TEACHERS' REFERENCE

Bhutan Council for School Examinations and Assessment

Class 5

SCIENCE

Competency Based Assessment

2013

Teachers' Reference

For

Competency Based Assessment

CLASS 5 SCIENCE

Bhutan Council for School Examinations and Assessment

2013

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Background

As mandated under Performance Compact Charter 7 of *Accelerating Bhutan's Socio-economic Development (ABSD)*, one significant initiative undertaken by the Bhutan Board of Examinations (BBE) was to develop *Teachers' Guide on Competency Based Assessment (CBA)* for the selected subjects for the various class levels in 2010 (10^{th} Plan).

Teachers' Reference for Competency Based Assessment (TRCBA) books were first developed for the Classes V, VII and IX in three subject areas (Dzongkha, English and Mathematics) and introduced to all the secondary schools in 2011. Meanwhile, the erstwhile BBE was renamed as the Bhutan Council for School Examinations and Assessment (BCSEA) after as an autonomous body and it was later delinked from the Ministry of Education (MoE) with effect from April 2011.

In the following year, a survey BCSEA carried out on the usefulness of those books in teaching-learning. Subsequently, based on the feedbacks received from the teachers in the field, the Ministry of Education endorsed the recommendations to further develop the CBA books as teachers' reference guides for other subjects across the school curricula with the intent to improve both the standard and delivery of quality education in the country.

Broad objectives of CBA are to:

1. *enhance and improve the teaching learning assessment of student competencies in schools at various class levels,*
2. *encourage teachers to frame their own creative (modular) assessment questions using the booklet as the reference guides, and*
3. *provide the sample questions/model answers in the guide books including infusion of the GNH values wherever applicable while framing the questions.*

Table of Contents

Introduction

It is essential that teachers have prior understanding of what competency based assessment (CBA) actually means. It is the process of collecting evidence and making judgments on whether students have demonstrated the required learning competency that will allow them to move to the next competency level in a study course.

A "competency" is the ability of a student to apply content knowledge and skills in and/or across the content area(s). It means that assignments are linked back to the competencies that they are designed to assess and student performance is reported in a way that tracks students' mastery of the competencies that have been identified for each course.

CBA is focused on assessing the learning outcomes (competencies) that are linked to students' needs in their real life situations involving portfolios, experiential learning in field experiences, demonstration in varying contexts, role play, etc. It defines educational goals precisely in measurable descriptions of knowledge, skills, and behaviors which students should possess at the end of a course of study.

- *Competencies consist of a set of essential skills, knowledge, attitudes, and behaviors required for effective performance of a real-world task or activity.*
- *Competencies within different contexts may require different sets of skills, knowledge and attitudes.*

However, teachers will need to gradually shift their focus from emphasizing the content learning of the curriculum to assessing the development of student competencies in the classroom teaching-learning situations.

Teachers constantly need to revisit and re-think what they teach, how they teach, and the ways in which they help the students to demonstrate mastery over what they have learned and interact with the larger world around them.

The term *assessment* refers to the process of obtaining information about student learning outcomes to:

- *assess through formal/informal observations of students' performance, demonstration of skills and knowledge, portfolio-based assessments, tests, project works, oral questioning and analysis of student records, and*

- *guide educational policy decisions about students; to inform students, their parents, teachers, or other audiences about their progress, strength and achievements.*

The key to competency based assessment is that it is based on actual skills and knowledge that a student can demonstrate in the workplace or other contexts. CBA in this case will lead to functional approach to science education emphasizing life skills and evaluating mastery of those skills in terms of achieving student proficiency in science learning.

Purpose of the book

This booklet comprises the model questions and answers that can be used to assess competencies across all the learning strands. It is intended to serve as a reference guide for teachers to help in the classroom teaching and also form an item bank from which they may draw questions to assess students' competencies in Science as specified in the strands and learning objectives of the science curriculum.

However, it is cautioned that the questions as well as answers given in the booklet are in no way prescriptive; they are rather intended to serve as guides, suggestions, or prompts for the improved construction and designing of the questions and answers that assess students' learning competencies.

How to use this book

The questions and answers in this booklet may be used:

1. as a reference when developing teaching and assessment plans in science learning with suggested classroom activities and the resources,
2. for planning to assess the student competencies in classroom practice, collecting evidence of learning for assessment and to make immediate connections to assessment and reporting,
3. to assessment student competencies (achievements or failures) in the formative or summative learning in the form of class tests, term tests, etc.,
4. as models/samples good questions/answers testing competencies for the construction of questions that may be required for the assessment of skills through other texts, and
5. review the value of using assessment criteria and be able to use them to grade work and give constructive feedbacks.

CHAPTER 1

MATTER

Learning outcomes

By the end of the lesson, a student should be able to:

1.1 Sort, group and classify materials according to their properties.
1.2 state three states of matter, solid, liquid and gas.

Assessment Items

Question 1. [Remembering]

The matter which is in the gaseous state is

A. oil.
B. wood.
C. metal.
D. oxygen.

Ans: oxygen

Question 2. [Remembering]

Solids have

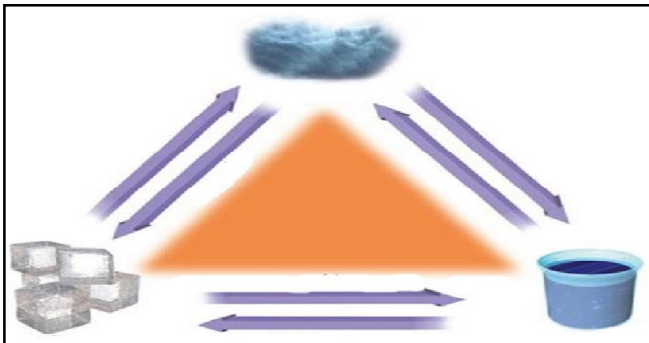
A. only definite shape.
B. only definite volume.
C. definite shape and volume.
D. neither definite shape nor volume.

Ans: definite shape and volume

Question 3. [Remembering]

Read each of the following statements and write whether it is **TRUE** or **FALSE**.

(i) Particles are loosely arranged in solids. [*false*]
(ii) Liquid takes the shape of the container. [*true*]
(iii) Water vapour changes to water on cooling. [*true*]
(iv) Evaporation is the process in which gas changes to liquid. [*false*]



(Class 5 science, 2012, page 3)

Question 4. [Understanding]

The above figure shows the change in states. The changing of a gas directly to a solid is called

A. melting.
B. evaporating.
C. condensing.
D. sublimating.

Ans: sublimating

Question 5. [Understanding]

The following liquids float on water **EXCEPT**

A. honey.
B. soya oil.
C. kerosene.
D. mustardoil.

Ans: honey

Question 6. [Understanding]

Explain the arrangement of particles in each of the given state.

(i) Solid
(ii) Liquid
(iii) Gas

Ans:

Solid	✓ *Particles are closely arranged.* ✓ *Particles cannot move.*
Liquid	✓ *Compared to solid, particles are loosely arranged.* ✓ *Particles can move.*
Gas	✓ *Particles are very loosely arranged.* ✓ *Particles can move freely in all directions.*

Question 7. [Applying]

What is an element? Give **ONE** example.

Ans: An element is a small particle that is made up of one kind of atom.

Example: Gold or any other relevant answer.

Question 8. [Applying]

Fill in the blanks with correct terms.

(i) Evaporation takes place at all …… [*temperature*]

(ii) Gases …… have fixed volume and shape.[*do not*]

(iii) Solid, liquid and gas are the three states of……[*matter*]

(iv) Liquids have definite volume but no definite …… [*shape*]

(v) The process of changing ice to water is called……..[*melting*]

(vi) All solids, liquids and gases are made up of tiny……[*particles*]

(vii) The change of state from solid to liquid is called ……[*melting or fusion*]

(viii) The change of state from liquid to gas is called ……[*evaporation*]

(ix) The changes in state are caused by …….or by……[*heating, cooling*]

(x) The change of state from gas to liquid is called ……[*condensation]*

(xi) The change of state from liquid to solid is called ……[*freezing*]

(xii) Water is made up of two elements, hydrogen and ……[*oxygen*]

(xiii) Solids have ……..shape and …… volume. [*definite/fixed*]

(xiv) Liquids have……..volume but no definite …… [*definite/fixed, shape*]

(xv) The change of state from solid directly to gas and back to solid is called ……[*sublimation*]

Question 9. [Analyzing]

Match the items in Column A against those in Column B

Column A	**Column B**
(i) Solid	a. is in liquid state.
(ii) Water	b. has no definite volume.
(iii) Smoke	c. particles are tightly arranged.
(iv) Sodium chloride	d. changes directly to gas on heating.
(v) Ammonium chloride	

Ans: 1(c), 2(a), 3(b), 4(c),5(d).

Question 10. [Analyzing]

When we burn an incense stick in a room, its smell fills the room. Why? Give **ONE** reasons.

Ans: When we burn an incense stick, its smell mixed with air fills the room because the particles of air which is gas are loosely arranged and they move in all directions.

Question 11. [Analyzing]

Gases have neither fixed shape nor fixed volume. Give **ONE** reason.

Ans: Gases have neither fixed shape nor fixed volume because the particles in gas are loosely arranged and they move in all directions.

Question 12. [Analyzing]

Can water be always in a liquid state? Why?

Ans: No, water can be in different states. It can also be in the form of ice which is solid and water vapour which is gas.

Question 13. [Evaluating]

Solid cannot change its state/shape. Do you agree or disagree? Give reasons for your answer.

Ans: Agree

Solid cannot change its state because the particles are closely arranged that there is no space for the particle to move.

Disagree

Solid can change its shape. For example, ice which is in a solid form can change to water which is water.

Question 14. [Creating]

What will happen if there is no water cycle taking place?

Ans:

- ✓ *The earth will be dry.*
- ✓ *There will be no rain fall.*
- ✓ *There will be no plants and animals.*

Question 15. [Creating]

What will happen if all the water in the earth changes to ice?

Ans:

- ✓ *There will be no fishes.*
- ✓ *We will have no river flow.*
- ✓ *The earth would be very cold.*

Question 16. [Creating]

Is a football, a solid or a gas? Explain.

Ans: It is a solid form filled with gas inside.

