

Science

The Circulation System

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	The Circulation System	
All students: Activities that are suitable for Learning Support, Language Support and the Mainstream Subject Class include:	Keywords	3
	Vocabulary File	4-5
	Activating Students' Existing Knowledge	6
	Completing Sentences	12
	Multiple Choice	13
	Wordsearch	16
Learning support and Language support: Activities suitable for students receiving Learning or Language Support include:	Working with words	7
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	Science Keywords	10
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	Alphaboxes	15
	Play Snap	17-19
Language support: Additional activities for Language Support:	Grammar points	14
Levels for Language Support	A1 – B1 The language level of each activity is indicated in an information box.	
Learning focus	Using Science textbooks and accessing curriculum content and learning activities.	
Acknowledgement	The <i>English Language Support Programme</i> acknowledges the permission of Gill and Macmillan to reproduce excerpts from <i>Extracts from Science Revision for Junior Cert.</i> by Shea Mullally	

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.

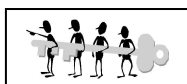


Have you ticked this activity on your Learning Record?

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

artery
atria/atrium
bacteria
blood
body
butcher
capillaries
cell
chambers
circulation
clot
coronary
disease
elastic
exercise
fibres
haemoglobin
heart
heart beats
lumen
lung
muscle
nucleus
oxygen
plasma

platelets
pulse
seeker
step
temperature
valve
vein
ventricle
vessels

Verbs

breathe
flow
pump
carry

Adjectives

thick
white
red
main
pulmonary

Prepositions

into
through

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Vocabulary file 1

Word	Meaning	Note or example*
capillary		
artery		
pump		
pulse		
exercise		
temperature		

* 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
bacteria		
muscle		
oxygen		
disease		
valve		
clot		



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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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 terms for the spidergram:

Blood

The heart

- 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.

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



Working with words

1. Tick the correct answer

	<p>a) These are lungs. b) This is a kidney. c) This is a liver. d) This is a heart.</p>
	<p>a) These are lungs. b) This is a kidney. c) This is a liver. d) This is a heart.</p>

2. Find these words in your textbook.

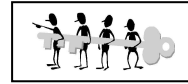
Write your own explanation for these words. Then write a note or example to help you remember the word. Use your dictionary if necessary.

Word	Page in textbook	Explanation	Note or example
oxygen			
pump			
plasma			
blood vessel			



Check that these key words are in your personal dictionary.

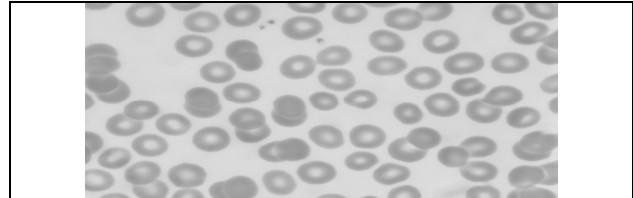
Language Level: A1/A2
Type of activity: pairs or individual
Suggested time: 30 minutes



Picture Sentences

1. Tick the correct answer

- a) This is someone giving/donating blood.
- b) These are blood cells.
- c) This is a blood test.



- a) This is someone giving/donating blood.
- b) These are blood cells.
- c) This is a blood test.



- a) This is someone giving/donating blood.
- b) These are blood cells.
- c) This is a blood test.



2. Put these words in the correct order to form sentences about blood. You can use your textbooks to help you.

person/ of blood/ 4 to 5/ the average/ litres /has

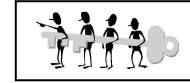
is /the blood/ more than/ plasma/ 50% of

water /a watery,/ plasma/ consisting of/ 95%/ is /pale liquid

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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

artery heart vein smoke

heart car lungs liver

sister blood platelets plasma

thick white red step

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

to breathe _____

to pump _____

to flow _____

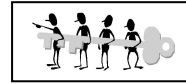
to carry _____

pulse _____



Check that these key words are in your personal dictionary.

Language Level: A2 / B1
Type of activity: individual
Suggested time: 20 minutes



Keywords

1. Fill in the missing letters of the keywords listed below.
On the line beside each word, write whether the word is a noun, an adjective or a verb.

h_ar_ _____

b_at_ _____

p_ls_ _____

dis_a_e _____

2. Write as many words as possible related to **Blood Circulation**. You have 3 minutes!



Check that these key words are in your personal dictionary.

