

**Leckie & Leckie Secondary Science Dictionary
Teachers' Resources**

**Answers to Problems
in the Worksheets**

Answers to Problems in the Worksheets

Worksheet 1

A

- (a) They both have words in alphabetical order.
(b) The words in the *Science Dictionary* are only about science.
- (any lessons)
- For most lessons an ordinary English dictionary will be used.
For some lessons a specialist dictionary will be used.
- Specialist dictionaries give more detailed information to help in just one subject.

B

- Metal is said to be ductile if it can be drawn out into a thin wire.
- adjective
- alveoli
- CO₂
- physics
- dissolve, solubility, solute, solvent
- e-tee-o-lay-shun

Worksheet 2

A

- area
- carbon
- density
- liquid
- opaque
- temperature
- yield
- zygote

B

- antibiotic, (antibody), artery
- Celsius, (charcoal), chloride
- dissipation, (dormant), drag
- indicator, (inherit), insoluble
- loudness, (luminous), lung
- ovum, (oxygen), ozone depletion
- scientific method, (sedimentary), sequence of events
- weedkiller, (weight), word equation

Worksheet 3

A

- albumen
- botany
- element
- litmus
- toxin
- volcano

B

- atom, attraction, axis, average
- convection, correlation, core, corrosive
- friction, function, fuel, fungicide
- laser, leaf, lever, lava
- planet, placenta, pollen, porous
- tension, testis, test, theory

C

Biology

- bacteria
- embryo
- exhale
- nutrition
- quadrat sampling

Chemistry

- alloy
- chloride
- hydrogen
- hydroxide
- reactivity series

Physics

- ammeter
- conductor
- energy
- generator
- velocity

Worksheet 4

A

five from: brain, heart, liver, lung, kidney, skin

B

- (a) cell wall
(b) chloroplast
- nucleus
- vacuole

Answers to Problems in the Worksheets (continued)

C

sperm, ovum, nucleus, zygote

D

lining falls away — day 13
 menstruation — day 8
 new lining is formed — days 1 to 6
 ovulation — day 1

Worksheet 5

A

1. Fish are adapted to their habitat because they have gills to breathe underwater.
2. (a) temperature
(b) light
(c) humidity

B

1. A food chain is a way of showing the feeding relationships between plants and animals.
2. grass → grasshopper → frog → hawk

C

1. insect/bat/squirrel
2. oak tree
3. kestrel

Worksheet 6

A

1. It is the same as the singular.
2. (a) similar, e.g. two eyes, two legs, one nose
(b) different, e.g. hair colour, eye colour, height

B

characteristic	genetic	environmental
broken leg		✓
eye colour	✓	
hair colour	✓	✓
pierced ears		✓
tattooed arms		✓

C

1. Vertebrates have a backbone; invertebrates do not.
2. (a) mammals
(b) birds
(c) reptiles
(d) amphibians
(e) fish

Worksheet 7

A

1. glucose/sucrose/starch
2. keratin/collagen
3. Dissolve the food in ethanol and pour the solution into water. The water will go cloudy white if fat is present.
4. fibre
5. Your body may not produce enough red blood cells (anaemia develops).
- 6.

vitamin	source	use
A	green vegetables/ butter/egg yolks/ fish oils	healthy skin sight at night
B complex	yeast	respiration
C	lemons	healthy skin resistance to colds
D	butter	helps make bones

B

1. Food cannot be used by the body directly – it has to be broken down into chemicals the body can use.
2. (a) mouth
(b) stomach
(c) small intestine
(d) large intestine
3. small intestine
4. large intestine
- 5.

carbohydrate — amino acids — growth and repair
 protein — fatty acids — respiration
 fat — glucose — food store

Worksheet 8

A

1. glucose + oxygen → carbon dioxide + water
2. digested food
3. in the bloodstream

B

1. (a) constant supply of air
(b) thin and moist surfaces
(c) constant supply of fresh blood

Answers to Problems in the Worksheets (continued)

- alveoli
 - (a) capillary network
(b) thin wall
 - carbon dioxide
- C**
- inhale
 - exhale
 - (a) Air breathed in has more oxygen; air breathed out has less oxygen.
(b) Air breathed in has less carbon dioxide; air breathed out has more carbon dioxide.
 - Before the race breathing rate is slow; during the race breathing rate is fast; after the race breathing rate slowly returns to normal. It changes to supply more oxygen for respiration in the muscles.

