Yes
   - b)   No

5. Should you find out how many pupils liked Robbie Keane only?
   - a)   Yes
   - b)   No

Level: A2/B1	Focus: adjectives and verbs
Type of activity: individual and pairs	Suggested time: 30 minutes

Grammar points

1. In this Unit, we came across the following adjectives:

- **similar**
- **preferred**
- **numerical**

Look up these words in your dictionary and write your own definition.

Adjective	Meaning	Word in my language
similar		
preferred		
numerical		

2. In this unit we came across many verbs which are used to give instructions during maths.

Verb Hunt

Circle 10 verbs from the unit in these columns.

Score 4 points for each correct answer.

Who will score the highest? Perhaps you will. Good luck!

Have you ticked this activity on your Learning Record?

find	growth
health	final
heart	look
broken	copy
draw	illustrate
complete	list
shade	examine
union	describe
word	head

Score: _____ points

NAME: _____ DATE:_____
MATHS: Working with Sets

Level: A2/B1	Focus: neither and either
Type of activity: individual and pairs	Suggested time: 30 minutes

Grammar points

Neither and either
We use either and neither to talk about two things or two people.
Either = the one or the other
Neither= has a negative meaning
Example: Neither suitcase was big enough = both suitcases were too small.

1. **Answer the questions in this quiz by using neither (with nor).**
   Example: How many of these are days of the week?
   Tuesday, January, February.
   <u>Neither</u> January <u>nor</u> February are days of the week.

   1. How many of these are in Dublin?
   The spire, Buckingham palace, the Eiffel Tower

   2. How many of these are in Ireland.
   The pyramids, the Blarney stone, the Sphinx

   3. How many of these are in the USA?
   Johannesburg, Chicago, Cairo

   4. How many of these are in Africa?
   Chad, Borneo, Burma

   5. How many of these are mountains?
   The Danube, the Nile, Kilimanjaro

   6. How many of these are in Australia?
   Sydney, Buenos Aires, Caracas

   7. How many of these are in Europe?
   Boston, New York, Paris

   8. How many of these are rivers?
   The Alps, the Andes, the Nile

   2. **Invent similar quiz questions and give them to a partner to answer.**

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.

Word Search Level: **All levels**

Find the words in the box below.

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

BOTH	DRAW	ILLUSTRATE	PREFER
BRACKETS	ELEMENT	INTERSECTION	SETS
COMPLEMENT	FILL	LESS	SOLUTIONS
COMPLETE	FIND	LIKE	SUBSET
COPY	GIVEN	LOOK	UNION
DIAGRAM	HENCE	NEITHER	VENN

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.

✂

illustrate	**illustrate**
Venn diagram	**Venn diagram**
sets	**sets**

draw	draw
complete	complete
both	both

neither	**neither**
elements	**elements**
brackets	**brackets**

given	**given**
look	**look**
hence	**hence**

Answer key

Working with words, page 6
1. c, a
2. a
3. b

Picture sentences, page 7
1. b,a,c
2. List the elements of a set.
Describe each of these sets.
Copy the following statements.

Odd One Out, page 8
Car, cat, December, computer

Maths key words, page 9
Illustrate (verb), elements (noun), subset (noun), intersection (noun)

Unscramble the letters, page 10
Preferred, member, brackets, illustrate
Secret Code: diagrams are great

Completing Sentences, page 11
Which of the following could be described as mathematical **sets**?

List the **elements** of the following sets.

Describe in words each of these sets.

State whether each of the following is true or **false**.

Copy and **insert** the symbol in each of the following.

State if each of the **following** is a null set.

Copy the Venn diagram on the right.

Look at the Venn diagram and say if each of the following is true or false.

Examine the Venn diagram and list the elements of the following **sets**.

Describe the **shaded** area in each of the sets below

Multiple choice, page 12

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

Grammar points, page 13

Verbs: find, draw, complete, shade, look, copy, illustrate, list, examine, describe

Grammar points, page 14

Neither Buckingham Palace nor the Eiffel Tower is in Dublin.

Neither the pyramids nor the Sphinx are in Ireland.

Neither Johannesburg nor Cairo is in the USA.

Neither Borneo nor Chad is in Africa.

Neither the Danube nor the Nile are rivers.

Neither Buenos Aires nor Caracas are in Australia.

Neither Boston nor New York is in Europe.

Neither the Alps nor the Andes are rivers.

Word Search:

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