SCIENCE

Speed, velocity and acceleration

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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***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.*

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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
acceleration
athlete
average
deceleration
direction
distance
graph
metres (shortened to *m*)
minutes
object
rate
rate of change
second
speed
table
time
velocity

Verbs
to accelerate
to change
to divide
to finish
to increase
to measure
to slow down
to speed up
to start
to travel

Adjectives
constant
fast
fastest
remaining
similar
slow
slowest
speeding
stable
stationary
travelling

Other key words
in a given time
per second
the same
the time taken

NAME: _____ DATE:_____
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Vocabulary file 1

Word	Meaning	Note or example*
velocity		
speed		
acceleration		
deceleration		
time		
minute		
second		

* 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, 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
graph		
metres		
distance		
accelerate		
change		
increase		
fastest		

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

NAME: _____ DATE:_____
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Vocabulary file 3

Word	Meaning	Note or example
to increase		
to speed up		
stationary		
stable		
per second		
the same		
the time taken		

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

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SCIENCE: Speed, velocity and acceleration

Language Level: All
Type of activity: Whole class
Suggested time: 10 minutes

Activating students' existing knowledge

Use a spidergram to activate students' ideas and knowledge on the key points in this chapter. See **Teachers' Notes** for suggestions.

Possible key term for the spidergram:

speed **time** **movement**

- Invite newcomer students to provide key words in their own languages.
- Encourage dictionary use.
- Encourage all students to organise their vocabulary into relevant categories (e.g. meaning, nouns, keywords, verbs etc.).

All students should record vocabulary and terms from the spidergram in their personal dictionaries.

NAME: _____ DATE:_____
SCIENCE: Speed, velocity and acceleration

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

Working with words - Tick the correct answer

1)

a) train
b) car
c) plane
d) bike

2)

a) tripod
b) athlete
c) animal
d) soldier

Circle the words in the box that are about <u>travelling</u> or can be used <u>to travel</u>

shirt plane telephone rocket
fast bus slow
hair train dinner
dog car
bicycle book boat
helicopter

NAME: _____ DATE:_____

SCIENCE: Speed, velocity and acceleration

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

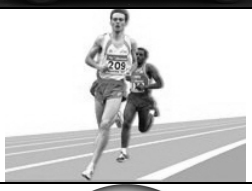
Picture Sentences - Tick the correct answer

1.

a) This is a train.
b) This is an experiment.
c) This is a car.

2.

a) This is a train.
b) This is an athlete.
c) This is a car.

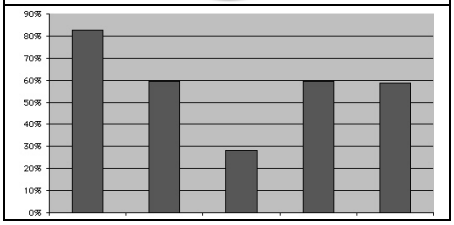


3.

a) This is a clock.
b) This is a man.
c) This is a book.

4.

a) This is a clock.
b) This is a graph.
c) This is a book.



Have you ticked this activity on your Learning Record?

Put these words in the correct order to form sentences.

plane car faster than a travels a

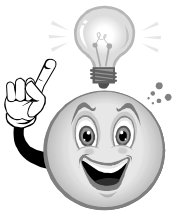
_____

provides graph a information

_____

fifty the ran athlete metres

_____



Don't forget!

You must have a capital letter and full stop in each sentence.

NAME: _____ **DATE:**_____
SCIENCE: Speed, velocity and acceleration

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

Odd One Out

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

Example: ***chair*** ***desk*** ***book*** ***train***

1.	window	speed	time	distance
2.	metres	car	velocity	chair
3.	object	graph	travels	cloud
4.	bike	waves	sound	seconds

Have you ticked this activity on your Learning Record?

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

metres _____

distance _____

travels _____

time _____

graph _____

waves _____

Check that these keywords are in your personal dictionary.

NAME: _____ DATE:_____
SCIENCE: Speed, velocity and acceleration

Language Level: A2 / B1
Type of activity: Individual
Suggested time: 40 minutes

Science keywords

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.

1. d_st_n_e _____
2. g_a_h _____
3. a_hl_t_ _____
4. v_l_ci_y _____

Have you ticked this activity on your Learning Record?

Write as many words as possible relating to travelling and speed. You have 3 minutes.

_____

_____

_____

_____

_____

NAME: _____ DATE:_____

SCIENCE: Speed, velocity and acceleration

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

Unscramble the letters

1. The rate of change of distance with time PSEDE

Answer _____

2. Speed in a given direction VLEOTCIY

Answer _____

3. Velocity is measured in MTREES

Answer _____

4. A sports person is also called an AHTELET

Answer _____

Look at each word as you write the answer.

Is your spelling correct?

Can you pronounce the word?

Do you know what the word means?

Have you got this word in your personal dictionary?

Solve the secret code

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

example: EAWYFRA = STUDENT

YQEABRXF _____

NAME: _____ DATE:_____
SCIENCE: Speed, velocity and acceleration

Language Level: A2 / B1
Type of activity: Pairs or individual
Suggested time: 40 minutes

Completing text

Fill in the blanks in these sentences. Use words from the Word Box below.

SPEED

_____ is the rate of change of distance with time.

The world's fastest athletes can run 100 m in less than 10 seconds. The average speed of the athlete is found by dividing the _____ travelled by the time taken.

