

Science and Agri-Science Made Simple

LEVEL 4 AND 5 - ANSWER KEY

MAHARAJ PUBLISHERS LIMITED

SCIENCE AND AGRI-SCIENCE MADE SIMPLE

LEVEL 4&5 - ANSWER KEY

QU	PAGE1
1	d) Physical growth over time
2	increase
3	height
4	permanent
5	increase
6	millimetres, centimetres or metres
7	girth

QU	PAGE 2
8	Goat - cm, girl - cm or metres, book -cm
	Measurement Instruments - bathroom scale, kitchen scale, balance scale, spring scale

QU	PAGE 3
1	Growth is the process by which animals and plants increase in size.
2	The change in size occurs by an increase in the number of cells present in the organism
3	Height is the measurement of someone or something from head to foot or top to bottom.
4	The measurement around the middle of the body of the organism is known as girth.
5	Cells are the smallest parts of an organism. Cells can vary in size, shape and types.
6	We can see cells with an instrument called a microscope.
7	Mass tells us how heavy something is.
8	We count the number of cells in an organism to get the mass of the organism.
9	An organism is a living thing.
10	kilograms
11	Centimetre/metre
12	centimetre

QU	PAGE 4
	Weight of the following items - meat leg -5.5 KG, $5\frac{1}{2}$ kg, watermelon - 4.75 or $4\frac{3}{4}$ chicken $3\frac{1}{2}$ kg or 3.5 kg
	Watermelon- 3.5 kg or $3\frac{1}{2}$ kg, meat chicken - 3kg
	Estimate the Weight - 40 kg, crab 2 kg, 25 grams, 125 kg, 250 kg, 35 kg

QU	PAGE 7
1	Puberty is a period of rapid (quick) growth and change between childhood and adulthood.
2	Puberty usually begins between the ages of 8-14 in girls and ages 9-15 in boys.
3	hormones
4	For boys, the hormone is called testosterone
5	Body becomes more muscular, Voice changes and deepens, Hair growth on face, under arm and pubic area
6	Acne or pimples appear, Wider and rounder hips and breast development, Hair growth under arm and in pubic area

QU	PAGE 9
1	b) Genes
2	c) A permanent and irreversible change in the body.
3	d) Intake of oxygen
4	Having stronger muscles and bones, Be less likely to become overweight, Decrease the risk of developing diabetes
5	Height increases, Increase in sweat or perspiration that can cause an unpleasant body odour, Hair growth under arm and in pubic area
6	genetic makeup
7	Colour of complexion, hair, eyes, size of family, height of family
8	a) true, b)false, c) true , d) true, e)false, f) true, g) true, h) true

QU	PAGE 10
9	a) Diet, exercise
	b) muscles
	c) genetic
	d) parents
	e) transferred
10	a) They are equal
11	a) 31 kg and 40 kg

QU	PAGE 11
	Fill in the boxes with the words: picture 1 - childhood, picture 2 - adolescent, picture 3 - adulthood
1	An organism which has fully developed in growth is called an adult.
2	An adult is responsible for taking care of its young.
3	Organisms undergoing changes in growth are called young
4	As animals grow, they increase in height, girth and mass.

QU	PAGE 12
1	Hen, rooster
2	fertilized
3	21 days
4	feathers

5	reproduction
---	--------------

QU	PAGE 13
1	fertilize eggs → eggs hatch → chick
2	The eggs hatch into larvae also called caterpillars.
3	Life cycle of a butterfly are tiny eggs → larvae or caterpillars → pupa → butterfly

QU	PAGE 14
1	water
2	4
3	Eggs → larva → pupa → adult mosquito
4	6
5	Eggs → embryo → tadpole → tadpole with 2 legs → tadpole with 4 legs → frog
6	water
7	Tadpole
8	Tadpole

growth	gets bigger
development	changes
reproduction	produce young
death	life comes to an end
birth	born or hatch