Worksheet 9

A

- microbes
- bacterium
- They can cause disease.
- (a) virus attacks the cell
(b) virus forces the host cell to make copies of the virus
(c) host cell bursts, releasing new viruses to infect other cells

B

- Pathogens live in or on a host organism. In doing so, they harm or even kill the host organism. Most pathogens don't deliberately cause disease. The disease is incidental in the pathogen's search for food and shelter.
- penicillin
- viruses
- white blood cells
- proteins on the surface of bacteria/viruses/pollen grains
- It provides artificial immunity to infection provided by injecting a treated antigen.

C

- baking
- brewing
- wine making

Worksheet 10

A

identical, genes, gametes, variation

B

- They can transfer pollen from the anther of one chosen plant to the stigma of another chosen plant, e.g. using a paint brush.
- For example, beef cattle have been bred for more meat by choosing parents with the desired characteristics for several generations.
- (a) human insulin
(b) human growth hormone
(c) vaccines

C

- many glucose units joined together
- They take cuttings from the 'parent' plant and grow each cutting into a new plant identical to the 'parent' plant.

Worksheet 11

A

- water, oxygen
- chlorophyll
- light/sunlight

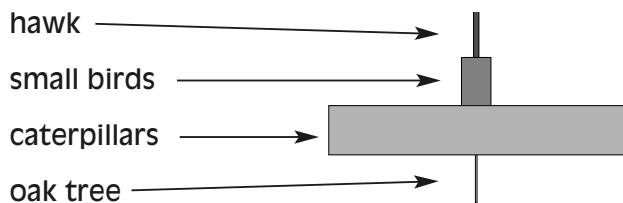
B

- by joining many glucose units together
- If you add iodine, starch gives a dark blue/black colour.
- oxygen

C

- nitrogen
- potassium
- phosphorus

D



Worksheet 12

A

- (a) sulphuric acid
(b) hydrochloric acid
(c) nitric acid

Answers to Problems in the Worksheets (continued)

- (a) potassium hydroxide
(b) calcium hydroxide
- hydrogen
- hydroxide/hydrogen and oxygen

B

- Litmus turns red in acid and blue in alkali.
- 0 to 6
- 7
- pH 12
- (a) red
(b) purple

C

- sodium hydroxide + hydrochloric acid
→ sodium chloride + water
- pH 7

Worksheet 13

A

- hydrogen
- (a) metal oxide
(b) metal hydroxide
(c) metal carbonate
- There is a squeaky pop.
-

first reactant	second reactant	salt	other products
sodium hydroxide	hydrochloric acid	sodium chloride	water
magnesium	hydrochloric acid	magnesium chloride	hydrogen
copper oxide	sulphuric acid	copper sulphate	water
sodium carbonate	sulphuric acid	sodium sulphate	water carbon dioxide

- Bubble the gas through colourless limewater. Carbon dioxide turns the limewater white (like milk).

B

- non-metallic
- metallic
- Global warming is a rise in the average temperature of the Earth's surface, caused by the greenhouse effect in which gases like carbon dioxide prevent the escape of infrared radiation from the Earth.