CHAPTER 2
PHYSICAL CHANGE

Learning outcome

By the end of the lesson, a student should be able to:

2.1 Describe the changes that occur when substances are mixed, heated or cooled.

Assessment items

Question 1. [Remembering]

A physical change has taken place when

A. a new substance is formed.
B. no new substance is formed.
C. substance cannot be reversed.
D. the identity of a substance changes.

Ans: no new substance is formed

Question 2. [Remembering]

Read the following statements and write whether each of them is **TRUE** or **FALSE**.

(i) Mud dissolves in water. (*false*)
(ii) Dissolving is a physical change. (*true*)
(iii) Melting turns liquid into a solid. (*false*)
(iv) Dissolving is an irreversible change. (*false*)
(v) Water cycle is not a physical change. (*false*)
(vi) Melting and freezing are physical changes. (*true*)
(vii) Boiling is the rapid vaporization of liquid on heating. (*true*)
(viii) New substance is formed during boiling and evaporation. (*false*)

Question 3. [Understanding]

Which of the following is a physical change?

A. Ripening of fruits
B. Formation of curd
C. Breaking of glass
D. Burning of paper

Ans: Breaking of glass

Question 4. [Applying]

Fill in the blanks with correct terms.

(i) Freezing turns a liquid into…… [*solid*]
(ii) Addition of impurities in a solution ……the freezing point. [*lowers*]
(iii) Melting and freezing of hydrogenated oil is a …….change.[*physical*]
(iv) The method used to separate a dissolved solid from a solution is called……. [*evaporation*]

Question 5. [Applying]

What is melting? Give **TWO** examples.

Ans: Change of state from solid to liquid on heating is called melting.
Examples: Melting of ice, melting of butter, melting of fats, melting of ice cream.

Question 6. [Applying]

What are natural changes and man-made changes? Give **ONE** example each.

Ans: Changes which happen naturally are called natural changes and changes made by humans are called man-made changes.

Examples: Growing of tree is a natural change and construction of a park is a man-made change.

Question 7. [Applying]

Define physical change and give **ONE** example.

Ans: Physical change is a temporary change in which no new substance is formed.

Example: Squeezing a ball

Question 8. [Applying]

Identify the examples of physical changes from the following list.

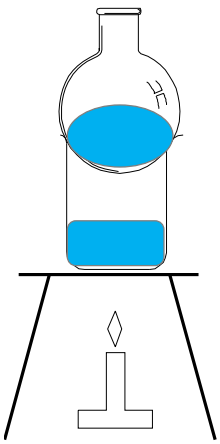
Making curd, making ice cubes, making sugar crystals, making ema-datsi

Ans: Making ice cubes and making sugar crystals.

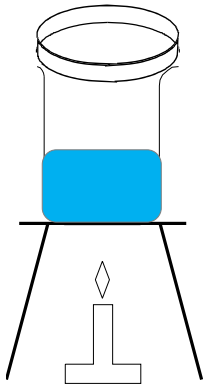
Question 9. [Evaluating]

Of the two given experiments displayed in sketches A and B, which is the appropriate experiment that shows the process of water cycle? Give **THREE** reasons.

A



B



(Class 5 science, 2012, page 2)

Ans:

Experiment A is the appropriate experiment that shows the process of water cycle.

In experiment A

- ✓ *The set up is arranged in a correct order.*

- ✓ *The water vapour rises up and cools down when it comes in contact with the round flask with cold water inside.*
- ✓ *The water vapour turns into water droplets and falls back into the beaker.*

Experiment B is the appropriate experiment that shows the process of water cycle.
In experiment B

- ✓ *The setup is in a correct order.*
- ✓ *The petri dish blocks the water vapour from escaping out.*
- ✓ *The watervapour that clings on the dish condense and fall back into the beaker.*

Question 10. [Analyzing]

Match the Column A against Column B.

Column A	**Column B**
(i) Solid state (ii) Blowing air in a balloon (iii) Water turning to vapour	a) ice b) evaporation c) condensation d) reversible change

Ans: 1(a), 2(d), 3(b)

Question 11. [Creating]

What do you think would happen if the snow on the mountains does not melt at all?

Ans:

- ✓ *There will be no river.*
- ✓ *People will not get water to drink.*
- ✓ *The weather will become very cold.*
- ✓ *Mountains will turn into solid walls.*
- ✓ *People living in the mountains cannot survive.*

CHAPTER 3

SEPARATING SOLID MIXTURES

Learning outcome

By the end of the lesson, a student should be able to:

3.1 Describe how to separate solid mixtures.

Assessment items

Question 1. [Remembering]

The agent used for winnowing is

A. sun.

B. rain.

C. hail.

D. wind.

Ans: wind.

Question 2. [Applying]

Hand picking is an effective method to separate

A. rice and zaw.

B. salt and sugar.

C. rice and maize.

D. flour and sand.

Ans: rice and maize

Question 3. [Remembering]

Write the terms in Column A that are described in Column B.

A:Terms	B:Descriptions
a……..	The method of using magnet to separate the components of a mixture.
b……..	Lighter solids are separated from heavier ones with the help of wind.
c……..	The method used for separating flour from the gravels.

Ans: a(Magnetic Separation), b(Winnowing), c(Sieving)

Question 4. [Understanding]

Aum Sonam is shaking a bamboo tray filled with grains and husk. What will happen to the husk?

Ans: Husk being light will be easily blown away by the wind, while the grains being heavier will settle down in the tray.

Question 5. [Applying]

In the boxes given below, draw **ONE** diagram for each given term.

(i) Sieving
(ii) Winnowing
(iii) Handpicking
(iv) Magnetic attraction

Ans:

<table>
<tr>
<td> 
(Class 5 science, 2012, page 37)</td>
<td> 
(Class 5 science, 2012, page 33)</td>
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</table>

Question 6. [Analyzing]

Match each of the items in Column A with the correct answer in Column B.

Column A	Column B
(i) Winnowing	a) rice and wheat
(ii) Handpicking	b) sand and water
(iii) Sieving	c) rice husk and maize
(iv) Magnetic separation	d) iron fillings from sand
	e) grains from impurities

Ans: 1 (c), 2 (e), 3 (a).4 (d)

Question 7. [Analyzing]

Pema has lost a pin in the sawdust. She is using a bar magnet to find the lost pin. Why do you think is Pema using the bar magnet?

Ans: Pema is using the bar magnet because she can find the pin faster as the bar magnet will attract the pin.

Question 8. [Evaluating]

Karma wants to separate husk from wheat flour. Which method will you suggest, Winnowing or Sieving? Why?

Ans:

- ✓ *Winnowing: It will be easier because wind blows away the husk while the wheat flour will settle down.*
- ✓ *Sieving: It will be easier as the wheat flour is smaller in size, it will easily pass through the sieve and the husk will remain back in the sieve.*

Question 9. [Creating]

Aum Pema is an old lady living on a hill, has a bag full of grains mixed with husk. With the help of a diagram, design a simple machine with which she can separate the mixture.

Ans: Any relevant diagram which answers the question.

CHAPTER 4

FRICTIONAL FORCE

Learning outcome

By the end of the lesson, a student should be able to:

4.1 Describe a frictional force with examples.
4.2 State the ways of increasing and decreasing frictional force and their uses in daily life.

Assessment items

Question 1. [Remembering]

Friction

A. changes the distance of our motion.
B. brings object close to our body.
C. slows down our motion.
D. speeds up our motion.

Ans: slows down our motion.

Question 2. [Remembering]

Friction is measured by a

A. measuring tape.
B. spring balance.
C. beam balance.
D. scale.

Ans: spring balance

Question 3. [Understanding]

Maya is playing a video game in her room. The maximum friction is caused between the remote control and her

A. arm.
B. hand.
C. palm.
D. fingers.

Ans: fingers

Question 4. [Applying]

Karma is trying to move a box containing books to the next room. He finds it very difficult to move it. The best way to move the box is to

A. use rollers underneath the box and push.
B. sprinkle powder on the floor and push.
C. put a plank under the box and push.
D. put oil on the floor and push.

Ans: use roller underneath the box and push

Question 5. [Remembering]

Write **TRUE** or **FALSE**.

(i) While cycling, the friction is between the body and the ground. (*false*)
(ii) We slip on a wet floor because there is more friction. (*false*)
(iii) Friction can slow down the movement of an object. (*true*)
(iv) Grooves on shoe soles decrease the friction. (*false*)
(v) Treads on tyres help to increase speed. (*false*)

Question 6. [Understanding]

Where does friction occur when playing football?

Ans: The friction occurs between the players' feet and the ground and between the ball and the ground.

Question 7. [Applying]

Look at the following crossword and locate **FIVE** words related to friction.

F	L	O	U	R	M	E
R	U	G	G	O	L	D
I	N	O	R	M	Q	G
C	I	E	O	S	N	E
T	F	E	O	I	C	E
I	O	N	V	N	A	R
O	R	O	E	O	T	G
N	M	O	N	K	L	A

Ans: Flour, Rug, Friction, Moving and Groove.

Question 8. [Applying]

Observe the words in the boxes given.

our	force	Friction	movement
the	is	that	oppose

Using all the words, define friction.

Ans: Friction is the force that opposes our movement.

Question 9. [Applying]

Fill in the blanks with correct terms.

(i) The tyres with ……..have more friction than the worn-out tyres. (*treads*)

(ii) Spring balance was invented by the famous scientist……. (*Isaac Newton*)

(iii) Footballers wear shoes with spikes to ……friction. (*increase*)

(iv) Friction causes wastage of ……..in machines. (*energy*)

Question 10. [Applying]

Dorji had an iron box which weighed10kg and the force required for him to pull it was 10000gf. Dorji's brother required 10kgf. Who used more force?

Ans :

1kg= 1kgf therefore 10kg= 10kgf

1kgf= 1000gf

So Dorji's brother used10kg= 10000kgf which was more.

Question 11. [Analyzing]

Differentiate between frictional force and gravitational force.

Give **ONE** example each.

Ans: Frictional force is the force that opposes our motion.

For example: Force between the feet and the ground.

Gravitational force is the force of earth that pulls everything to its centre.

For example: An apple falling down from a tree.

Question 12. [Analyzing]

A pencil sliding on a plane surface gradually slows down and stops. Why?

Ans: A frictional force is developed between the pencil and the plane surface. The frictional force slows down the pencil until it finally stops.