QU	PAGE 15
1	b) To provide nutrients for the embryo

QU	PAGE 17
1	germination
2	Air, warmth, moisture, there must be life in the embryo
3	swells
4	radicle
1	After about three or four days, if the temperature is suitable, the radicle comes out.
2	The root hairs absorb water and mineral nutrients present in the soil.
3	A cotyledon is the first leaves of a seedling.
4	Plants obtain its nutrient from the soil when the radicle grows down into the soil.
5	flower
6	label

QU	PAGE 18
1	Your body needs good nutrition to be healthy.
2	Nutrients and chemical substances found in foods keep us alive.
3	Go food gives staples and fats
4	Legumes and food from animals help us to grow.
5	These foods build and maintain all your body tissues
6	Fresh Fruits and Vegetables

QU	PAGE 20
1	Bread, rice, macaroni
2	You get a source of: energy, vitamins, proteins and minerals
3	You get a source of vitamins, proteins, minerals and fibre.
4	It builds body tissues. We get a source of protein, calcium, iron and zinc.
5	We get a source of vitamins and minerals from their juice
6	Eat without cooking
7	We get a source of vitamins and minerals. They are a good source of fibre.
8	It is high in calories.
9	Add whole wheat and grains to flour when baking bread and roti. Eat foods with less preserving powder. Do not use MSG. Use less Salt. Use less Canned food.

QU	PAGE 21
10	a) macaroni, cake
	b) meat , beans
	c) oranges, apples
	d) milk, meat

QU	PAGE 22
1	apples
2	oranges
3	oil
4	parathas
5	roasted chicken
6	Grilling is when you use a metal mesh to place food on and there is heat under the metal.
7	Baking , grilling, stir fry, steaming
8	British
9	religious reasons, visual appeals, advertisement, smell, taste
10	a) cou cou, b) steamed wantons, steamed rice, c) French fries

QU	PAGE 23
1	Any substance (solid or liquid) when consumed and helps the body to function properly is called food.
2	Unhealthy foods contain high amounts of fats and sugars.
3	Eating too many calories will make you overweight.

4	-
5	food
6	-

QU	PAGE 26
1	a) true b) true c) true d) true e) false
2	c) Translucent
3	c) In straight lines
4	b) Light passes through them.
5	d) Transparent

QU	PAGE 27									
6	a) Object is opaque									
7	Transparent materials allow most of the light that strikes them to pass through.									
8	Opaque materials do not allow any light to pass through them, because they reflect light, absorb light or both.									
9	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Transparent Materials</th> <th>Translucent Materials</th> <th>Opaque</th> </tr> </thead> <tbody> <tr> <td>Cling wrap</td> <td>lampshade</td> <td>wood</td> </tr> <tr> <td>Ziploc bags</td> <td></td> <td></td> </tr> </tbody> </table>	Transparent Materials	Translucent Materials	Opaque	Cling wrap	lampshade	wood	Ziploc bags		
Transparent Materials	Translucent Materials	Opaque								
Cling wrap	lampshade	wood								
Ziploc bags										
10	Opaque materials do not allow any light to pass through them whereas opaque materials do not allow any light to pass through them									
11	Clear glass									
12	Allow light to pass through - glass window/ Allow some light to pass through - tinted car glass/ will not allow light to pass through - wooden wall									

QU	PAGE 28
1	Absorbent means able to take or soak in
2	They are absorbent materials because they can take in or soak up liquids easily
3	b) Brand 2

QU	PAGE 29
4	a) tissue b) tissue paper are very soft
5	a) b and c/ a and d
	b) d
	c) c
	d) had the heaviest mass of wetness
6	True
7	false
8	true

9	true
10	true
11	true
12	false

QU	PAGE 30
13	b) 2
14	b) toilet paper

QU	PAGE 31
1	c) Vibrates
2	d) Vacuum

QU	PAGE 32
3	d) Solid
4	c)The moon
5	c) Vibrates
6	b) Vibrating air reaches the ear
7	d) vacuum
8	c) The strings vibrate air particles reaching the ear.
9	Sound energy is the vibrations of matter.
10	Sound energy is produced when any object vibrates.
11	a)false b) true c>true d) true