- three from: erosion of rocks such as limestone, corrosion of metals, damage and death of trees, acidification of lakes

Worksheet 14

A

fixed, regular, closely, vibrate, container, random, widely

B

- dissolve** — the mixture produced when a solute is completely dissolved in a solvent

soluble — when a substance disappears into a solution

solution — when a substance can dissolve in a liquid

solute — a liquid in which another substance can be dissolved

solvent — a substance that is dissolved in a solvent
- the number of grams of the substance that can dissolve in 100g of the solvent at a given temperature

C

- 1st process = boiling
2nd process = condensing
- because the substances have different solubilities in the solvent

Worksheet 15

A

- 95
- 14
- Sodium chloride is made of two different kinds of atoms.
- (a) He
(b) H
(c) Mg
(d) Hg

B

- A compound contains two or more elements combined together.
- copper oxide, sodium chloride, water
- sodium + chlorine → sodium chloride

Answers to Problems in the Worksheets (continued)

- The elements in a mixture have no chemical bonds between them and the composition of the elements in the mixture can vary, but the composition of elements in a compound cannot.
- Use a magnet to separate the iron from the sulphur.

elements	compounds
nitrogen	carbon dioxide
oxygen	nitrogen oxide
argon	sulphur dioxide

Worksheet 16

A

- (a) chemical
(b) physical
- carbonic acid
- A deposit is a solid that has settled at the bottom of a liquid. It is also a layer of coal, oil or mineral naturally occurring in a rock.

B

- Rock fragments are deposited, compressed and compacted together.
- two from: limestone, sandstone, shale
- 10 to 50 km
- through a volcano
- granite
- granite
- (a) high temperature
(b) high pressure
- (a) energy from the Sun
(b) nuclear decay within the Earth

Worksheet 17

A

- iron, carbon
- alloy: brass, metals: copper and zinc
- It is a good conductor of electricity.

B

- sodium, calcium, aluminium, zinc, copper, silver
- (a), (d), (e)
- aluminium + iron oxide →
aluminium oxide + iron
- iron
- welding railway lines

Worksheet 18

A

- A fossil fuel is a fuel produced by the action of high temperatures and high pressures on plant and animal material over millions of years
- Acid rain is rain that has a pH of less than 5. It is caused by dissolved sulphur dioxide and oxides of nitrogen.
- Acid rain causes erosion of rocks such as limestone, corrosion of metals, damage and death of trees and acidification of lakes.
- It prevents infrared radiation from the Earth from escaping into space.

B

- heat and light
- oxides
- carbon + oxygen → carbon dioxide
- carbon dioxide + water →
glucose + oxygen
- Animals need the oxygen produced by photosynthesis for respiration.
- glucose + oxygen →
carbon dioxide + water
- Respiration is the reverse of photosynthesis.

Worksheet 19

A

energy, oil, pressures/temperatures, millions, radioactivity

B

- straw, wood
- carbon and hydrogen
- Fossil fuels are not being made now, so they will run out; the wind will not run out.

C

- It is named after James Joule, a famous 19th-century scientist.
- Energy is the ability to do work.
- the sun/sunlight
- from eating plants or other animals

Answers to Problems in the Worksheets (continued)

Worksheet 20

A

- (a) cell
(b) ammeter
(c) switch
(d) voltmeter
- Electricity cannot travel through air.
- When a switch is open there is a gap in the circuit; when the switch is closed there is no gap so the electricity can flow.

B

- the flow of an electric charge through a conductor due to a potential difference
- amperes (abbreviated to amps)
- in parallel/one connection on either side of the lamp

C

- All three lamps are dimmer (than the two lamps in the original circuit).
- 4.0 A

Worksheet 21

A

- It can accelerate or change the motion of an object, or change the shape of the object.
- a force exerted on a object by gravitational attraction
- The forces must be equal.
- The upthrust must be less than the weight.
- the mass per unit volume of a substance

B

- Mercury, Venus, Earth, Mars, Saturn, Jupiter, Uranus, Neptune, Pluto
- Pluto
- Light from the Sun reflects off the Moon into our eyes.
- The Moon moves between the Earth and the Sun and blocks out the light.