Question 13. [Analyzing]

Pema's window hinge makes an annoying noise when closing and opening. Why?

Ans: The friction created between the hinges produces the noise.

Question 14. [Evaluating]

Look at the **TWO** given pictures and answer the question that follows.

Picture A	Picture B
	

In which picture is the maximum friction taking place? Why?

Ans:

- ✓ *Picture A- Here the woman is weaving. There is friction between the hands and the loom. There is friction between her body and the floor.*
- ✓ *Picture B- Here the man is playing archery. There is friction between his hands and bow string and the bow and arrow. There is friction between feet and the ground.*

Question 15. [Evaluating]

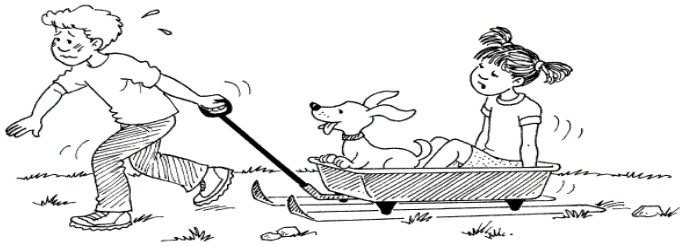
Ap Nima wants to buy a pair of shoes to go for a hike in the mountains. What type of shoes would you suggest: shoes with spikes or shoes with grooves? Why?

Ans:

- ✓ *I would suggest him shoes with spikes because the spikes will increase the friction as he walks up hill, he will not slip.*
- ✓ *I would suggest him shoes with grooves because it is light. he can easily walk up hill as the grooves produces frictions.*

Question 16. [Evaluating]

Look at the picture given below and answer the question that follows:-



Looking at the picture, do you agree that friction is a hindrance?

Ans:

- ✓ *Yes, it I agree.Because of the friction, the boy is having difficulty in pulling the sledge.*
- ✓ *No, it I do not agree.Because of the friction between his shoe grooves and the ground, the boy is able to walk and pull the sledge.*

Question 17. [Creating]

Create a debate between Roshni and Penjor for and against the uses of friction in our everyday life.

Ans:

Roshni: Friction is useful. We are able to walk.

Penjor: I feel friction is not useful.

Roshni: Why?

Penjor: It wastes our energy…….

Question 18. [Creating]

What do you think will happen if there is no friction?

Ans:

- ✓ *We will not be able to walk, run and play around.*
- ✓ *We will not be able to climb up the trees.*
- ✓ *We will not be able to search for food.*
- ✓ *We will not be able to do any kind of work.*
- ✓ *We will keep on falling down.*

CHAPTER 5

LIGHT AND SOUND

Learning outcome

By the end of the lesson, a student should be able to:

5.1 Explain reflection and composition of light.
5.2. Describe how drums and stringed instruments produce sound.

Assessment items

Question 1. [Remembering]

In VIBGYOR, G stands for

A. grey.
B. gold.
C. green.
D. gloomy.

Ans: green

Question 2. [Remembering]

We can split white light into seven colors using

A. a mirror.
B. a prism.
C. a glass.
D. water.

Ans: prism

Question 3. [Remembering]

The percussion instrument is like a

A. flute.
B. drum.
C. guitar.
D. mouth organ.

Ans: drum.

Question 4. [Understanding]

Explain the formation of a rainbow.

Ans: Rainbow is seen when it drizzles in the sun light. The sun ray enters the rain droplets and gets separated into seven colors forming a rainbow.

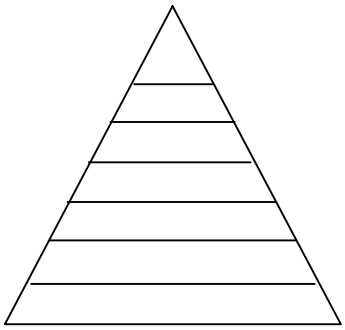
Question 5. [Understanding]

Explain **ONE** use of a Dhung (instrument).

Ans: Dhungs are large and long trumpets that produce loud vibrating sound. The sound of the dhung's is considered very sacred and can be heard very clearly. It is used by lamas during pujas.

Question 6. [Applying]

Put the seven colors of rainbow in the diagram given below. Explain why you have arranged them in that way.



Ans:

I arranged the colors as VIBGYOR,

- ✓ *I arranged them with violet at the base because I can see more violet and can easily recognize it.*
- ✓ *I arranged them with red at the base because red is bright and distinct.*

Question 7. [Applying]

Rearrange the jumbled words in the box and fill in the blanks.

PISDERSION	TRUMPECS
RIMPS	NOITCELFER

(i) The set of colors is called……....

(ii) The bouncing of light is called..……..

(iii) The object used to split colors is……

(iv) The separation of colors to form rainbow is called……...

Ans: (i) spectrum, (ii) reflection, (iii) prism, (iv) dispersion

Question 8. [Applying]

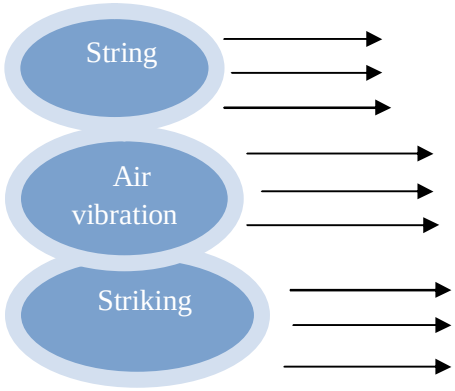
Fill in the blanks with correct terms.

(i) A pattern of sound intended to give pleasure to people listening to it is called ……(*music*)

(ii) Sharpness of sound depends on …… and type of…… (*length, material*)

Question 9. [Applying]

When you strike certain instruments, sounds are produced due to the vibration of air around them. Write **THREE** examples of musical instruments against each of the items given below:



Ans:

- ✓ *String:guitar, dramyen and yangchen.*
- ✓ *Air vibration:dhung, flute and whistle.*
- ✓ *Striking:drum,nga and tangti.*

Question 10. [Analyzing]

Why do we see our shadow during the day?

Ans: Our body is opaque. The opaque objects do not let the light to pass through, and, thus a shadow is formed..

Question 11. [Analyzing]

Of all the musical instruments, which **ONE** is your favorite? Why?

Ans:

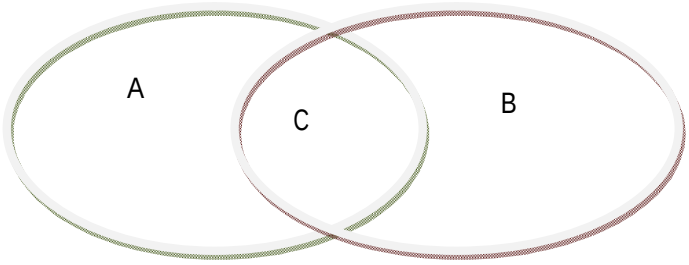
- ✓ *Guitar is my favorite instrument because it produces a sound that I really like.*

✓ *Drum is my favorite instrument because it can be easily played. It produces a loud sound.*

Question 12. [Applying]

Copy and fill in the Venn diagram with **TWO** instruments each that produce the sound

(i) Only by string.
(ii) Only by air vibration.
(iii) Both by string and air vibration.



Ans:

(i) Only by string: (A) Electric guitar and violin.
(ii) Only by air vibration:(B) Mouth organ and flute.
(iii) Both : (C) Guitar and Yangchen.

Question 13. [Analyzing]

Why do the traffic police use whistles to give signal to drivers?

Ans: Whistles produce a high pitched and sharp sound that can be easily heard by drivers.

Question 14. [Analyzing]

Which of the drums below will produce a louder sound? Why?

(Class 5 science, 2012, page 62)

Ans:The big drum will produce louder sound because there is more air column for vibration inside the big drum.

Question 15. [Evaluating]

Do you agree that rainbow is seen only when it rains and the sun shines at the same time?

Ans:

- ✓ *Yes. Rainbow is seen when the sunlight passes through the rain droplets.*
- ✓ *No. Rainbow can also be seen when it does not rain as there is always the presence of water droplet in the atmosphere.*

Question 16. [Evaluating]

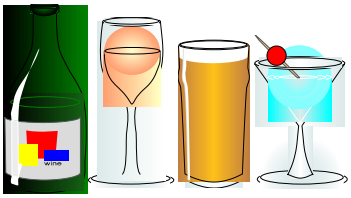
Kinley wants to play one musical instrument in the street. She wants everyone to hear the sound of her instrument. Which instrument would you suggest her? Justify.

Ans:

- ✓ *Drum – She can beat the drum to produce a loud sound to attract audience.*
- ✓ *Guitar- She can play guitar to produce sharp and sweet sound.*

Question 17. [Evaluating]

Which of the drinking set in the picture given below will produce the sharpest sound?



A B C D

(Class 5 science, 2012, page 59)

Ans:

- ✓ *A will produce the sharpest sound because the bottle is only half filled.*
- ✓ *D will produce the sharpest sound because the glass is thin and it will vibrate more.*

Question 18. [Creating]

Give another name for rainbow.

Ans: Colorful raindrops, seven colors……..

Question 19. [Creating]

Draw **ONE** musical instrument that is not given in the text book.

Ans: Diagram of any relevant instrument.

CHAPTER 6

ELECTRICITY AND MAGNETISM

Learning outcomes

By the end of the lesson, a student should be able to:

6.1 Describe and construct simple series circuits.
6.2 Explain static electricity with examples.
6.3 Locate magnetic poles and describe their

Assessment Items

Question 1. [Remembering]

The device which converts energy from sunlight directly into electricity is a

A. battery.
B. turbine.
C. generator.
D. solar panel.

Ans: solar panel

Question 2. [Remembering]

Magnetism is a type of

A. force.
B. energy.
C. gravity.
D. electricity.

Ans: force

Question 3. [Understanding]

In a complete circuit, the battery

A. controls the path of electricity.
B. supplies electricity to the circuit.
C. reduces the electricity of the circuit.
D. carries electricity through the circuit.

Ans: supplies electricity to the circuit.