QU	PAGE 34
1	Objects can be classified based on their properties.
2	Heat is a form of energy which flows from a region of high temperature to another region of lower temperature.
3	Heat can travel through solids, liquids, gases and even a vacuum.
4	When heat is absorbed by a body, its temperature increases.
5	When two objects are rubbed together a heat is generated called friction.
1	Materials
2	ability
3	temperature, lower
4	Solids, gases
5	cooler
6	Cold water
7	Circle first thermometer

QU	PAGE 36
1	a) copper
2	d) The temperature of the pan and the burner will not change.
3	d) Fuel to light and heat
4	Pvc pipe
5	wood
6	b) steel spoon
7	a) The handle was made of a poor conductor.

QU	PAGE 37
8	b) heat
9	c) plastic
10	black
11	d) wood
12	b) Allows no heat to pass through it

QU	PAGE 38																																				
13																																					
	<table border="1"> <thead> <tr> <th>Kinds of Materials</th> <th>Conductors</th> <th>Non-Conductors</th> </tr> </thead> <tbody> <tr> <td>rubber</td> <td></td> <td>/</td> </tr> <tr> <td>silver</td> <td>/</td> <td></td> </tr> <tr> <td>paper</td> <td></td> <td>/</td> </tr> <tr> <td>wood</td> <td></td> <td>/</td> </tr> <tr> <td>cloth</td> <td></td> <td>/</td> </tr> <tr> <td>pin</td> <td>/</td> <td></td> </tr> <tr> <td>styrotex</td> <td></td> <td>/</td> </tr> <tr> <td>gold</td> <td>/</td> <td></td> </tr> <tr> <td>book</td> <td></td> <td>/</td> </tr> <tr> <td>mercury</td> <td>/</td> <td></td> </tr> <tr> <td>plastic</td> <td></td> <td>/</td> </tr> </tbody> </table>	Kinds of Materials	Conductors	Non-Conductors	rubber		/	silver	/		paper		/	wood		/	cloth		/	pin	/		styrotex		/	gold	/		book		/	mercury	/		plastic		/
Kinds of Materials	Conductors	Non-Conductors																																			
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mercury	/																																				
plastic		/																																			

14	plastic
15	Heat is energy that makes things warmer.
16	Energy is something that can cause matter to move or change.
17	A material that allows heat to move through it easily is called a heat conductor.
18	Materials that do not conduct heat well are called heat insulators.
19	a) true b) true c) true d) false e) false f) true

QU	PAGE 39
1	observation
2	Idea or explanation
3	communicate
4	evidence

QU	PAGE 40
1	a) (i) Which material was the best conductor of heat
	(ii) First get the rods of different material
	Next place water and heat
	Leave the rods in the water for the same length of time
	b) (i) amount of water and length of time heat was applied

QU	PAGE 41
	b) (ii) types of materials
	c) (i) wood
	(ii) Metals are good conductors of heat
2	b) between 31 kg and 40 kg

QU	PAGE 42
1	Sources of electricity are fossil fuels (coal, natural gas and oil),

QU	PAGE 43
2	Electricity helps our lives by providing power for many things that we use every day
3	Electricity is generated from the conversion of a primary source of energy, such as: fossil fuels (coal, natural gas and oil), nuclear power and renewable sources (wind, hydro, solar, geothermal).