Worksheet 22

A

- the measure of the hotness or coldness of a body
- °C/degrees Celsius

- (a) 100 °C
(b) 0 °C
(c) 25 °C

- As the temperature rises, the liquid in the thermometer tube expands and moves further up the scale.

B

- particles
- aluminium, magnesium, steel
- The gap between the inner and outer walls of the house can be filled with an insulator such as plastic foam.

C

- particles/molecules of gas or liquid
- convection current
- It may cause the track to buckle and derail the train.
- there are no molecules to move

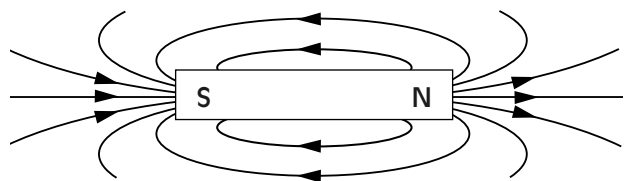
Worksheet 23

A

- cobalt, nickel
- Attach a string to the middle of the magnet and hold it up by the string – the north-seeking pole will point to the north.
- north and south

B

- from the north-seeking pole towards the south-seeking pole
-



C

- by passing an electric current through a wire that is coiled around an iron bar
- (a) switches
(b) electric bells
- it can be turned on and off

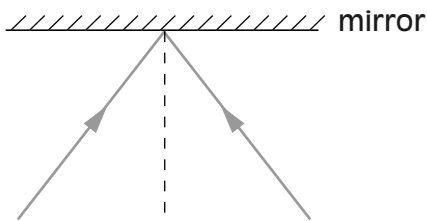
Worksheet 24

A

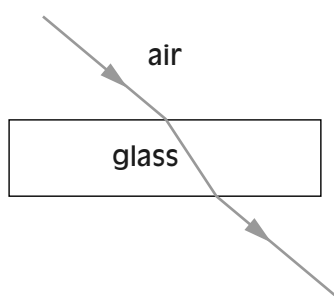
- 3×10^8 m/s

Answers to Problems in the Worksheets (continued)

2. (a) reflection.



(b) refraction

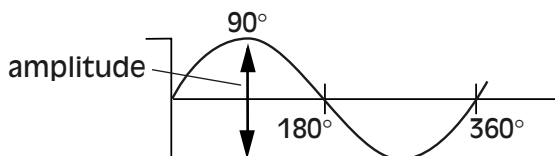


B

- red, orange, yellow, green, blue, indigo, violet
- It is caused when light passes through raindrops and dispersion takes place.

C

- longitudinal
- (a) rarefaction (stretching)
(b) compression (squashing)
-



D

- the ear drum
- as an electrical signal/impulse

Worksheet 25

A

- kinetic energy, energy, potential energy, kinetic energy, cell, chemical energy
- (a) electrical, sound (kinetic)
(b) chemical, electrical
(c) electrical, light/heat

B

- pressure = force \div area
- pressure = $500 \div 0.03 = 16667 \text{ N/m}^2$

C

- moment of force = force \times perpendicular distance from the pivot
- moment of force = $0.25 \times 40 = 10 \text{ Nm}$

Worksheet 26

A

- Velocity has direction, speed does not.
- average speed = $100 \div 12 = 8.3 \text{ m/s}$

B

- The force of attraction between an object and the Earth's gravitational field pulls the ball back down to Earth.
- Mass is the quantity of matter in the object and does not change. Weight is a force exerted by gravitational attraction. The gravitational attraction of the Moon is less than that of the Earth, so the object is pulled down less on the Moon and therefore has less weight.

3. Sun

C

	true	false
The Moon is a satellite of the Earth.	✓	
The first artificial satellite was called <i>Sputnik 1</i> .	✓	
The Sun is a satellite of the Earth.		✓
Artificial satellites are used to send telephone messages.	✓	
Mars is a satellite of Jupiter.		✓

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