Question 4. [Applying]

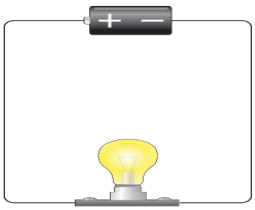
A plastic scale rubbed on dry hair will pickup small pieces of paper. This is an example of

A. static electricity.
B. hydro electricity.
C. current electricity.
D. magnetic electricity.

Ans: static electricity

Question 5. [Understanding]

Explain the flow of current in the circuit given in the diagram below:-



(Class 5 science, 2012, page 68)

Ans: The battery has voltage. The current flows from the positive to the negative end of battery through the wire and reaches the bulb which gets lighted up.

Question 6. [Understanding]

While a compass will do its best to point to the magnetic north, there are many things that can interfere with it (like the strong magnetic field produced by a television screen or a computer monitor).What will happen if an iron or steel object comes close to a compass pointing to the north?

Ans: The compass pointing towards north will get disturbed. The pointer of the compass will point towards the iron or steel object.

Question 7. [Applying]

Choose **TWO** appropriate objects from the list in the box and write them against each of the terms given below:

cloth, screw driver handle, wooden spoon, cardboard, sponge, copper pin, aluminum foil, plastic bottle, zinc sheet, needle

(i) Insulator: *cloth, screw driver handle, wooden spoon, sponge, cardboard and plastic bottle*

(ii) Conductor: *aluminum foil, zinc sheet, copper pin, needle*

Question 8. [Applying]

Fill in the blanks with the following words in their correct places.

Wind to Electricity, Solar panel

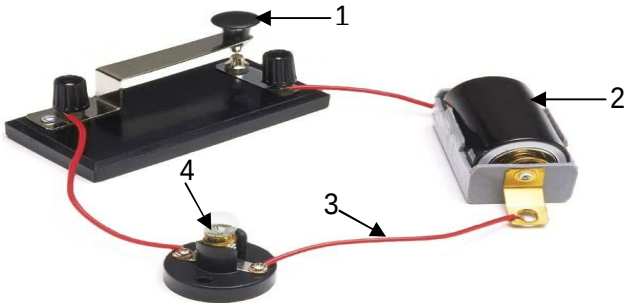
Sunlight to Electricity	…….
……	Wind Mill

Ans:

Sunlight to Electricity	*Wind to Electricity*
Solar panel	Wind Mill

Question 9. [Applying]

Look at the picture given below and answer the question that follows:



(i) Label the parts 1 to 4 in the electric circuit given above.
Ans: 1 (switch), 2 (battery), 3 (wires), 4 (bulb)

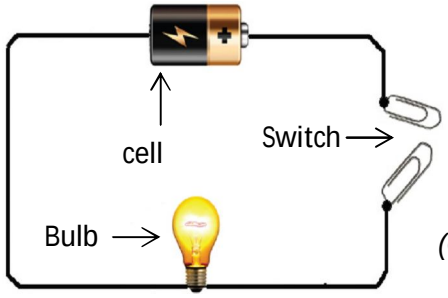
(ii) Look at the circuit above and fill in the blanks.

a. The source of electrical energy is…….. (*battery*)
b. The ……is an example of an electrical appliance. (*bulb*)
c. The switch turns the flow of……on and off. (*current*)
d. An electric conductor such as a ……..provides a complete path way for the current to flow. (*wire*)

Question 10. [Applying]

Draw an open circuit and label the parts.

Ans:



(Class 5 science, 2012, page 70)

Question 11. [Applying]

Write the **CORRECT** terms against their descriptions provided below:

Descriptions	Terms
The force that pulls two unlike poles together.	A……..
The area over which a magnet exerts its force.	B……
The parts in a magnet where force of attraction is the strongest.	C…….

Ans: A (Magnetic force), B (Magnetic field), C (Poles)

Question 12. [Applying]

State whether the following statements are **TRUE** or **FALSE** and correct the false statements.

(i) Two opposite poles repel each other.

(ii) The further apart two magnets are from one another, the stronger is the force that attracts or repels the magnets.

(iii) A strong magnet can attract another magnet even if a piece of paper is placed between them.

Ans:

(i) False. The correct statement: Two opposite poles attract each other.

(ii) False. The correct statement: Nearer the two magnets are, the stronger will the force that attracts or repels the magnets be.

(iii) True

Question 13. [Analyzing]

Why are sparks and crackling sound produced when we take off woolen or nylon clothes from our body?

Ans: Sparks and crackling sound are produced due to the charges developed by friction or due to the static electricity.

Question 14. [Analyzing]

If you are on a trekking expedition in a forest, what is one essential piece of equipment you should carry in order not to get lost? Why?

Ans: Compass. The compass helps us to find the east, west, north and south directions which will help us to find the way.

Question 15. [Analyzing]

Match each item in Column A against its description in Column B:

Column A	**Column B**
(i) Conductor	a) allows the flow of current in the circuit
(ii) Insulator	b) breaks the flow of current in the circuit
(iii) Open Circuit	c) rubber Band
(iv) Closed Circuit	d) determines the brightness of the bulb
(v) Voltage	e) series circuit
	f) copper wire

Ans: (i)f, (ii)c, (iii)b, (iv)a, (v)d

Question 16. [Evaluating]

Do you agree that the use of electricity has made our life easy? Why?

Ans:

- ✓ *Yes, electricity helps us to cook faster and we are able to work at night.*
- ✓ *No, it is dangerous and expensive.*

Questioin 17. [Analyzing]

Sort the following materials into magnetic or non-magnetic objects:
iron filing, plastic bag, rubber band, horse shoe magnet, chalk, paper, iron ore, thread, wrought iron, copper wires, tin, bar magnet

Magnetic Objects	Non-magnetic Objects

Ans:

Magnetic Objects	*Non-magnetic Objects*
iron filing, horse shoe magnet, iron ore, wrought iron, tin, bar magnet	*plastic bag, rubber band, chalk, paper, thread*

Question 18. [Evaluating]

Sangay wants to convert a nail into a magnet. Which method would you suggest, striking it with a bar magnet or using electromagnetism. Why?

Ans:

- ✓ *Striking it with a bar magnet: When the nail is stroked repeatedly, the nail gets magnetized.*
- ✓ *Electromagnetism: When the nail is magnetized with help of batteries and wire, the nail will be converted into magnet and it will last for a longer period of time.*

Question 19. [Creating]

Design an electric circuit using six batteries, wires, and two bulbs.

Ans: Any relevant diagram following the instructions given above

Question 20. [Creating]

What would be the advantages if your body had magnetic properties?

Ans:

- ✓ *I will be able to do street shows.*
- ✓ *I will be able to climb on metallic poles.*
- ✓ *I will be able to look for metallic items as they will be attracted to my hands easily.*

Question 21. Creating]

What would happen if there were no magnetic properties?

Ans: There will be no toys. There will be no watch……

Chapter 7
ENERGY

Learning outcomes

By the end of the lesson, a student should be able to:

7.1 Define energy and explain the need for its conservation with examples.

Assessment items

Question 1. [Remembering]

The correct unit used to measure energy is

A. joule.
B. calorie.
C. kilogram.
D. centiliter.

Ans: joule

Question 2. [Remembering]

Write **TRUE** or **FALSE** against each statement.

(i) Food cooks faster in a pressure cooker. (*true*)
(ii) Smokeless stoves consume more fire wood. (*false*)
(iii) Energy cannot be changed from one form to another. (*false*)

Question 3. [Understanding]

Define energy.

Ans: Energy is the capacity to do work.

Question 4. [Applying]

Fill in the blanks with appropriate words.

(i) Petrol is an example of ……..energy. (*chemical*)
(ii) Rolling stones possess …… energy. (*potential*)

Question 5. [Understanding]

Describe the energy changes taking place in the figures given below:

Figure 3

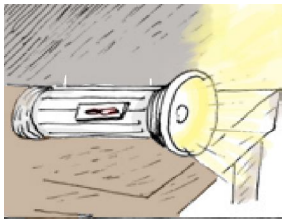


Figure 4

Ans: *(Class 5 science, 2012, page 86)* *(Class 5 science, 2012, page 89)*

Figure 3: Chemical energy to Light + heat energy
Figure 4: Potential energy to Kinetic energy

Question 6. [Analyzing]

Match each of the following actions against the appropriate energy:

Movement	Energy
1. Clapping the hand	a. kinetic energy
2. Lighting the bulb	b. potential energy
3. Stone falling from the cliff	c. sound energy
4. Stretching the bow	d. electrical energy
	e. chemical energy

Ans:1 (c),2 (d),3 (a),4 (b)

Question 7. [Analyzing]

Which among the following are the appliances that save energy?

I. Compact florescent lamp
II. Pressure cooker
III. Bicycle
IV. Car

Appliances that save energy are
A. I,II and III.
B. I,II and IV.
C. I,III and IV.
D. II,III and IV.

Answer: I, II and III

Question 8. [Analyzing]

Write **ONE** difference between potential energy and kinetic energy with an example each.

Ans:

Potential Energy	*Kinetic Energy*
Stored energy due to position or condition of a body *Example: A stone on the top of a hill*	*Energy due to the motion of a body* *Example: A moving ball*

Question 9. [Evaluating]

Which of the **TWO** modes of transport shown below would you prefer? Give reasons.

Figure 1

(Class 5 science, 2012, page 89)

Figure 2

(Class 5 science, 2012, page 89)

Ans:

*I would prefer the one in **Figure 1** because of the following reasons:*

- ✓ *Faster and comfortable.*
- ✓ *Carries more people.*
- ✓ *It saves time and energy.*

*I would prefer the one in **Figure 2** because of the following reasons:*

- ✓ *Does not require fuel.*
- ✓ *Gives good exercise.*
- ✓ *Can be ridden on a narrow road.*
- ✓ *Does not pollute the environment.*

Question 10. [Applying]

Suggest **THREE** ways to save energy at home.

Ans:

- ✓ *Use compact fluorescent lamps.*
- ✓ *Switch off the light when not in use.*
- ✓ *Switch of all the electrical appliances when not in use.*

Question 11. [Creating]

What would happen if there was no electricity?

Ans:

- ✓ *Cannot watch TV.*
- ✓ *Cannot use rice cooker.*
- ✓ *Cannot work at night.*

Chapter 8

CHARACTERISTICS OF LIVING THINGS

Learning outcomes

By the end of the lesson, a student should be able to:

8.1 Differentiate between plants and animals based on their characteristics.

8.2 Recognize that there is variation among individuals of one kind within a population.

Assessment Items

Question 1. [Remembering]

Which one of the following is **NOT** a characteristic of living things?

A. Moving
B. Growing
C. Breathing
D. Living forever

Ans: Living forever

Question 2. [Understanding]

Variation in all living things help them to

A. adapt and survive.
B. look attractive and good.
C. reproduce as many as possible
D. have good relationship with each other.

Ans: adapt and survive

Question 3. Which is **NOT** an example of living things? [Applying]

A. girl
B. cow
C. plant
D. cupboard

Ans: cupboard

Question 4. [Analyzing]

Variations are the differences among individuals belonging to

A. the same group.
B. different groups.
C. the same population.
D. different population.

Ans: the same group.

Question 5. [Understanding]

Define the following terms:

(i) Fertilization
(ii) Reproduction

Ans:

(i) The fusion of an ovum and sperm is called fertilization.
(ii) The ability to reproduce its own kind is called reproduction.

Question 6. [Understanding]

Write down **TWO** characteristics of animals.

i. Ans: They cannot prepare their own food.
ii. They stop growing after a certain age.

Question 7. [Understanding]

Define life cycle.

Ans: The process of an animal or a plant of beginning life, growing and reproducing is known as the life cycle.

Question 8. [Analyzing]

Write **ONE** difference between the life cycle of a bird and a cat.

Ans: Bird lays fertilized eggs whereas a cat gives birth to kittens.

Question 9. [Applying]

Fill in the blanks with appropriate words.

(i) The ability to produce our own kind is called……(*reproduction*)

(ii) The unique features of plants and animals are called……(*characteristics)*

(iii) The differences among individuals belonging to a same group are called…… (*variation)*

Question 10. [Applying]

Look at the cross word puzzle below and find five parts of a flowering plant.

S	O	V	U	L	E
O	H	R	S	Q	P
V	C	O	P	R	E
A	T	O	O	D	T
R	P	T	A	T	A
Y	S	B	Z	C	L

Ans: PETAL, OVARY, ROOT, SHOOT and OVULE

Question 11. [Analyzing]

List down **TWO** similarities between plants and animals.

Ans:

- ✓ *both can reproduce*
- ✓ *both can grow*

Question 12. [Analyzing]

State **ONE** difference between a plant and an animal.

Ans: A plant grows throughout its life while an animal stops growing at a certain age.

Question 13. [Applying]

Fill in the blanks with appropriate words.

(i) Green plants prepare their own…….. (*food*)

(ii) The unique features of plants and animals are called…….. (*characteristics*)

Question 14. [Analyzing]

Look at the following flowers and write any **THREE** variations:

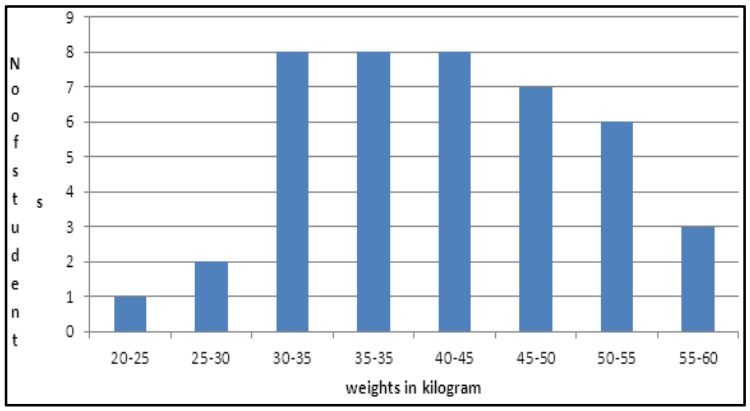
(Class 5 science, 2012, page 110)

Ans:

- ✓ *Size of the flower*
- ✓ *Shapes of petals*
- ✓ *Color of flowers are different*

Question15. [Applying]

Study the graph given below and answer the questions that follow.



(Class 5 science, 2012, page 66)

(i) How many students weigh between 50-55 kg?

Ans: 6 kg

(ii) Which range of weight has the least number of students?

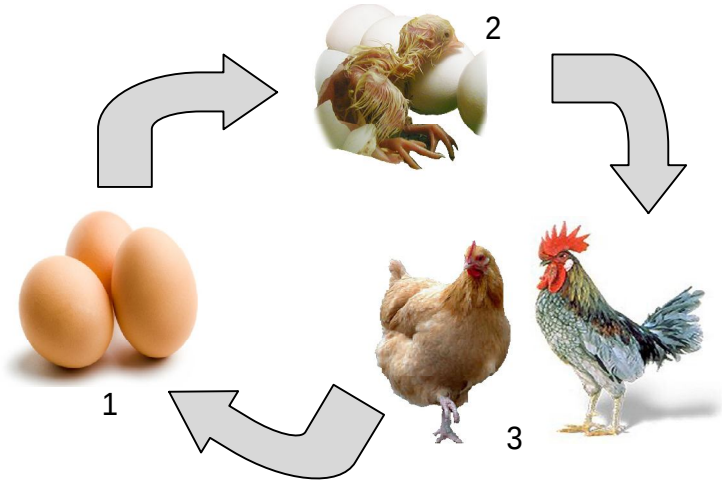
Ans: 20-25 kg

(iii) How many students are there in the weight group 30-45 kg?

Ans: 24 kg

Question 16. [Applying]

Label the life cycle of a bird given below:



(Class 5 science, 2012, page 101)

Ans:

1. Fertilized eggs

2. Chicks

3. Adult birds (chickens)

Question 17. [Analyzing]

Match the following living things against their characteristics.

Living things	Characteristics
1. Plants 2. Cows 3. Dogs 4. Humans	a) work to earn their living b) give birth to several newborns at a time c) possess horns to defend from enemies d) produce their own food e) carry loads

Ans: 1 (d), 2 (c),3 (b), 4 (a)

Question 18. [Analyzing]

Explain the similarities and differences between bats and humans.

Ans:

Similarities

- ✓ *Both bats and humans have hair on their bodies, give birth and suckle their young ones.*

Differences

- ✓ *Bats have wings and can fly while humans have only legs to walk.*

Question 19. [Creating]

What would happen if there were no plants?

Ans: There would be no food for all the living beings.

Question 20. [Evaluating]

Is variation in plants and animals good or bad? Justify your answer with **ONE** point.

Ans:

- ✓ *Good, because varieties are produced.*
- ✓ *Bad, because same kind of plants and animals would be produced.*

Question 21. [Creating]

Imagine a world without variation. How would it look like? Explain in a paragraph.

Ans:

All the plants will look alike.
There will be no colorful flowers.
All the fruits will look and taste the same.
All the members in the family will look the same.

Chapter 9

Green Plants

Learning outcome

By the end of the lesson, a student should be able to

9.1 Identify different plants.

9.2 Name and describe the parts of a green plant

9.3 Describe the functions of parts of plants.

Assessment items

Question 1. [Remembering]

All the petals put together are called a

A. calyx.
B. carpel.
C. corolla.
D. stamen.

Ans: corolla

Question 2. [Remembering]

The female part of a flower consists of the stigma, style and

A. ovary.
B. ovule.
C. anther .
D. filament.

Ans: ovary

Question 3. [Understanding]

Which of the following is **NOT** a part of the shoot?

A. Leaf
B. Branch
C. Root
D. Stem

Ans: root

Question 4. [Applying]

China rose, Petunia and Dahlia are examples of

A. Bisexual flowers.
B. Unisexual flowers.
C. Transsexual flowers.
D. Heterosexual flowers.

Ans: Bisexual flowers.

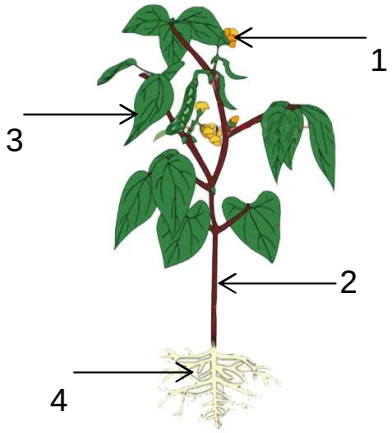
Question 5. [Applying]

Fill in the blanks with appropriate words.

(i) The part of a plant above the ground is called…….. (*shoot*)
(ii) The part of the plant below the ground is called…… (root)
(iii) The root has…….to absorb water. (*root hairs*)
(iv) The ovary develops into a……. (*fruit*)
(v) The ovule develops into a……. (*seed*)

Question 7. [Applying]

Label the parts of the plant given below:

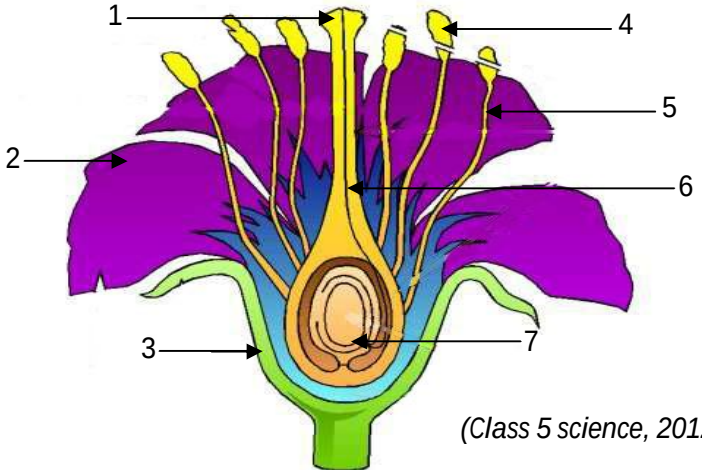


(Class 5 science, 2012, page 104)

Ans: 1 (flower), 2 (stem), 3(leaf), 4(root)

Question6. [Applying]

Label the parts of a flower in the diagram given below.



(Class 5 science, 2012, page 110)

Ans: 1 (Stigma), 2 (Petal), 3 (sepal), 4 (Anther), 5 (Filament), 6 (Style), 7 (Ovary)

Question 8. [Analyzing]

Which of the following is the correct sequence of the flower from the outermost to the innermost part?

A. calyx → corolla → carpel → stamen
B. calyx → corolla → stamen → carpel
C. calyx →stamen → corolla→ carpel
D. calyx → stamen → carpel → corolla

Ans: calyx → corolla → stamen → carpel

Question 9. [Analyzing]

Match the items in Column A against those in Column B.