QU	PAGE 44
1	Energy is something that can cause matter to move or change.
2	a) Rock
3	Electricity, heat, solar
4	a) Heat
5	b) Energy from gasoline
6	c) Natural gas
7	c) solar
8	a) To cook food
9	b) To cool his home
10	a) changes electrical energy into light b) electrical energy

QU	PAGE 45
1	refrigerators, freezers and air conditioning
2	a) To pump water, b) to read information and display a channel on a television c) freeze foods

QU	PAGE 47
1	a) homes - cool home, warm home
	b) offices - machines, cool
	c) transportation - gas (fuel)is used in cars, buses
2	c) Hydroelectric power
3	Being energy efficiency means reducing the consumption of energy for a service that needs to be done constantly.
4	To ensure that we don't run out of energy in the future

QU	PAGE 48
5	Because it is nonrenewable and one day it may run out
6	Turn off the lights in a room when you are not there. Do not run your air conditioner when it is cool outside. Recycling of materials helps to save energy because recycled materials are cheaper to produce and require less energy.

QU	PAGE 49
1	A structure is a building or other object that is constructed using several parts.
2	Circle -pond
3	The force of gravity
4	b) The picture would float off the nail.

QU	PAGE 51
1	gravity
2	width
3	height
4	unstable
5	stable
6	stable
7	centre
8	Circle - car/ Reason - It is wide and low so it is more stable since the centre of gravity of an object is influenced by its width

QU	PAGE 52
1	true
2	true
3	true
4	false
5	false
6	false
7	true
8	false

QU	PAGE 55
1	Weather is the day-to-day conditions of a particular place.
2	Someone who studies the weather is called a meteorologist
3	Weather predictions
4	The climate is the common, average weather conditions in a particular place over a long period of time (for example, more than 30 years).
5	Weather is the short-term conditions of the atmosphere while climate is the average daily weather for an extended period of time in a certain location.
6	Wind vanes and wind socks can show us the direction of the wind
7	An anemometer is used to measure the speed or strength of the wind
8	Wind vanes and wind socks
9	a) cannot
	b) forecasters
	c) same
	d) hundreds, thousands, even millions of
	e) straighter
	f) stronger
	g) direction
	h) meteorologist
10	wind sock

QU	PAGE 57
1	c) Temperature
2	c) Temperature, rain, clouds and wind
3	d) To measure wind speed
4	d) Studies and predicts weather
5	Thermometer will tell how hot or cold it is/ Anemometer - will measure the speed or strength of the wind
6	b) Cloudy
7	a) Wet season

QU	PAGE 58
8	b) Climate
9	An anemometer is used to measure the speed or strength of the wind.
	Wind vanes and wind socks can show us the direction of the wind.
	The wind sock points the direction the wind is blowing towards.
10	c) Thursday
11	Take along an umbrella

QU	PAGE 59
12	Store water - preferably bottled/ Food - Easy to prepare, non-perishable items/ Medical Supplies/ flash light
13	c) Tee shirt
14	Sunny, windy, rainy, partly sunny
15	All important documents should be put in water proof or zip lock bags. Store Medical Supplies, Store canned food
16	Hurricane, earthquake, flood
17	Weather is the short-term conditions of the atmosphere while climate is the average daily weather for an extended period of time in a certain location.

QU	PAGE 62
1	Resources are any substances, living or non-living that are useful to people.
2	Natural Resources or non-human resources are things provided by nature which help people to sustain life on earth
3	Non-Renewable Resources are resources which cannot be replenished once they are used up
4	Plant resources are forest, fruits, bearing trees, flowers, herbs and shrubs
5	It is also used to generate electricity, for hot water heating, drying clothes
6	Asphalt, oil and gas, gypsum
7	Coal, petroleum, natural gas
8	Sun
9	Gas
1	sun
2	Replaced or replenished
3	energy
4	mechanical
5	flowing
6	Non-renewable

QU	PAGE 64
1	A greenhouse is a house made of glass. People grow tomatoes and flowers and other plants in them. A greenhouse stays warm inside, even during winter. Sunlight shines in heating the glass and keeping the inside warm.
2	The function of greenhouse gases is to keep the planet warm enough for life as we know it to live comfortably. Greenhouse gases and the greenhouse effect keep the planet from getting too cold.
3	The greenhouse effect refers to the ability of the atmosphere to trap the sun's heat, increasing the temperature of the planet preventing it from getting too cold.
4	Carbon dioxide, methane, water vapour, oxides of nitrogen and ozone
5	breathe out carbon dioxide
6	Man's activities are upsetting the balance of the greenhouse gases in the atmosphere and making the natural greenhouse effect stronger
7	<i>How** is carbon dioxide produced in large quantities?</i> It is produced in large quantities through human activities when the trees and fossil fuels such as coal, gas and oil are burnt.
8	during the day via photosynthesis
9	Burn less fuels such as coal, gas and oil. Use products without oxides of nitrogen and use renewable energy sources such as solar, wind, hydro.

QU	PAGE 65
1	The enhanced greenhouse effect
2	carbon dioxide, atmosphere
3	imbalance
4	More heat
5	Extra heat

QU	PAGE 66
1	b) The rising of the earth's temperature
2	An enhanced greenhouse effect is being caused by the accelerated dumping of greenhouse gases, carbon dioxide, methane etc. into the atmosphere. This is due to the mankind's industrial activities and burning of fossil fuels.
3	Mankind's industrial activities and burning of fossil fuels have exponentially increased the rate of global warming, enhancing the greenhouse effect.
4	Global warming is caused by an increase in greenhouse gases in the atmosphere, raising the overall average temperature of the earth. This is a natural process.
5	The greenhouse effect works by trapping heat energy from the sun on the earth's surface using the atmosphere as a blanket. The presence of greenhouse gases such as carbon dioxide and methane increase the strength of the greenhouse effect.
6	In its natural state the greenhouse effect works to maintain a habitable environment on earth, as such it is beneficial . In its enhanced state it increases the temperature of the earth and will make it uninhabitable. Then it becomes harmful .
7	The greenhouse effect is positive because trapping some energy from the sun keeps the temperatures on our planet mild and suitable for living things when balanced with reflection from the colder Arctic and Antarctic regions.
8	The greenhouse effect in its natural state is not harmful to the earth, but when excessive amounts of greenhouse gases are introduced, the warming effect grows out of control resulting in global warming which is harmful to humans.

9	*Green (not small) Plants take carbon dioxide (CO ₂) out of the atmosphere to photosynthesize, and thus help reduce the volume greenhouse gases warming the planet. Trees absorb ozone, which is a potent greenhouse gas.
10	Greenhouse gases are caused naturally in the environment from animal and plants (flatulence and breathing) producing them, as well as being emitted from the planet itself from volcanoes and fissures in the earth. The effect of these gases is that they rise into the atmosphere allowing the greenhouse effect to function, maintaining the temperature of the earth so it remains warm enough for life to exist.
11	When properly balanced, the greenhouse effect maintains a livable temperature on the surface of the earth allowing for life to exist in its present state.

QU	PAGE 68
1	Mass is a measurement of the amount of matter something contains.
2	Weight is the measurement of the pull of gravity on an object.
3	The Mass of an object doesn't change when an object's location changes Weight, on the other hand does change with location because gravity is not the same everywhere.
4	Mass is measured by using a balance comparing a known amount of matter to an unknown amount of matter.
5	Weight is measured on a scale
6	Bathroom scale, kitchen scale

QU	PAGE 70
1	A force is a push or pull exerted by one object on another
2	Equal forces in the same direction.
3	The arrow head shows the direction in which the force is travelling
4	Right reason - because the arrow showing the greater force is on the left and it is pushing to the right

QU	PAGE 71
5	Equal forces opposite direction Unequal forces opposite direction
6	d) Gravitational
7	b) Pull
8	a) true b) true c) true d) true e) false f) true g) false h) true i) true
9	b

QU	PAGE 72
	Naming Simple Machine - lever, wedge, inclined plane, screw, pulley

QU	PAGE 73
	Label a) effort b) load c) fulcrum

QU	PAGE 74
	Cart 2 nd class/ plank 2 nd class/ fishing rod 3 rd class

QU	PAGE 76
1	A lever is a simple machine.
2	Label -
3	1st and 2nd diagram
4	All are 3 rd class levers

QU	PAGE 77
1	ramp
2	lower
3	Rate, tilted
4	loading
5	Steeper, force

QU	PAGE 78
1	The purpose of an inclined plane is to move something from a lower height to a higher height with less effort or a higher height to a lower level.
2	The greater the force of the object when it hits the ground
1	The Wheel & Axle - Makes work easier by moving objects across distances.
2	A wheel and axle is made up of two circular wheels and a rod (axle) and are both joined at the centre .

QU	PAGE 79
1	b) Clockwise fix
2	A gear is a wheel that has accurately-cut teeth around its edges with a shaft passing through its centre.
3	A group of gears is called a gear train
4	Its purpose is to transmit rotary motion and force.

QU	PAGE 80
1	A simple pulley is made up of a grooved wheel, and a rope, chain or cord which passes on the grooved wheel.
2	An inclined plane
3	An inclined plane
4	An inclined plane

QU	PAGE 81
5	The purpose of an inclined plane is to move something from a lower height to a higher height with less effort or a higher height to a lower level.
6	b) Rotate clockwise
7	c) Gear
8	b) pulley
9	b) Inclined plane
10	b) Load
11	b) Lever
12	a) Lever and screw

QU	PAGE 82
13	c) The pulley changes the amount of force needed to lift an object.
14	b) Inclined plane
15	a) false b) false c) false d) true
16	This simple machine involves using two circular wheels and a smaller cylindrical object or rod is referred to as the axle. The two wheels are attached to both ends of the axle.
17	A lever is a simple machine which turns about a fixed point called a Fulcrum. A force called Effort is applied to overcome a resisting force known as the Load to move an object./ A lever is a simple machine is a lever that helps to do work faster and easier.
18	Scissors, can opener, pliers
19	First class
20	Staple
21	Label -

QU	PAGE 84
1	Recycling is the process of turning waste and used items into new, useful materials or products
2	Save energy, prevent the waste of potentially useful materials and prevent pollution
3	E-cycling is the practice of reusing or distributing electronic equipment
4	It creates a serious problem because of toxic elements involved in their manufacture.
5	Metal, glass, plastic, electronics

QU	PAGE 86
1	It can reduce the amount of waste, conserve natural resources, save energy
2	It pollutes our environment and it is a site for sore eyes. Might run out of land space in the future
3	By recycling, reusing
4	by using less raw materials, by recycling and reducing
5	c) Reuse, reduce, recycle
6	b) Newspapers
7	"Reduce Reuse Recycle".
8	Materials, natural habitat
9	Energy
10	Climate
11	Employ
12	Conserve
13	Greenhouse
14	Water, mineral
15	Quarrying, logging

QU	PAGE 88
1	It is the growing of crops and the rearing of animals.
2	It produces food, Creates jobs, Provides leisure
3	Food security means that everybody is able to get enough healthy food to be well and active and not live in fear of starvation.
4	Individual level (self), House level (home)
5	F.O.A. means Food and Agricultural Organization
6	Importance of food security, To ensure a healthy population exists, Foster Trade
7	To ensure a healthy population exists, Reduce taxes on agricultural items: fertilizers, pesticides, tools. Accessible roads to get produce to the market.

QU	PAGE 88
8	Wars/civil unrest, Pest and diseases, Lack of money for agriculture, Natural disaster: earthquake, storms, flooding
9	Arable means soil suitable for growing crops
10	The Caribbean has a wealth of natural resources and biodiversity because of its geographical location.

QU	PAGE 92
1	Free from pests and diseases, Have good aeration, have adequate nutrients
2	to kill weed seeds, pests and diseases
3	It is easy to set up and maintain, It is easy to set up and maintain, Does not require constant watering
4	Premix soil, concrete blocks, fertilizers, saran netting, seeds, watering can