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



Unscramble the letters

1. The average person has 4 to 5 litres of _____ OBODL

Answer _____

2. Red blood cells contain _____ AHEOMBLOING

Answer _____

3. There are three types of blood... _____ VELSSES

Answer _____

4. One of the blood vessels is called an _____ ARETYR

Answer _____

Solve the secret code

English	P	L	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

BWXEF _____

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



Completing sentences

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

_____ is a fluid consisting of blood cells and platelets suspended in a solution called plasma. Plasma _____ water, dissolved proteins, salts, hormones, antibodies and urea. Platelets clot blood. Red _____ are cells without a nucleus. They contain haemoglobin, which is the substance that carries the _____. White cells protect against disease by engulfing germs or by releasing antibodies which kill _____.

Word Box

cells blood germs contains oxygen

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



Multiple choice

Read the text below and choose the best answers.

Functions of the blood

- Absorbs the products of digestion (food).
- Circulates food, oxygen, hormones, antibodies, carbon dioxide and unwanted substances like urea around the body.
- Protects against loss of fluid by clotting and also against disease by killing germs.
- Controls the amounts of water and chemicals in the tissues.
- Regulates body temperature (normal body temperature is 37°C). Illness may cause a change in body temperature.
- The heart pumps blood around the body.
- The heart is divided into two sections so that blood does not flow directly from one side to the other.

1. What does the blood absorb?

- | | |
|--------------------------|--------------------|
| a) nothing | b) engulf bacteria |
| c) products of digestion | d) germs |

2. Where does the blood circulate?

- | | |
|-----------------|---------------------|
| a) in the heart | b) around the body |
| c) in the lungs | d) around the veins |

3. What does it protect against?

- | | |
|------------------|------------|
| a) loss of fluid | b) enemies |
| c) children | d) people |

4. What does the blood control?

- | | |
|------------------------|------------|
| a) the amount of water | b) nothing |
|------------------------|------------|

5. Does the blood regulate the body temperature?

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

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



Grammar points

Prepositions

(preposition: a word that is used before a noun or pronoun to show place, direction, time etc. For example: in, on.)

1. Circle the ten prepositions in the box below.

on	blood	up	pump	off	above	vein	lungs	heart	
	in	fight	around	at	his	her	from	it	book
	of	to	artery	cell					

2. The following sentences are taken from your textbook. However, some of the prepositions are missing. Select a suitable preposition from the box above.

- Blood transports food molecules, oxygen and carbon dioxide _____ the body.
- This circulations consists _____ the blood, arteries, veins, capillaries and the heart.
- Most substances are dissolved _____ the blood plasma.
- Some white blood cells can eat _____ bacteria that enter the body.
- The arteries carry blood away _____ the heart, and the veins carry blood back _____ the heart.


3. Now it's your turn! Go to your textbook and the chapter on The Circulation System. Rewrite 5 sentences from the textbook, but leave gaps where the prepositions should be. Swap sentences with another student and check and correct one another's work.

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.

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Word search

Find the words from the list below.

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

ARTERIES	HEART	PLATELETS
ATRIA	LUMEN	PULMONARY
BLOOD	LUNGS	PULSE
CAPILLARIES	OXYGEN	VALVES

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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.



circulation	circulation
blood	blood
plasma	plasma

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ventricles	ventricles
nucleus	nucleus
capillaries	capillaries

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valves	valves
heart	heart
platelets	platelets

Answer key

Working with words, page 7

1. d, a

Picture sentences, page 8

1. b,c,a
2. The average person has 4 to 5 litres of blood.
More than 50% of the blood is plasma.
Plasma is a watery, pale liquid consisting of 95% water.

Odd one out, page 9

Smoke, car, sister, step

Keywords, page 109

Heart, noun, beats, noun or verb, pulse, noun or verb, disease noun

Unscramble the letters, page 11

Blood, haemoglobin, vessels, artery

Secret code: pulse

Completing Sentences, page 12

Blood is a fluid consisting of blood cells and platelets suspended in a solution called plasma. Plasma **contains** water, dissolved proteins, salts, hormones, antibodies and urea. Platelets clot blood. Red **cells** are cells without a nucleus. They contain haemoglobin, which is the substance that carries the **oxygen**. White cells protect against disease by engulfing germs or by releasing antibodies which kill **germs**

Multiple Choice, page 13

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

Grammar points, page 14

1. Prepositions: on, up, off, above, in, around, at, from, of, to
 - Blood transports food molecules, oxygen and carbon dioxide **around** the body.
 - This circulation consists **of** the blood, arteries, veins, capillaries and the heart.
 - Most substances are dissolved **in** the blood plasma.
 - Some white blood cells can eat **up** bacteria that enter the body.
 - The arteries carry blood away **from** the heart, and the veins carry blood back **to** the heart.

Word Search, page 16:

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