Column A	Column B
1. Sepal	a) female reproductive part
2. Petal	b) protect the inner parts of the flower
3. Stamen	c) attract birds and insects
4. Carpel	d) male reproductive part
	e) receive pollen grains

Ans: 1 (b), 2 (c), 3 (d), 4 (a)

Question 10. [Analyzing]

Read the following:

I. Makes food
II. Absorbs water
III. Holds leaves and flowers
IV. Conducts water and minerals to the leaves

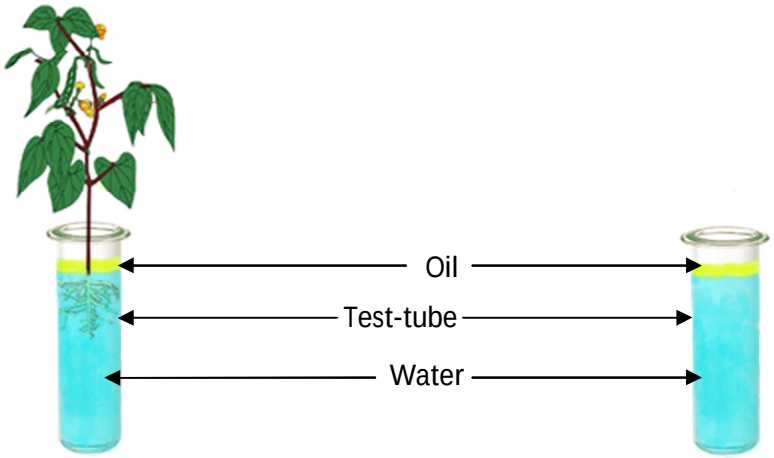
The functions of the stem are to

A. I and II.
B. I and IV.
C. II and III.
D. III and IV.

Answer: III and IV.

Question 11.

Sonam and Karma carried out the following experiments. The set-ups were kept in the sun for 3 to 4 hours.



(Class 5 science, 2012, page 107)

(i) What was the purpose of the experiment? [Understanding]

Ans: To show that the roots of plants absorb water.

(ii) Why was oil added into the test-tubes? [Analyzing]

Ans: To avoid evaporation of water from the test-tubes.

(iii) What happened to the level of water after a few hours in Setup A and Setup B? [Analyzing]

Ans:

- ✓ *In Setup A the level of water decreased.*
- ✓ *In setup B the level of water remained the same.*

Question 12. [Evaluating]

Which flower do you prefer bisexual or unisexual? Why? Give **ONE** reason.

Ans:

- ✓ *Bisexual, because it has both male and female parts and hence there is no wastage of pollen grains.*
- ✓ *Unisexual, because varieties are produced and defective characters are removed.*

Question 13. [Evaluating]

- ✓ A farmer, Tandin, cuts down trees to grow potatoes. Do you support his action? Give reasons to support your answer.

Ans: Open ended with proper justifications.

Question 14. [Creating]

What would happen to plants if there were no insects?

Ans: Pollination would not take place and as a result some species of plants would extinct.

Chapter 10
LIVING THINGS AND THEIR ENVIRONMENT

Learning outcome

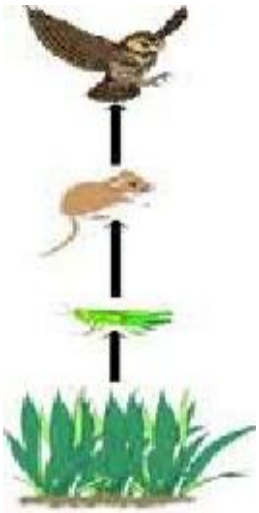
By the end of the lesson, a student should be able to

10.1 Evaluate how humans can cause changes to a habitat.
10.2 Identify food chains in a food web of a habitat.

Assessment items

Question 1. [Remembering]

Identify the secondary consumer in the food chain given below.



A. Rat
B. Owl
C. Grass
D. Grass hopper

Ans: Rat

Question 2. [Applying]

An example of an endangered species of plant in Bhutan is

A. oak.
B. cypress.
C. blue pine.
D. ginseng.

Ans: ginseng.

Question 3. [Remembering]

The English name for '*Pang goenmeto*' is

A. Yew.
B. Genntiana.
C. Cordycep.
D. Blue poppy.

Ans: Genntiana.

Question 4. [Remembering]

Write **TRUE** or **FALSE** against each statement.

(i) Plants are the consumers. (*false*)
(ii) We can conserve forest by overgrazing. (*false*)
(iii) A complete feeding relationship is called a food web. (*true*)
(iv) Fire wood is the main fuel in remote parts of Bhutan. (*true*)

Question 5. [Understanding]

What is meant by shifting cultivation?

Ans: Since crops grow well for a few years only, people must clear another area of forest to grow them. This method of farming is called shifting cultivation.

Question 6. [Applying]

From the following list, choose the plants and animals that are threatened:

Bear, Agar wood, Musk Deer, Blue Pine

Ans: Agar wood, Musk Deer

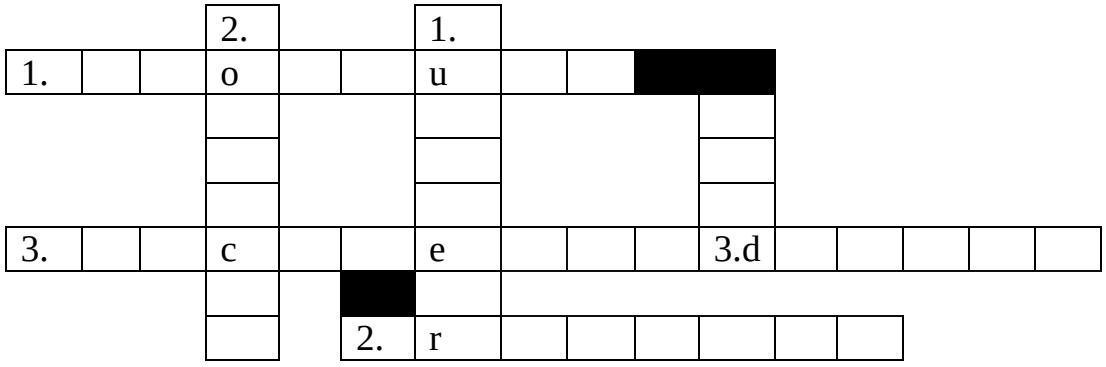
Question 7. [Applying]

What are some of the ways to save habitats for plants and animals?

Ans: Creation of national parks, community forests and celebrating, social forestry days.

Question 8. [Applying]

Use the questions given below to solve the following cross word:



Across:

1. An Extinct animal of the world.
2. An Extinct plant of the world.
3. An Endangered bird of Bhutan.

Down

1.An Endangered animal of Bhutan.

2. An Endangered plant of Bhutan.

3 An Extinct bird of the world.

Ans:

Across: *1 (Dinosaur), 2 (Cry pansy), 3 (Blacked necked crane)*

Down: *1 (Musk deer), 2 (Cordycep), 3 (Dodo)*

Question 9. [Applying]

Fill in the blanks with appropriate words.

(i) Plants …….. the air. (*purify*)

(ii) The symbol of WWF is giant…… (*Panda*)

Question 10. [Analyzing]

Why are some of the plants and animals not found today?

Ans:

They are not found today because of human activities like

- ✓ *hunting*
- ✓ *forest fire*
- ✓ *shifting cultivation*
- ✓ *cutting down the forest*
- ✓ *increase in temperature*

Question 11. [Applying]

Read the following and answer the question that follows:

Golden Langurs which live in thick sub-tropical forests of the Royal Manas National Park are herbivores. The park also has wild animals like bears, tigers, elephants, etc.

In what type of habitat Golden Langurs Live?

Ans: They live on trees.

Question 12. [Applying]

Construct a food web from the following list.

eagle, tiger, plants, deer, beetle, leopard, bird, bear, caterpillar

Ans: There are 5 possible food chains which will make up the web.

Question 13. [Analyzing]

Differentiate between producers and consumers with **ONE** example each.

Ans:

- ✓ *Producers produce their own food. Example: Plants*
- ✓ *Consumers depend on producers for their food. Example: Humans*

Question 14. [Analyzing]

As the producers are more than the consumers, the

A. food is sufficient.

B. number of producer increases.

C. number of consumer increases.

D. number of consumer decreases.

Ans : food is sufficient.

Question 15. [Analyzing]

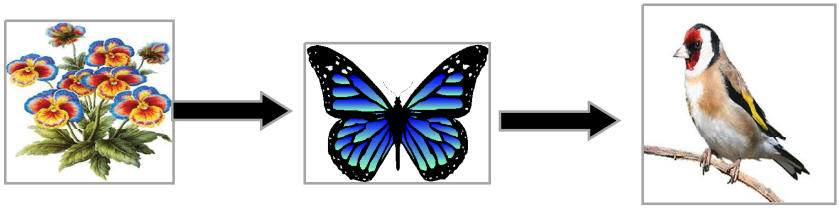
What is the similarity between secondary and tertiary consumers?

Ans: Both the consumers are carnivores.

Question 16. [Creating]

Construct **ONE** food chain with 3 organisms found in your school garden.

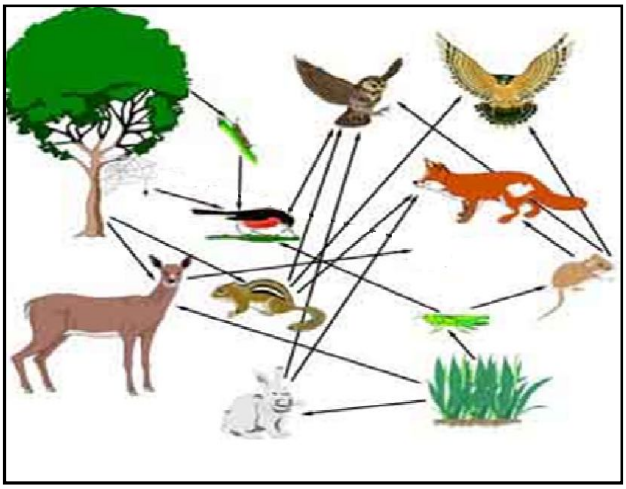
Ans:



(Class 5 science, 2012, page 117)

Question 17.

Use the picture given below to answer the questions that follow:



(i) Identify and write down the names of **TWO** tertiary consumers. [Remembering]

Ans: Owl and hawk

(ii) Suggest any **TWO** quaternary consumers in the above food web. [Creating]

Ans: Tiger and lion

(iii) 'Rats are enemies to the farmers and they should be killed'. Do you agree or disagree with the statement? Give **ONE** reason. [Evaluating]

Ans:

- ✓ *Yes, they should be killed because they damage the crops.*
- ✓ *No, they should not be killed because killing them will cause imbalance in nature.*

Question 18. [Evaluating]

Should Social forestry day be celebrated annually in Bhutan? Why? Justify your answer.

Ans:

YES, on that day we plant trees to celebrate our 4th King's Coronation day.

NO, it falls on a government holiday.

Question 19. [Evaluating]

Which do you think is better, Tseri cultivation or creating National Parks? Support your answer.

Ans: Open ended with proper justifications.

Question 20. [Creating]

Suggest **FOUR** ways of conserving our forest.

Ans:

- ✓ *Plant trees*
- ✓ *Prevent forest fires*
- ✓ *Avoid overgrazing*
- ✓ *Use electricity to cook food and to warm ourselves*

Question 21. [Evaluating]

'Every country should have national parks'. Do you agree or disagree? Support your answer with proper justifications.

Ans: Open ended with proper reasons.

Chapter 11

NUTRITION AND HUMAN SYSTEM

Lesson Outcomes

By the end of the lesson, a student should be able to:

11.1Describe the functions of carbohydrates, fat, protein, fibre in maintaining good health.
11.2Evaluate the negative impacts of junk food on nutrition.
11.2.1Identify different parts of the circulatory system and their functions.
11.2.2 State the role of skeletons and muscles in humans and animals (blood, heart and blood vessels).

Assessment items

Question 1. [Remembering]

Eggs and pulses contain

A. fat.
B. protein.
C. minerals.
D. carbohydrate.

Ans: protein

Question 2. [Remembering]

A complete food is

A. egg.
B. rice.
C. milk.
D. butter.

Ans:milk

Question 3. [Remembering]

The name of the blood vessel that carries blood away from the heart is

A. pulmonary artery .
B. pulmonary vein.
C. renal artery.
D. aorta.

Ans: aorta.

Question 4. [Remembering]

The longest bone in our body is the

A. leg bone.
B. arm bone.
C. back bone.
D. thigh bone.

Ans: thigh bone.

Question 5. [Remembering]

Write **TRUE** or **FALSE** against each statement.

(i) Fish does not have skeleton. (*false*)
(ii) There are 206 bones in an adult human. (*true*)

Question 6. [Understanding]

What is meant by junk food?

Ans: An unhealthy food which is quick, easy and ready to eat is called junk food.

Question 7. [Applying]

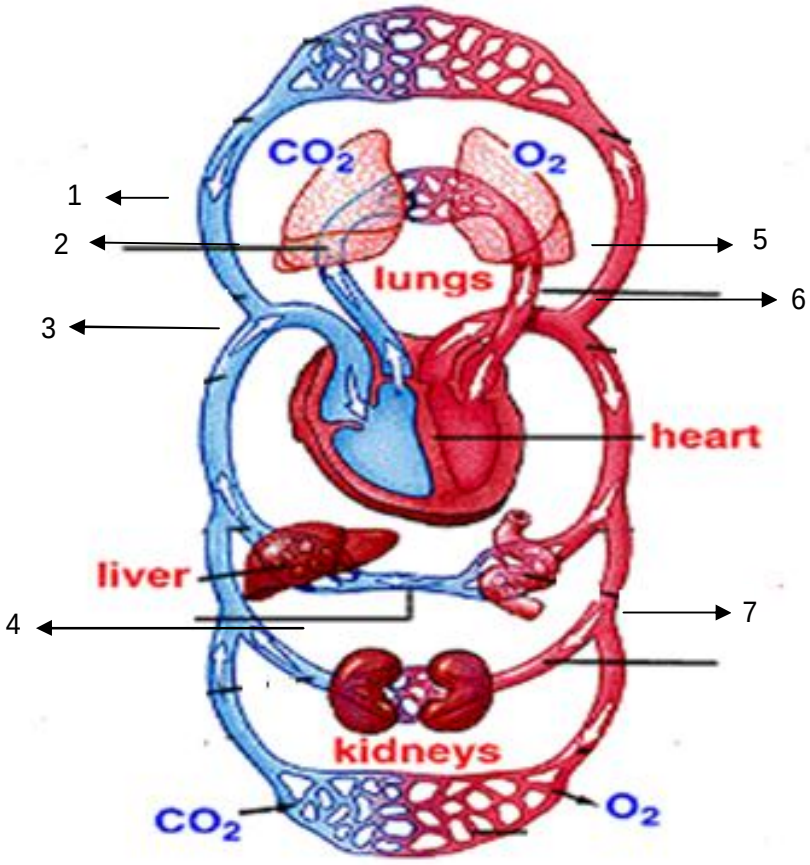
Fill in the blanks with correct terms.

(i) The skull protects the …….. (*brain*)
(ii) Cabbage provides a lot of……. .(*fibre*)
(iii) Exercise develops our …….. (*muscles*)
(iv) Heart pumps the …….. (*blood*)
(v) Heart and lungs are examples of …… (*organs*)
(vi) Heart and lungs are protected by the …… (*rib cage*)
(vii) Water helps to take out ……..waste from our body. (*digestive*)

(viii) We can move our body with the help of the …… (muscles).

Question 8. [Applying]

Label the parts of the circulatory system in the picture given below:



(*Class 5 science, 2012, page 137)*

Ans: 1 (Pulmonary artery), 2 (Superior vena cava), 3 (Inferior vena cava), 4 (renal vein) , 5 (Pulmonary vein), 6 (Aorta), 7 (Renal artery)

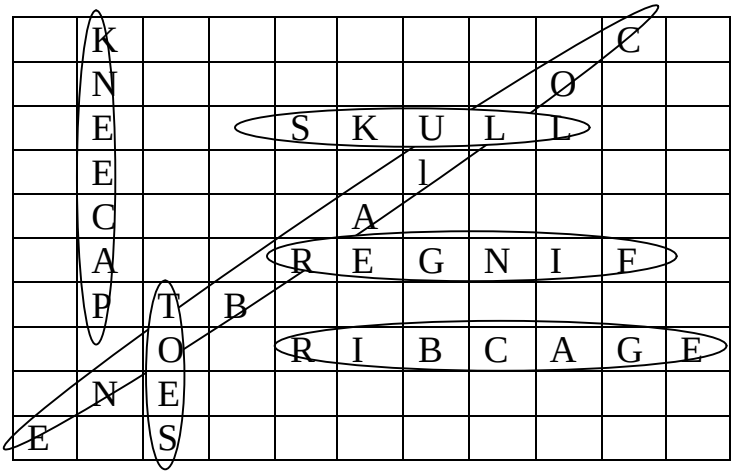
Question 9. [Applying]

From the cross words below circle SIX parts of human skeleton system.

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

Q	N	E	A	J	N	M	W	W	T	A
E	P	S	Q	H	G	U	O	A	A	J

Ans:



Question 10. [Applying]

Complete the following table:

Parts of the circulatory system		Functions
1	Veins	……..
2	Heart	…….
3	Arteries	…….

Ans:

Parts of the circulatory system		Functions
1	Veins	*Bring blood back to the heart*
2	Heart	*Pumps blood*
3	Arteries	*Take blood away from the heart*

Question 11. [Applying]

Fill in the blanks with correct terms.

(i) Ribs protect our heart and …….. (*lungs*)

(ii) To make muscles strong, we need to eat …(*protein/body building food*)

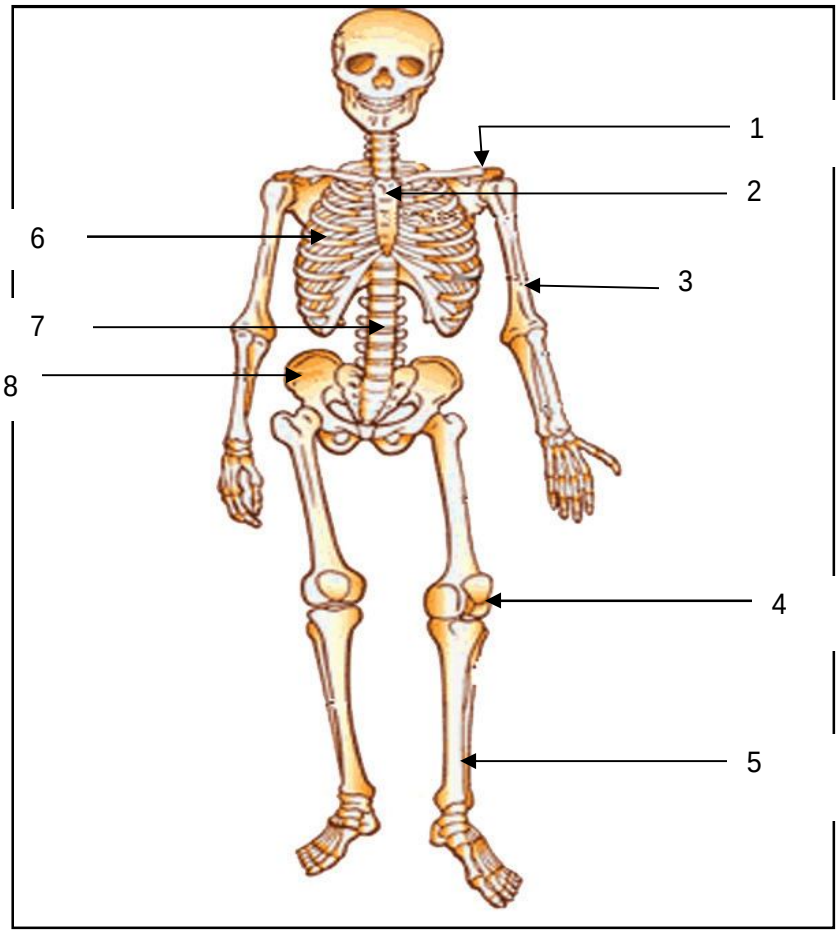
(iii) A collection of bones that makes the body frame is called the ….(*skeleton*)

(iv) Bones are of different sizes and shapes because they carry out different …….. (f*unctions*)

(v) When the arms move down, …… muscles are stretched. (*biceps*)

Question 12. [Applying]

Label the given diagram with the words from the word bank that follows:



(Class 5 science, 2012, page 138)

WORD BANK

breast bone, arm bone, leg bone, rib cage, hip bone, knee cap, back bone, collar bone

Ans: 1(collar bone), 2(breast bone), 3 (arm bone), 4(knee cap), 5 (leg bone), 6 (rib cage), 7 (back bone), 8 (hip bone)

Question 13. [Analyzing]

What did you eat for dinner? Was it a healthy diet? Give reasons for your answer.

Ans: Open ended. A healthy diet is a balanced diet which contains all the nutrients in the right amount required for energy, growth and protection.

Question 14. [Analyzing]

Arrange the jumble words into types of food according to their descriptions given below:

(i) Body building food
RTONEIP
Ans: PROTEIN

(ii) Energy giving food
BHOYCRARTEDA
Ans: CARBOHYDRATE

(iii) Food which keep our body warm
ATF
Ans: FAT

Question 15. [Analyzing]

Construct a proper diet for a baby. Give reasons why you choose different types of food.

Ans: Open ended. The answer should mention protein which is a body building food beside other types of foods.

Question 16. [Analyzing]

Match each item in Column A against that in Column B:

Column A	**Column B**
1. Fibre	a) brown rice
2. Protein	b) water
3. Fats	c) fruits
4. Carbohydrates	d) pulses
5. Protective food	e) corn
	f) oil

Ans: 1 (a), 2 (d), 3 (f), 4 (e), 5 (c)

Question 17. [Analyzing]

Look at the figures given below and compare the type of muscles that are in maximum use.

Figure 1

Figure 2

(*Class 5 science, 2012, page 140)*

Ans:

- ✓ *In Figure 1, shin and the calf muscles.*
- ✓ *In Figure 2, bicep and triceps' muscles.*

Question 18. [Analyzing]

Differentiate between superior vena cava and inferior vena cava.

Ans:

- ✓ *Superior vena cava brings the impure blood from the upper parts of the body to the heart. e.g. From head and arms to the heart.*
- ✓ *Inferior vena cava brings the impure blood from the lower parts of the body to the heart. e.g. From legs to the heart.*

Question 19. [Evaluating]

Eating of junk food should be encouraged by parents. Do you agree or disagree? Justify with **ONE** reason.

Ans:

- ✓ *I agree because junk food is quick, easy and ready to be eaten.*
- ✓ *I do not agree because junk food does not contain all the seven groups of food.*

Question 20. [Evaluating]

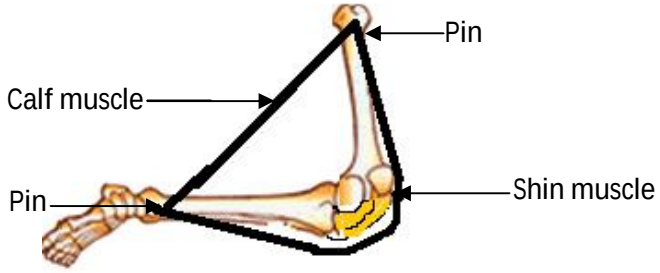
Tandin chose to take potato chips for lunch. Do you think she made a correct choice? Why?

Ans: Open ended with proper justification.

Question 21. [Creating]

Design a model to show the movement of shin and calf muscle.

Ans:



(Class 5 science, 2012, page 139)

Question 22. [Creating]

Design a model of human blood circulatory system.

Ans:Using thermo coil or mud, design model of human blood circulatory system.

Question 23. [Creating]

Create a collage on 7 different types of food by cutting pictures from old magazines.

Ans: Using pictures from old magazines……

Chapter 12

OUR MOON

Learning Outcome

By the end of the lesson, a student should be able to:

12.1 Describe the lunar cycle.

Assessment items

Question 1. [Remembering]

The natural satellite of the earth is the

A. sun.
B. moon.
C. Venus.
D. comets.

Ans: moon

Question 2. [Understanding]

Define the following.

(i) waxes
(ii) wanes
(iii) new moon
(iv) waxing crescent

Ans:

(i) waxes: The lit up portion of the moon increasing in size.
(ii) wanes: The lit up portion of the moon decreasing in size.
(iii) new moon: The completely dark part of the moon which faces the earth.
(iv) waxing crescent: The small part of the moon after the new moon which is visible from the earth .

Question 3. [Understanding]

Use the following words to describe the moon:

nearest, natural, no light, sun, moon light, revolve

Ans: The answer should be presented in a logical manner with the proper usage of words.

Question 4. [Understanding]

What do you understand by the phases of the moon?

Ans: The phases of the moon mean the waxing and waning of the moon.

Question 5. [Understanding]

Define the following terms:

(i) waning gibbous moon

(ii) full moon

(iii) new moon

Ans:

(i) After the full moon, the lit portion of the moon decreases. The moon is now said to be waning gibbous.

(ii) Two weeks after the new moon, the moon reaches the opposite side of the Earth. We see the full moon (Cho Nga Dawa).

(iii) When the moon is in between the Sun and the Earth, the side that faces the Earth does not get any sunlight. So it is completely dark. This is called new Moon (Nam-gang).

Question 6. [Applying]

Observe the moon at the end of every week and draw its appearance.

Question 7. [Applying]

Fill in the blanks with appropriate words.

(i) The moon takes about a……to revolve around the earth. (*month*)

(ii) The moon has no……of its own. (*light*)

Question 8. [Analyzing]

Differentiate between natural satellites and artificial satellites.

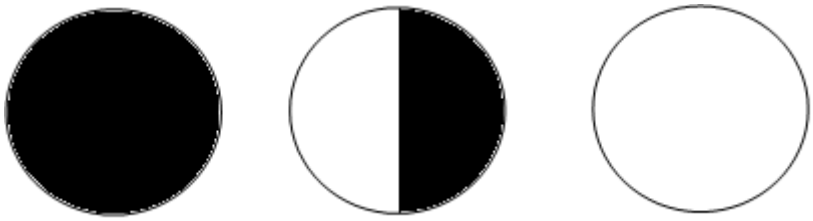
Ans:

- ✓ *Natural satellites are heavenly bodies which move around the planet.*

✓ *Artificial satellites are objects which are placed into the orbit in space by human beings.*

Question 9. [Applying]

Label the phases of moon as shown in the diagram.



1…… 2…….. 3……..

(Class 5 science, 2012, page 148)

Ans: 1 (New moon), 2 (first quarter), 3 (full moon)

Question 10. [Analyzing]

In the diagrams of the moons given below, are the phases same? Why?

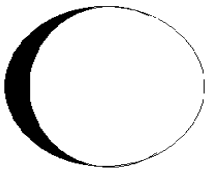


Figure 1

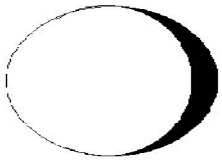


Figure 2

Ans: No, because Figure 1 shows a waxing gibbous phase and figure 2 shows a waning gibbous phase.

Question 11. [Analyzing]

Match the phases of the moon against their Dzongkha terms.

Phases of moon	**Dzongkha terms**

1. New moon 2. Full moon 3. Waxing crescent moon	a. Yar Ngo Daw b. Nam Gang c. Cho NgaDaw d. Namtog

Ans: 1 (b), 2 (c), 3 (a)

Question 12. [Analyzing]

The two phases of the third lunar week are

A. full moon and waning gibbous.

B. first quarter and waxing gibbous.

C. new moon and waxing crescent.

D. new moon and waning crescent.

Ans: full moon and waning gibbous.

Question 13. [Analyzing]

The two phases of the fourth lunar week are

A. full moon and waning gibbous.

B. first quarter and waxing gibbous.

C. new moon and waxing crescent.

D. last quarter and waning crescent.

Ans: last quarter and waning crescent.

Question 14. [Analyzing]

Why does the shape of the moon change?

Ans: Due to the change in position of the moon with the earth.

Question 15. [Analyzing]

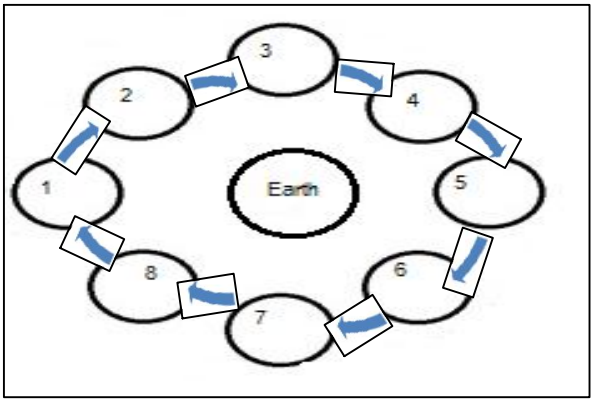
Match lunar weeks against the phases of the moon.

Lunar Weeks	Phase of the moon
1. 1st Week 2. 2nd Week 3. 3rd Week 4. 4th Week	a) waning crescent b) waxing crescent c) waning gibbous d) waxing gibbous

Answer: 1 (b), 2 (d), 3 (c), 4 (a)

Question 16. [Analyzing]

Arrange the phases of the moon in the correct order in the flow chart below.



(Class 5 science, 2012, page 150)

Ans: 1 (new Moon), 2 (waxing crescent), 3 (first quarter), 4 (waxing gibbous),5 (full moon), 6 (waning gibbous), 7 (last quarter), 8 (waning crescent).

Question 17. [Evaluating]

Meat should not be taken on a full moon day (Cho nga dawa). Do you agree or disagree? Give **ONE** reason.

Ans:

- ✓ *I agree because it is a natural phenomenon which happens every month. Meat eating has no relationship with the phases of moon.*
- ✓ *I disagree because we believe that it is an auspicious day and meat cannot be eaten on such days.*

Question 18. [Creating]

What will happen if there was no moon?

Ans:

- ✓ *The nights would be always dark.*
- ✓ *The earth would have no satellite.*
- ✓ *We would not see the phases of moon.*
- ✓ *There would be no solar and lunar eclipses.*

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