VELOCITY

_____is speed in a given direction. Like speed, velocity is measured in_____ per second (m/s or m 5-1). It tells you the speed that something is travelling, but it also tells you the _____ in which it is travelling. For example, an athlete is running with a velocity of 17 m 5-1 due south.

Word Box

direction velocity metres distance speed

Fill in the missing words to show different descriptions of speed:

slow		
	faster	
		quickest

Write a sentence to show how you use each of these words:

slow _____

faster _____

quickest _____

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SCIENCE: Speed, velocity and acceleration

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

Multiple choice

(Read the text below and choose the best answers)

Like speed, velocity is measured in metres per second (m/s or m 5-1). It tells you the speed that something is travelling, but it also tells you the direction in which it is travelling. For example, an athlete is running with a velocity of 17 m 5-1 due south. When an object is stationary distance travelled does not change with time. When an object is moving at constant velocity the speed remains the same.

1. What is velocity measured in?
   a) metres b) graphs
   c) not sure d) volume

2. What does velocity tell you?
   a) news b) nothing
   c) weather d) the speed and direction something is travelling

3. What happens to the distance of a stationary object?
   a). changes b) does not change with time
   c). speeds up d) moves

4. Does the speed remain the same when an object is moving?
   a) Yes b) No

Have you ticked this activity on your Learning Record?

Find these words in your textbook.
Write your own explanations for the words. Then write a note or example to help you remember the word. Use your dictionary if necessary.

Word	Page in textbook	Explanation	Note or example
stationary			
constant			
direction			
due (south)			

NAME: _____ DATE:_____

SCIENCE: Speed, velocity and acceleration

Language Level: B1
Type of activity: Pairs / small groups
Suggested time: 40 minutes

Writing

Planning text

Use this chart to plan a short text on the topic, 'Measuring speed'.

Introduction

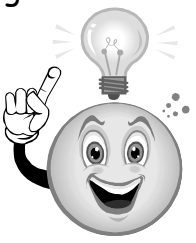
First paragraph

Second paragraph

Concluding points

Important words for this topic.

What is the difference between <u>acceleration</u> and <u>deceleration</u>? Look carefully at the spelling.



Have you ticked this activity on your Learning Record?

NAME: _____ DATE:_____

SCIENCE: Speed, velocity and acceleration

Use your plan and your textbook to write about:

'Measuring speed'.

When your teacher has checked this, file it in your folder so you can use it in the future.

NAME: _____ DATE:_____
SCIENCE: Speed, velocity and acceleration

Language Level: All
Type of activity: Individual
Suggested time: 30 minutes

Grammar Points

In this Unit, we came across the following adjectives:

- **fastest**
- **slow**
- **stationary**

Write the meanings of these words in English:

fastest	
slow	
stationary	

Adjective Hunt

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

table

velocity

speed

distance

clear

graph

chemical

time

similar

hot

athlete

dangerous

travelling

slow

car

remaining

open

speeding

object

car

slowest

Have you ticked this activity on your Learning Record?

Score:_____ points

NAME: _____ DATE:_____
SCIENCE: Speed, velocity and acceleration

Language Level: All
Type of activity: Individual
Suggested time: 30 minutes

Grammar points

Adverbs describe how things are done. In this unit we have been studying speed and velocity.
Look at these sentences. The adverbs are underlined.

Write each adverb in your own language on the line beside the sentence.

	In my language
Light travels quickly.	
Traffic moves slowly in the city.	
You must read your textbook carefully.	
It is important to write clearly.	
To get hot water you must boil it rapidly.	

Now write your own sentences using these words:

quickly _____

slowly _____

carefully _____

clearly _____

rapidly _____

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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.

NAME: _____ DATE:_____

SCIENCE: Speed, velocity and acceleration

Word search

Find the words in the box below.

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

ACCELERATE	DIRECTION	MINUTES	TIME
ACCELERATION	DISTANCE	OBJECT	TRAVEL
ATHLETE	FASTEST	SECOND	VELOCITY
CHANGE	GRAPH	SPEED	WORLD
CONSTANT	INCREASE	STABLE	
DECELERATION	METRES	TABLE	

Play Snap

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

velocity	**velocity**
speed	**speed**
time	**time**

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distance	distance
accelerate	accelerate
graph	graph

NAME: _____ DATE:_____
SCIENCE: Speed, velocity and acceleration

seconds	seconds
metres	metres
athlete	athlete

NAME: _____ DATE:_____
SCIENCE: Speed, velocity and acceleration

Answer key

Circle the words in the box that are about travelling or can be used to travel

	plane	
rocket		
fast	bus	slow
	train	
	car	
bicycle		boat
	helicopter	

Scrambled sentences =
A plane travels faster than a car.
A graph provides information.
The athlete ran fifty metres.

Odd One Out = window, chair, cloud, bike

Letter Scramble =
speed
velocity
metres
athlete

Secret Code = distance

Completing Text =

SPEED

Speed is the rate of change of distance with time.

The world's fastest athletes can run 100 m in less than 10 seconds. The average speed of the athlete is found by dividing the distance travelled by the time taken.

VELOCITY

Velocity is speed in a given direction. Like speed, velocity is measured in metres per second (m/s or m 5-1). It tells you the speed that something is travelling, but it also tells you the direction in which it is travelling. For example, an athlete is running with a velocity of 17 m 5-1 due south.

(Science Revision for Junior Certificate, page 5)

Multiple Choice = a, d, b, b

Grammar Points = clear, chemical, similar, hot, dangerous, slow, remaining, open, speeding, slowest

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Word Search: