Workbook on Science (Grade 4)

Produced by 57-75
in partnership with the Ateneo Center for Educational Development
and the Department of Education Divisions of
Bayombong (Nueva Vizcaya), Guimaras, Iligan City (Lanao del Norte), Iloilo City (Iloilo),
Pampanga, San Isidro (Nueva Ecija), Pagbilao (Quezon) and Sual (Pangasinan)

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Writer:

Mr. Randy Garcia (Pampanga)

Reviewer:

Ms. Michelle Jose (Ateneo Loyola Schools)

PREFACE

In April 2008 the **57-75** Movement organized a workbooks development write-shop in order to come up with an immediate and effective response to the problem of lacking textbooks and instructional materials in public schools. For two weeks, master teachers from each of the **57-75** pilot sites compiled a series of workbooks on Science, English, and Mathematics designed for their elementary and high school students.

The write-shop aimed to: (1) identify least mastered skills in a subject area; (2) produce lesson guides that will help increase the ability of classroom instructors in developing the mastery level of students particularly in problematic subject areas; and (3) help teachers be creative in developing their own instructional materials based on resources available to them in their respective schools.

Both the faculty and students of the public school system are expected to gain from this project. Teachers will not only be aided by the problem-solving and explanations given in the workbooks but will also be helped in terms of gearing their students towards a unified understanding of the subject matter. This workbook will also serve as an alternative medium of instruction in the absence of textbooks and other necessary teaching materials that the less fortunate may not be able to afford.

The workbooks development write-shop is also **57-75**'s contribution to enhancing the reading proficiencies in its pilot sites.

57-75, a private sector-led movement created to help address the many problems of Philippine education, was inspired by one of the many disturbing indicators of the state of Philippine education – the results of the National Achievement Test, in which grade school pupils scored close to 57.

The reversal of numbers in the campaign name – from 57 to 75 – symbolizes what the movement is trying to do: *turn things around*, about radically rethinking the way we look at our education system and the way we support it. We believe that this kind of rethinking will help turn around the dismal trends in Philippine education, and eventually change statistics from 57 to 75.

57-75 advocates *Focusing* on helping students stay in school, enhancing reading proficiencies, and improving achievement rates in math, science, and English; student and school *Performance*; and *Community Empowerment and Engagement.*

57-75 wishes to acknowledge the Ateneo Center for Educational Development for supervising the workshop. Much gratitude is also given to the League of Corporate Foundations' Committee on Education which funded the workshop through a grant provided by TeaM Energy Foundation, as well as to Jollibee Foundation for additional logistical support.

57-75 would also like to especially acknowledge the master teachers from the pilot sites – without their commitment, this workbook would not have been possible. We also extend our appreciation to the reviewers, editors and encoders of ACED who accommodated this project into their existing workload.

57-75 is also very grateful to the initial pool of corporate donors who have pledged to help in the reproduction of this workbook: TeaM Energy Foundation, Petron Foundation, Pilmico Corporation, BPI Foundation, Metrobank Foundation and Insular Life Foundation. Thank you for helping to reverse the education crisis!

In behalf of the National Task Force –

MARIO A. DERIQUITO

WORKBOOK ON GRADE 4 SCIENCE

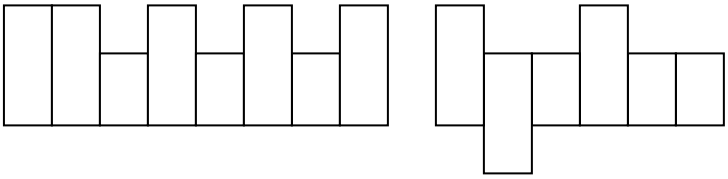
Title **Page**

Title	Page

Lesson 1: Identifying some bones that make up the skeletal system. The Skeletal System

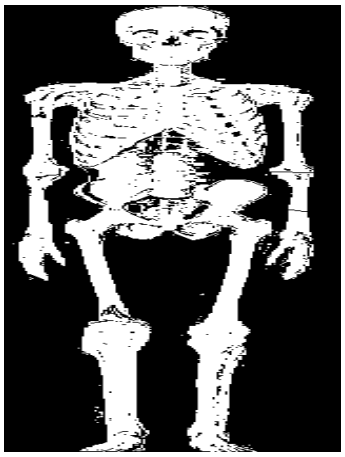
Exercise A

Directions: Fill in the boxes to get the correct answer.

The  acts as the

framework of our body. It determines the general body shape.

Directions: Study the picture of the skeletal system. Answer the questions that follow.



A. What are the 2 divisions of our skeletal system?

1. _____
2. _____

B. Name the parts of the axial skeleton.

3. _____
4. _____
5. _____
6. _____

C. Name the parts of the appendicular skeleton.

7. _____
8. _____

Lesson 1: **Identifying some bones that make up the skeletal system.**
The Skeletal System

Exercise B

Directions: Study the word puzzle. Find words about the bones that make up the skeletal system. List down the names of the bones on the blanks provided.

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

1. _____ 6. _____

2. _____ 7. _____

3._____ 8. _____

4._____ 9. _____

5._____ 10. _____

Lesson 2: Demonstrating how the skeletal system enable us to move.

Exercise A

Directions: Fill the blanks to complete the words described in each item.

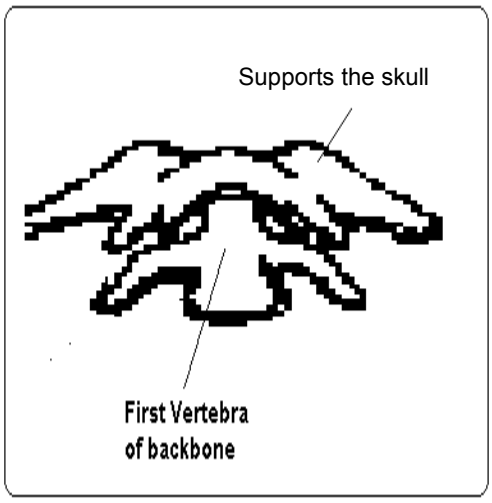
1. **L __ g a __ e __ __ s** are strong, dense, flexible bands of connective tissue that join bones to one another. They allow movements in some directions and restrict movements in other directions.

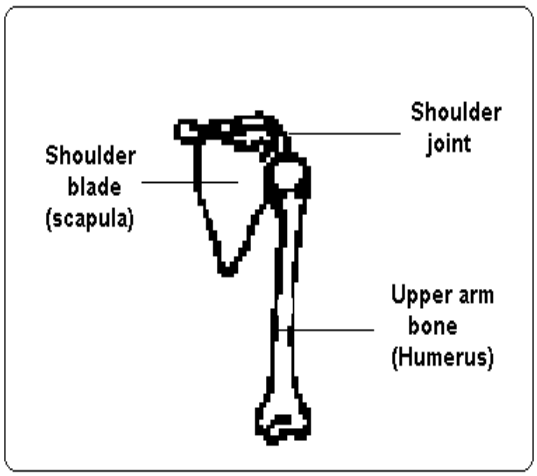
2. **T __ __ d __ ns** are strong, dense, flexible bands of connective tissues at the end of the muscles.

3. Ca __ t __ la __ __ s are supportive tissues found at the end of the bones. They protect and support the bones during weight bearing activities.

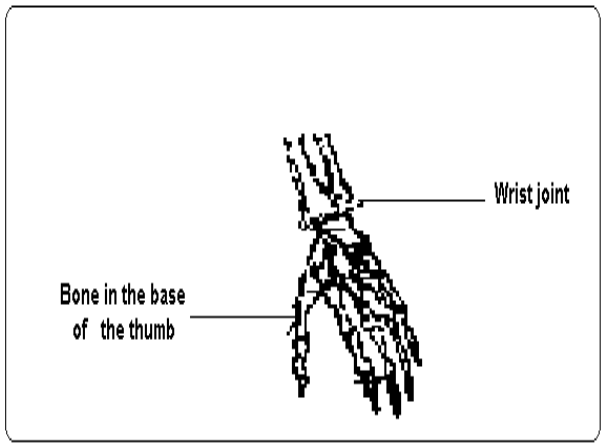
Directions: Look at the pictures. Use the words in the box to match each picture.

gliding joint hinge joint
ball and socket joint
pivot joint fibrous joint
synovial joint
cartilaginous joint

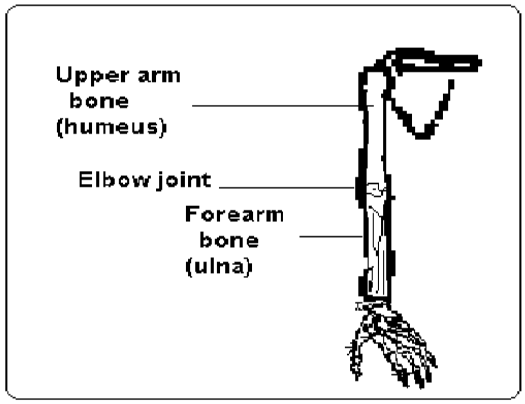




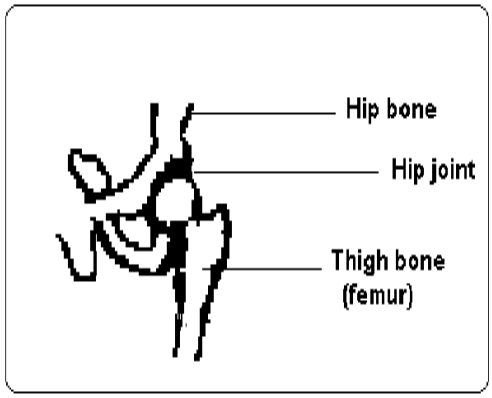
4. _____ 5. _____


Wrist joint
Bone in the base
of the thumb

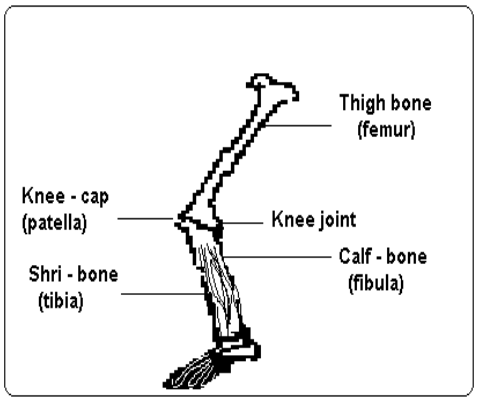
6. _____


Upper arm
bone
(humeus)
Elbow joint
Forearm
bone
(ulna)

7. _____


Hip bone
Hip joint
Thigh bone
(femur)

8. _____


Thigh bone
(femur)
Knee - cap
(patella)
Knee joint
Calf - bone
(fibula)
Shri - bone
(tibia)

9. _____

Lesson 2: Demonstrating how the skeletal system enable us to move.

Exercise B

Directions: Write T if the statement is true. If the statement is false, change the underlined word or phrase to make the statement true. Write the correct word on the blank.

_____ 1. A pivot joint enables the bone to rotate.

_____ 2. Without ligaments, muscles would not be attached to the bones.

_____ 3. The hinge joint refers to a joint where a ball – shaped end of one bone fits into a cup – shaped socket bone.

_____ 4. Pivot joint allows rotational movement only.

_____ 5. Cartilages are strong dense, flexible bands of connective tissues at the end of the muscles.

Directions: Encircle the letter of the correct answer.

1. A _____ is a point where two bones meet.
   a. ligament b. tendon c. joint

2. _____ hold the bones close to each other, allowing little or no movements.
   a. fibrous joints b. cartilaginous joints c. synovial joints

3. A _____ is a connective tissue that provides cushion at the ends of bones.
   a. ligament b. cartilage c. tendon

4. These joints permit side – to – side and back-and-forth movements.
   a. gliding joint b. pivot joint c. ball and socket joint

5. These joints allow rotational movement only.
   a. gliding joints b. pivot joints c. ball and socket joints

Lesson 3: Identifying the bones that protect the internal organ.

Exercise A

Directions: Identify the bone that protects the internal organ in each item.

_____ 1. The _____ is a solid case that protects the brain, eyes, inner ears and other delicate organs.

_____ 2. The _____ protects the heart and the lungs.

_____ 3. The _____ helps to protect the spinal cord.

Directions: Match the bones in column A with the organ it protects in column B.

Column A	Column B
1. Rib cage	a. brain
2. Spinal column	b. heart and lungs
3. Hipbones	c. bladder
4. Skull	d. spinal cord

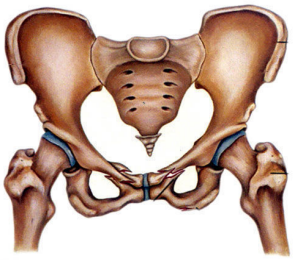
Directions: Answer the question correctly.

What shape of bones are found in the skull? _____

Lesson 3: Identifying the bones that protect the internal organ.

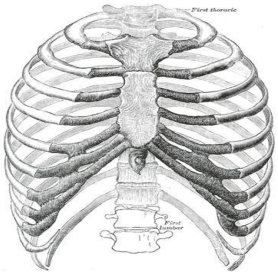
Exercise B

Directions: Study the pictures below. Name the bone in each picture.



1. _____

2. _____



3. _____

4. _____

Directions: Identify the organs being asked in each item.

Spinal column – protects the 5. _____

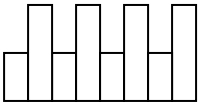
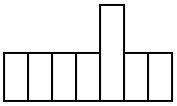
Ribcage protects the 6. _____ & 7. _____.

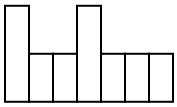
The skull protects the 8. _____.

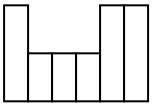
Lesson 4: Illustrate how muscles are connected to the bones.

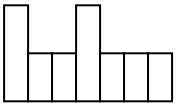
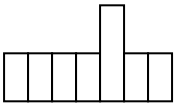
Exercise A

Directions: Fill in the boxes with the correct words.

1.   are also called voluntary muscles because their movement can be controlled. They are found in the arms, legs, chest, neck and face.

2. Muscles are attached to bones by tough, flexible cord of tissues called 

3.   are also called involuntary muscles because there movements is not controlled.

4.   have striations like skeletal muscles but cannot be controlled like smooth muscles. They found in the heart.

Lesson 4: Illustrate how muscles are connected to the bones.

Exercise B

Directions: Read each item. Encircle the letter of the correct answer.

1. Muscles are attached to bones by a tough, flexible cord of tissue called_____.

   a. tendons b. insertion c. cartilage

2. Describe the heart muscle

   a. without striation and voluntary
   b. with striation and voluntary
   c. with striation and involuntary.

3. Classify the muscles located in the face.

   a. cardiac b. smooth c. skeletal

4. Choose the muscles whose function cannot be controlled.

   a. walls of the blood vessels
   b. leg muscles
   c. finger muscles

5. In the human body, more than _____muscles move and protect the bones.

   a. 600 b. 700 c. 800

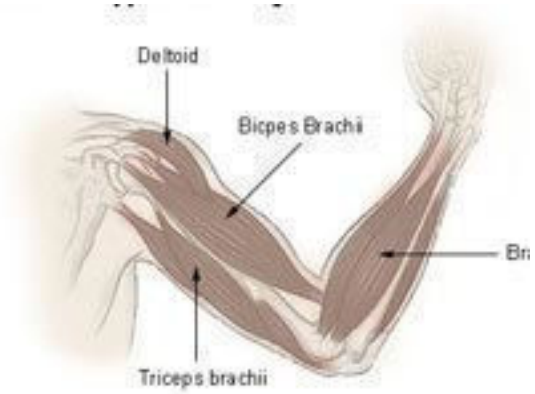
Directions: Match column A with column B. Write the letter the blank before each number.

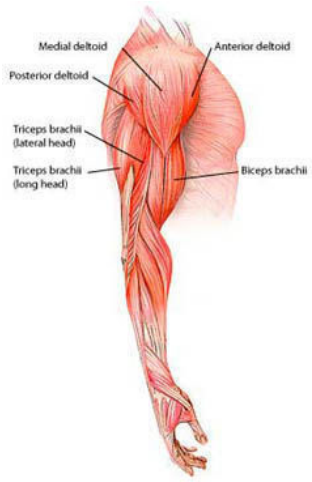
A	B
_____ 1. Muscles	a. found in the arms, legs chest, neck and face.
_____ 2. Tendons	b. Heart muscles.
_____ 3. Smooth muscles	c. tough, flexible cord tissue that connect the muscles and bones.
_____ 4. Cardiac muscles	d. hold the skeleton together.
_____ 5. Skeletal muscles	e. walls of the blood vessels.

Lesson 5: Demonstrate how muscles cause body movement. Cite simple body activities that show the coordinated functions of the skeletal and muscular system.

Exercise A

Directions: Study the pictures of the biceps and triceps of the upper arm below. Fill in the blanks in each statement that follows.





1. Which muscles tightens when you lift a book? _____
2. Which muscles tightens when you put down the book? _____.
3. A muscles that _____ is usually shorter and thicker.
4. When the muscles is long it is relaxed.
5. Flex your arms. Feel muscles on your upper. How does it feel? _____.

Directions: Give four examples of body activities that show body movements.

1. _____
2. _____
3. _____
4. _____

Lesson 5: Demonstrate how muscles cause body movement. Cite simple body activities that show the coordinated functions of the skeletal and muscular system.

Exercise B

Directions: Read the statements below. Write T if the statement is true. Write F if the statement is false.

_____ 1. A muscle that is relaxed is usually shorter and thicker.

_____ 2. When the arm is flexed, the triceps is relaxed.

_____ 3. The biceps are tightened you if you lift a book.

_____ 4. A relaxed muscle is long.

_____ 5. Muscles produce movements by contracting and relaxing.

Lesson 6: Identifies injuries and diseases that can harm the skeletal and muscular system

Exercise A

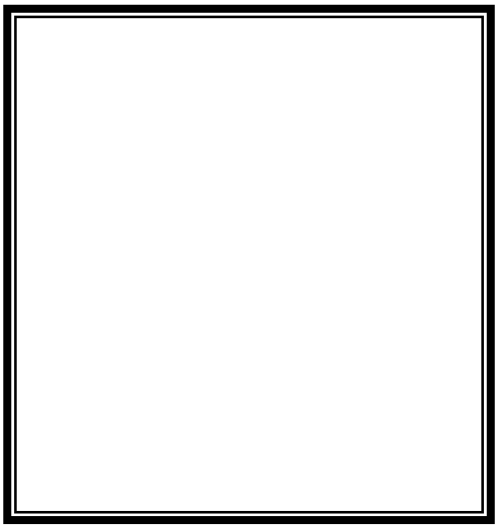
Directions: Study the pictures in column A. Use a line to match each injury with its correct name.

A.		B
1.		a. muscle strain
2.		b. cramps
3.		c. bruise
4.		d. fracture
5.		e. sprain
		f. torn muscles

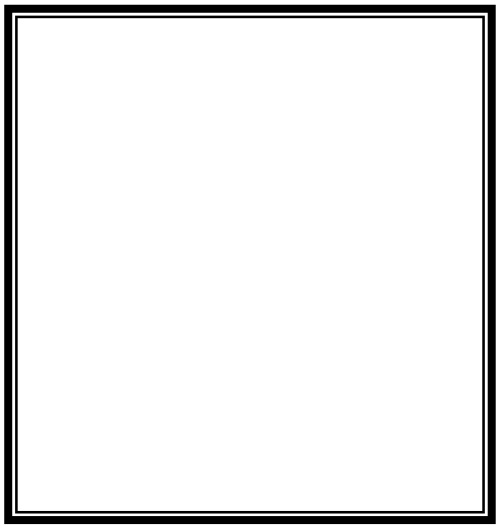
Lesson 6: Identifies injuries and diseases that can harm the skeletal and muscular system

Exercise B

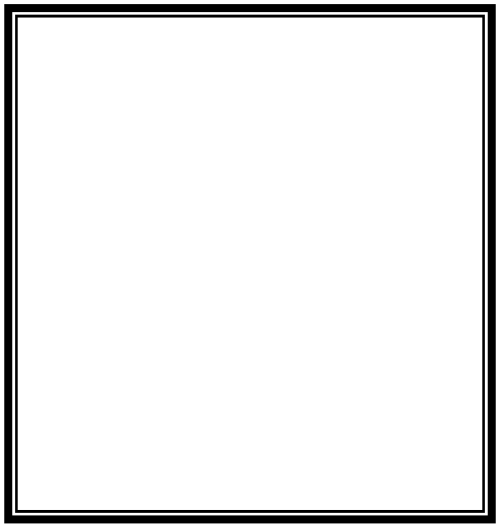
Directions: Draw three pictures that show common injuries of the muscle or bone. Label each picture properly.



_____



_____



_____

Lesson 7: Demonstrates first aid treatment for sprain, cramps, and simple fractures.

Directions: Remember these information.

1. Sprain and Strain- one must remember **RICE**

Rest – Do not move the injured part.
You can use a blanket or a towel as splint.

Ice – Apply cold compress. You can do this by placing a cold wet towel or an ice bag on the injured part.

Compress – to compress the injury part wrap an elastic bondage around the sprained part to prevent swelling.

Elevate – kept it raised or elevated for at least one day.

2. Muscle Cramps

a. Gently massage the camped muscle.
b. Slip half a glass of salt water.
-Every 15 minutes for one hour.
-This is because your body has lost much salt.

3. Bruise – put cold compress to prevent swelling. Use an ice bag or wrap a piece of ice in a towel. After 24 hours, apply warm compress to let the blood flow.

4. Simple Fracture
Keep the injured part from moving by using a splint.

Here are rules to follow in putting a splint.

- Splint only if it not make the victim feel more pain or discomfort.
- Splint an injury in the position you feel it. Do not move the victim.
- Apply the splint so that the fracture bone and joints above and below fracture cannot be move

a. Apply a cold pack

b. Call a doctor or take the victim right away to the hospital.

(Source Evelina M. Vicencio et. Al.)

Lesson 8: Shows concern and right attitude towards physically handicapped persons.

Exercise A

Directions: Check the statements that show kind acts to handicapped persons.

_____ 1. Talk to deaf-mute.

_____ 2. Appreciate their work so they would feel important.

_____ 3. Handicapped persons cannot do good things.

_____ 4. Help them develop their hidden talents.

_____ 5. Laugh at them.

_____ 6. Tease a lame boy.

_____ 7. Treat them like normal persons.

_____ 8. Allow them to do things for themselves.

_____ 9. Be friendly to them.

_____ 10. Do not tell a handicapped person that you pity him or her.

Lesson 8: Shows concern and right attitude towards physically handicapped persons.

Exercise B

Directions: Check the statements that show proper concern and treatment to the physically handicapped.

_____ 1. Make fun of handicapped persons.

_____ 2. Tease a lame person.

_____ 3. Treat them like a normal person.

_____ 4. Do not allow them to participate in a civic organization.

_____ 5. Be friendly to them.

_____ 6. Laugh at them.

_____ 7. Help them discover their hidden talents.

_____ 8. Talk to a deaf – mute.

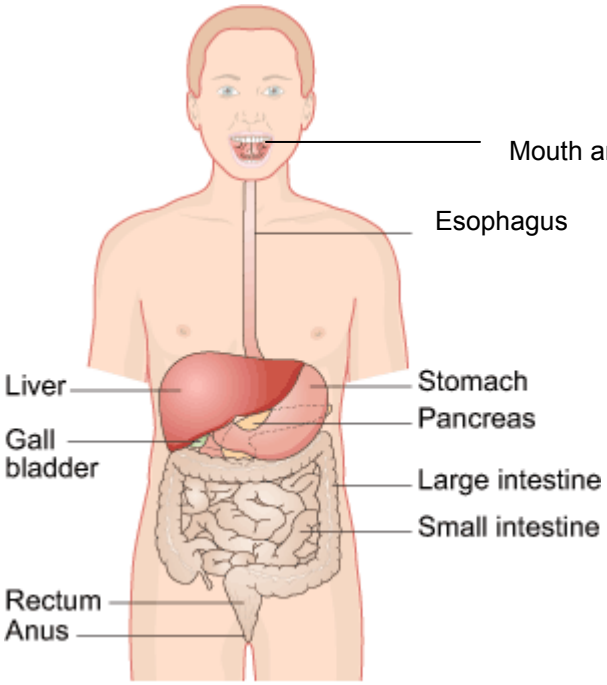
_____ 9. Let them express themselves.

_____10. Do not tell a handicapped person that you pity him or her.

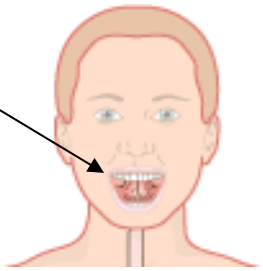
Lesson 9: Identifies the digestive system and its major parts.

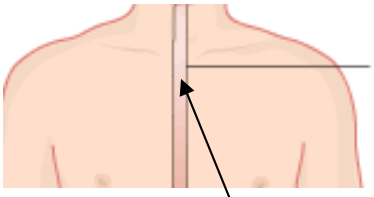
Exercise A

Directions: Name the parts of the digestive system.

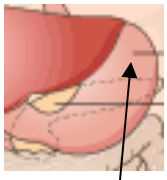


1.& 2 _____





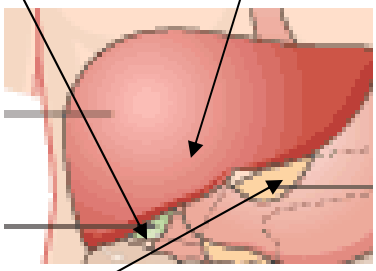
3. _____



4. _____

5. _____

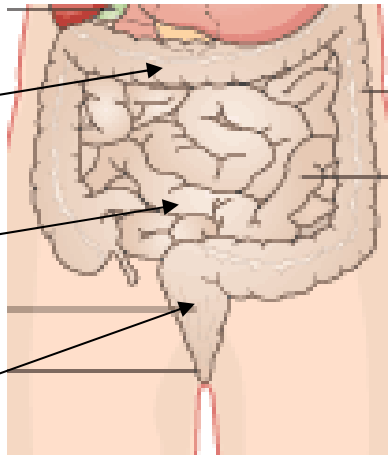
6. _____



7. _____

8. _____

9. _____



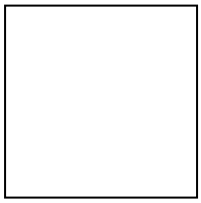
10. _____

Lesson 9: Identifies the digestive system and its major parts.

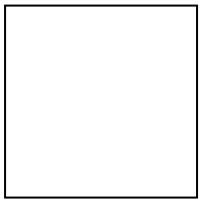
Exercise B

Directions: Draw the organs of the digestive system .

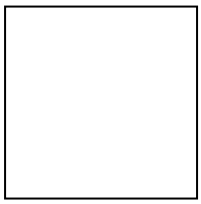
1. Mouth



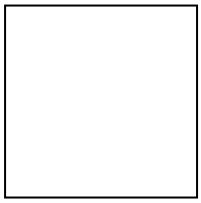
2. Esophagus



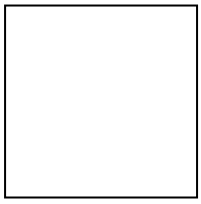
3. Stomach



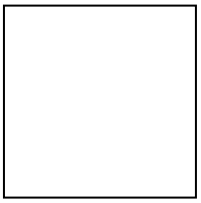
4. Gall bladder



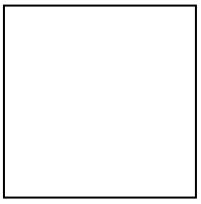
5. Liver



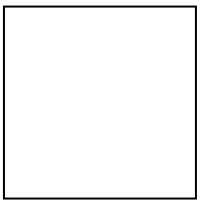
6. Pancreas



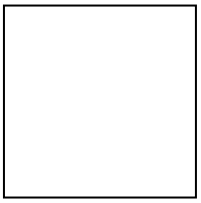
7. Large intestine



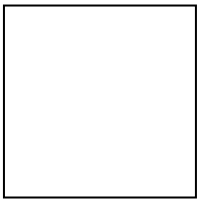
8. Small intestine



9. Rectum



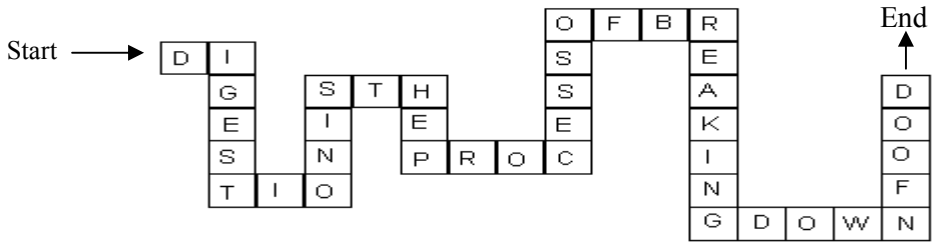
10. Salivary glands



Lesson 10: **Traces the path of food in the digestive system and the charges the food undergoes. Explains why food has to be digested**

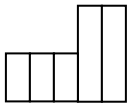
Exercise A

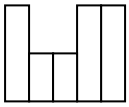
Directions: Study the word puzzle. Write the statement that is formed on the blank.

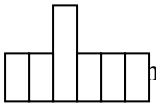


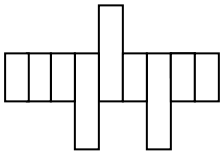
1. Write the statement that is formed.
   _____.

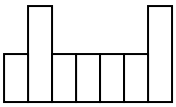
Directions: Supply the missing word. Write the letters in the boxes.

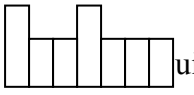
2. Digestion starts in the  .

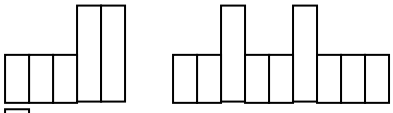
3. The  cut and grind the food.

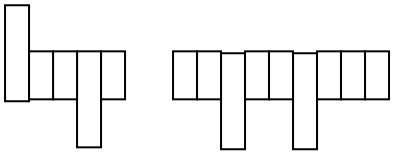
4. The  hoistens the food and changes starch to sugar.

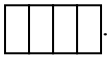
5.When the food swallowed, it moves along the 

6. The food then travels to the 

7.  uices act on the food and splits proteings and fats.

8. The food goes to the 

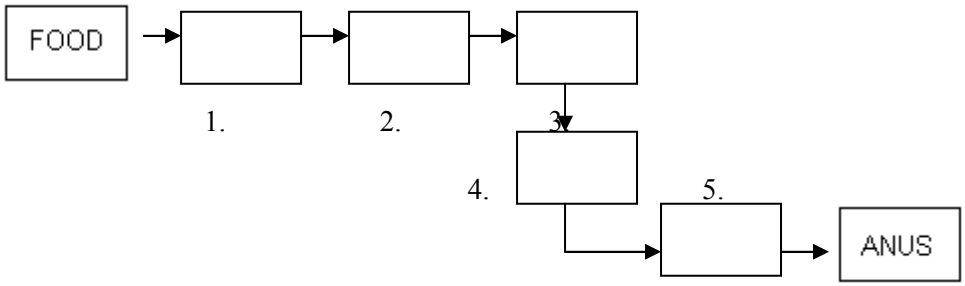
9. Undigested food goes to 

10. The food goes out as waste through the  .

Lesson 10: Traces the path of food in the digestive system and the charges the food undergoes. Explains why food has to be digested

Exercise B

Directions: Correctly trace the pathway of food in the digestive track by filling in the boxes.



Directions: On the box, write the functions of the accessory organs of the digestive system.

	Organ	Functions
6.	Liver	→ ☐
7.	Pancreas	→ ☐
8.	Gall bladder	→ ☐

Lesson 11: Names ways of preventing / controlling common ailments of the digestive system.

Exercise A

Directions: Read the statements below. Write T if the statement is true. Write F if the statement is false.

_____ 1. Brushing your teeth will prevent tooth cavities.

_____ 2. Drink at least eight glasses of water everyday. A sufficient amount of liquid is needed for digestion.

_____ 3. Food poisoning cannot cause diarrhea.

_____ 4. Go to your dentist every six months.

_____ 5. Practice good eating habits.

_____ 6. Sleeping and resting are not needed by the body.

_____ 7. Wash your hands before handling and eating food.

_____ 8. Chew your food well.

_____ 9. Cook food properly.

_____10. Street foods are healthy foods.

Exercise B

Directions: Check the practices that will make your digestive system healthy. Cross those which will not.

_____ 1. Eat variety of foods such as meat, fish, vegetable, fruits.

_____ 2. Brush your teeth once a week.

_____ 3. Exercise regular habits.

_____ 4. Wash your hands before and after eating.

_____ 5. Skip breakfast so you will not be late for school.

_____ 6. Bowel movements should be done daily

_____ 7. Drink soft drink instead of water.

_____ 8. Eat junk food and street food everyday.

_____ 9. Consult a doctor when you have a stomach ache.

_____10. Wash the fruit before eating it.

Lesson 12: Demonstrates ways of keeping the digestive system healthy.

Direction: As a class, demonstrate the following situations correctly.

1. Brushing teeth
2. bowel movement
3. Eating breakfast, lunch, and dinner
4. Drinking water
5. Washing hands

Directions: Accomplish the table honestly. Put a check on the appropriate column.

Health Habits	Never	Sometimes	Always
1. Brushing your teeth after every meal.			
2. Bowel movement			
3. Eating meals regularly			
4. Drink six to eight glasses of water everyday.			
5. Washing your hands before and after eating.			

Lesson 13: Identifies animals hatched from eggs

Exercise A

Directions: Match the animals column A with the names in column B. Write the letter on the blank before each number.

A

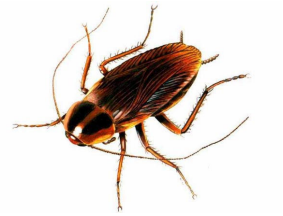
_____ 1.

_____ 2.

_____ 3.

_____ 4.

_____ 5.



B

a. Chicken

b. Snake

c. Cockroach

d. Lizard

e. Spider

f. Turtle

g. Bird

h. Duck

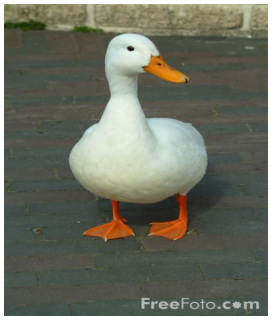
i. Mosquito

j. Fish

k. Crocodile

_____ 6. 

_____ 7. 

_____ 8. 

_____ 9. 

_____ 10. 

Lesson 13: Identifies animals hatched from eggs

Exercise B

Directions: Match the animals in column A with their young in column B. Write the letter on the blank before each number.

A **B**

_____ 1.

a.

b.

_____ 2.

c.

d.

_____ 3

e.

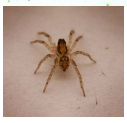
f.

_____ 4.

g.

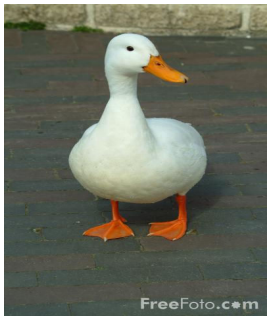
h.

i.



_____ 5.

j.

_____ 6. 

_____ 7. 

_____ 8. 

_____ 9. 

_____ 10. 

Lesson 14: Identifies animals that are born alive.

Exercise A

Directions: Match the name of the parent animal in column A with its young in column B. Write the letter on the blank before each number.

A.	B.
_____ 1. Kangaroo	a. calf
_____ 2. Goat	b. piglet
_____ 3. Cat	c. cub
_____ 4. Dog	d. foal
_____ 5. Pig	e. joey
_____ 6. Horse	f. mel
_____ 7. Cow	g. kid
_____ 8. Carabao	h. tim
_____ 9. Tiger	i. pony
_____10. Boar	j. kitten
	k. puppy

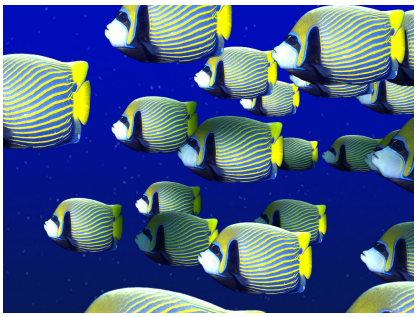
Lesson 14: Identifies animals that are born alive.

Exercise B

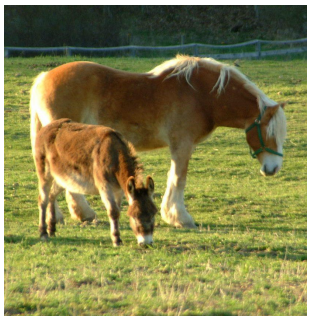
Directions: Name the following animals:

1. 

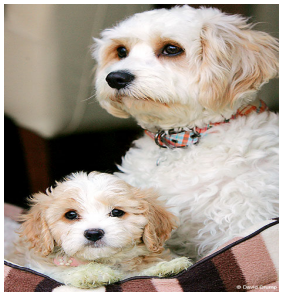
_____

2. 

_____

3. 

_____

4. 

_____

5. 

_____

6. 

_____

7. 

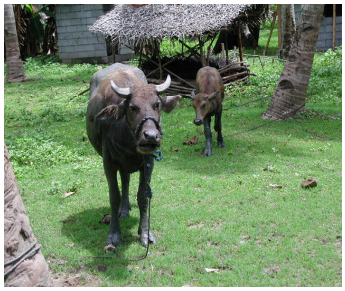
_____

8. 

_____

9. 

_____

10. 

_____

Lesson 15: Infer that some animals develop from fertilized egg.

Exercise A

Directions: Circle the words that you can find in the puzzle. List down the words on the blanks below.

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

1. _____ 6. _____

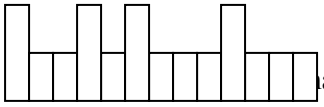
2. _____ 7. _____

3. _____ 8. _____

4. _____ 9. _____

5. _____

Directions: fill in the boxes to form the described word.

10.  appens when an egg cell and a sperm cell meet or unite.

Lesson 15: Infer that some animals develop from fertilized egg.

Exercise B

Directions: Encircle the letter of the correct answer.

1. _____ is the process wherein the egg cell and a sperm cell unite.
   a. Fertilization b. Reproduction c. Zygote

2. The male sex cell is called _____.
   a. sperm cell b. egg cell c. blood vessel

3. The female sex cell is called _____.
   a. sperm cell b. egg cell c. blood vessel

4. _____ fertilization happens inside the female body.
   a. Internal b. External c. both a and b

5. The successful union of the egg and the sperm cell forms a/an _____.
   a. egg b. zygote c. offspring

6. _____ reproduction does not involve sex cells.
   a. Asexual b. Bisexual c. Sexual

7. _____ fertilization happens outside the female body.
   a. Internal b. External c. both a and b

8. _____ reproduction involves the production of a new organism through the union of sex cells.
   a. Asexual b. Bisexual c. Sexual

9. Why do animals of the same species continue to live from one generation to another?
   a. they all lay eggs b. they reproduce c. they only eat meat

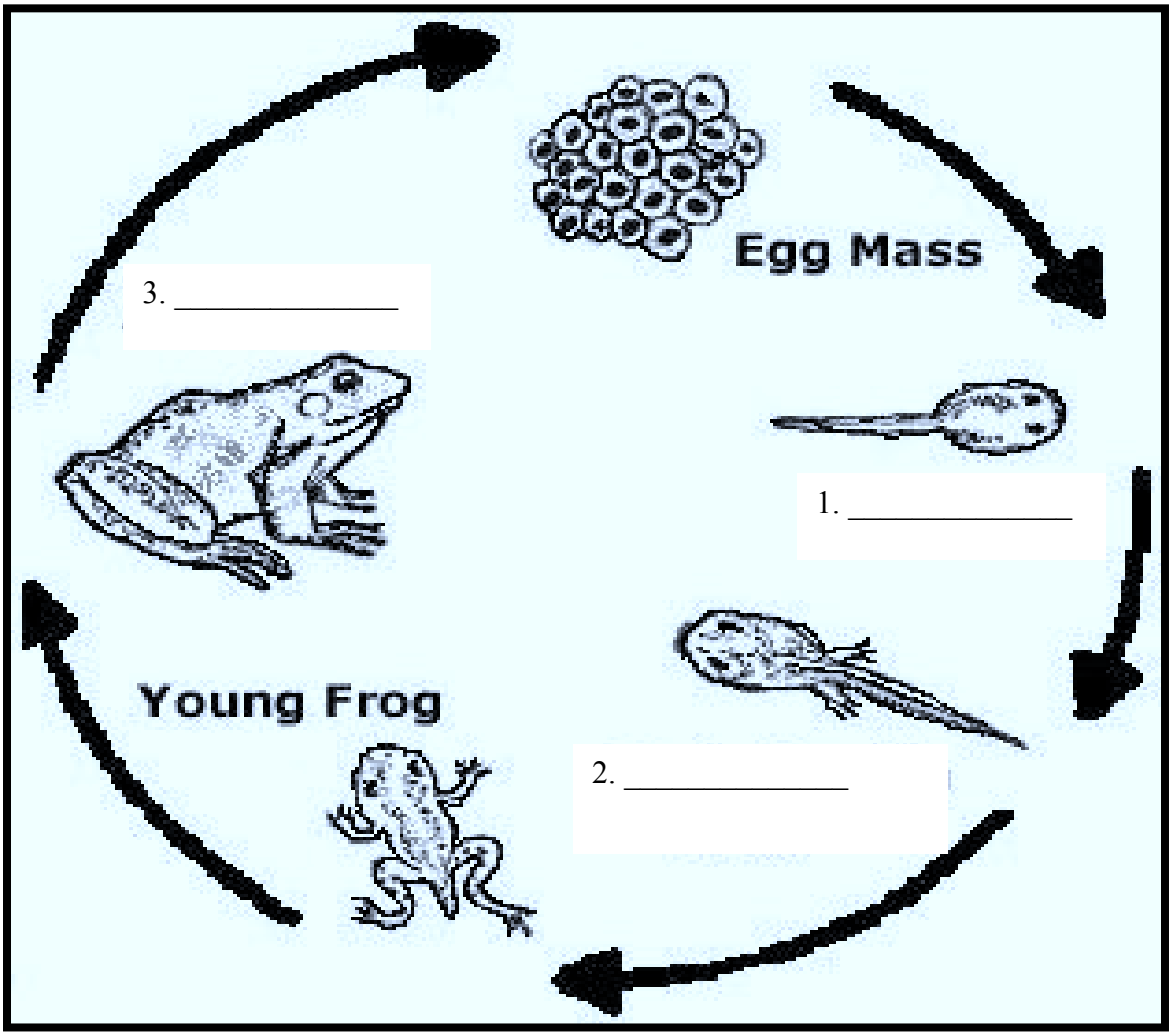
10. The process of bringing for the new life is called_____
   a. reproduction b. fertilization c. zygote

Lesson 16: **Describe the life cycle of a frog, a butterfly, and a mosquito.**

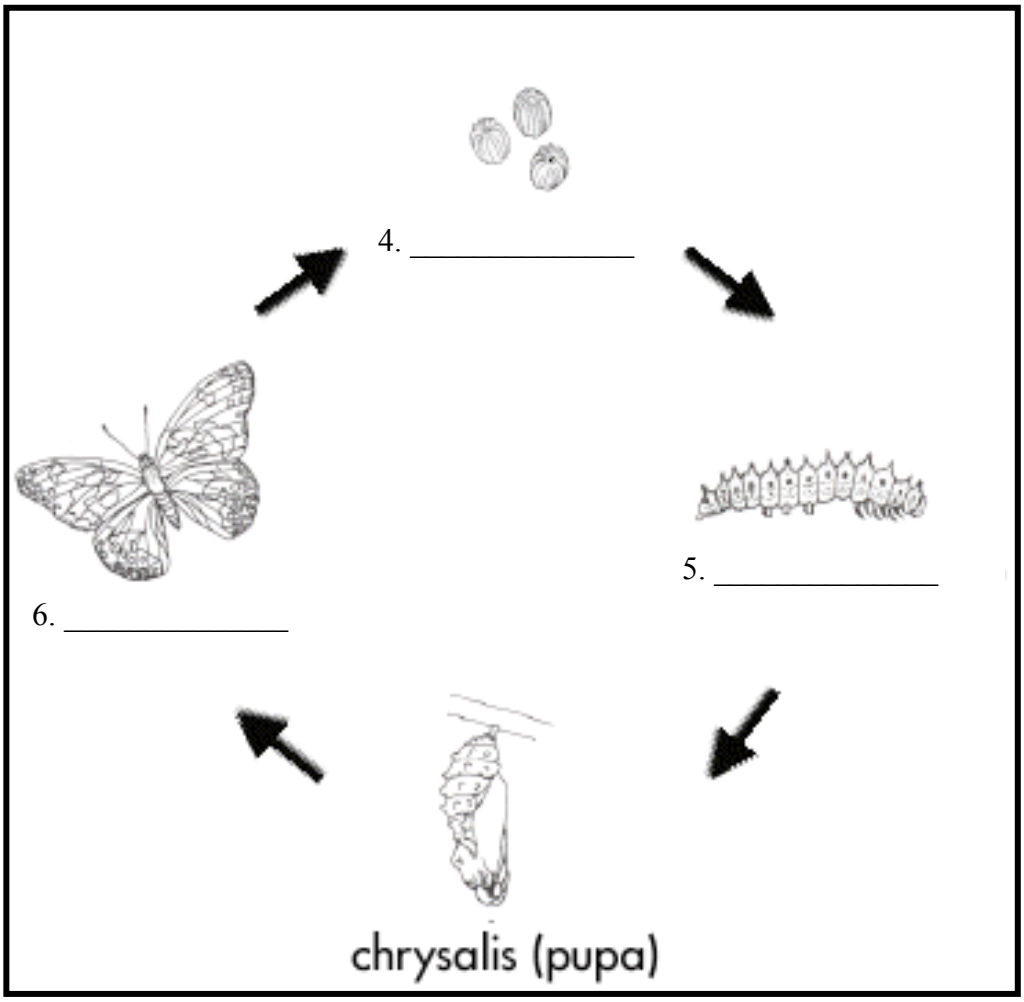
Exercise A

Directions: Supply the missing stage in the life cycle of a frog, butterfly, and a mosquito.

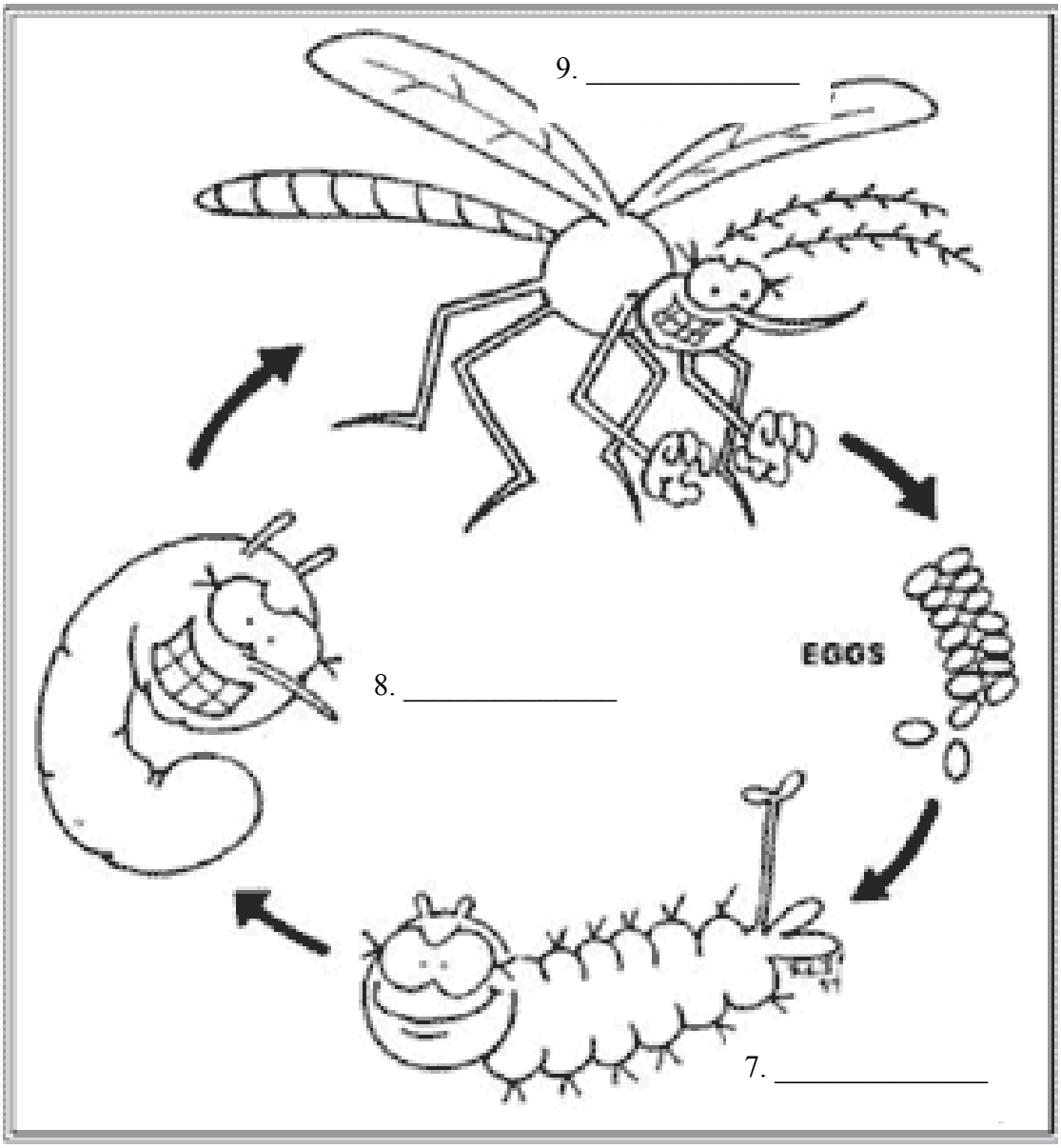
Life cycle of the frog



Life cycle of a butterfly



Life cycle of a mosquito

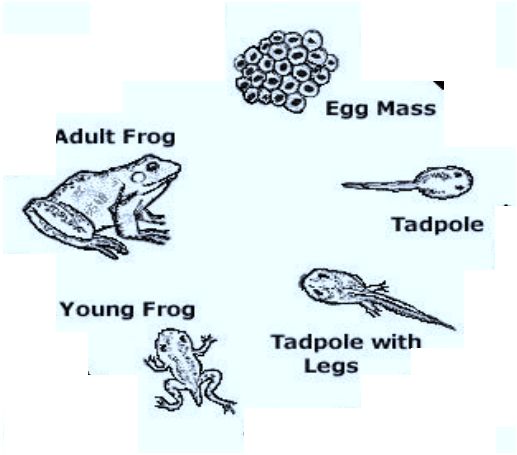


Lesson 16: Describe the life cycle of a frog, a butterfly, and a mosquito.

Exercise B

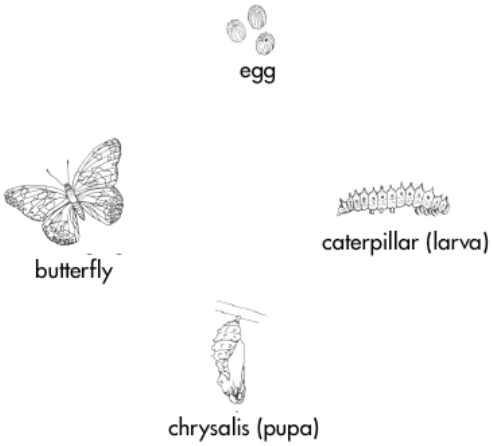
Directions: Arrange the stages as the following animals grow.

Frog



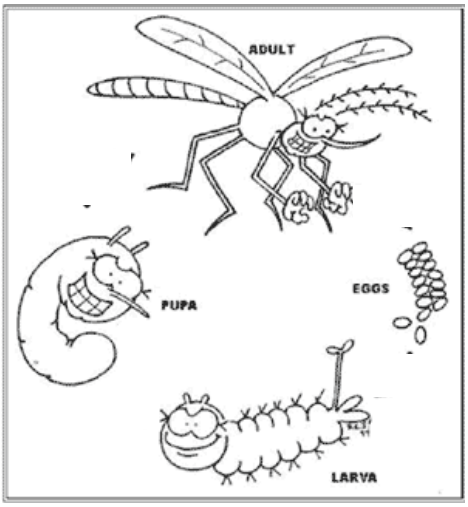
Egg ➔ 1. _____ 2. _____ 3. _____

Butterfly

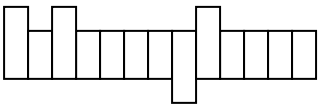


Egg ➔ 4. _____ 5. _____ 6. _____

Mosquito



Egg ➔ 7. _____ 8. _____ 9. _____

10.  – is a process by which animals goes through the different stages in its life cycle.

Lesson 17: Describe the changes in animals as they developed and grow.

Exercise A

Directions: Identify the following. Write your answers on the blanks before each number.

_____ 1. The _____ of a living thing refers to the stages in its life.

_____ 2. The larva of butterflies is called _____.

_____ 3. A housefly produces about 150 eggs at a time. The eggs hatch and become _____.

_____ 4. The larva of mosquitoes is called _____.

_____ 5. The larva of frogs are called _____.

_____ 6. _____ is the process by which animals undergo changes in shape and form.

_____ 7. The larva of a butterfly becomes a pupa or a _____.

_____ 8. In _____ metamorphosis, the larva does not look like its parents.

_____ 9. Butterflies, frogs, and mosquitoes have _____ stages in their life cycle.

_____ 10. In _____ metamorphosis, the young looks very much like the adult.

Lesson 17: Describe the changes in animals as they developed and grow.

Exercise B

Directions: Identify the following. Write your answers on the blanks before each number.

_____ 1. _____ is the process by which animals undergo changes is shape and form.

_____ 2. The larva of a butterfly become pupa or _____.

_____ 3. Butterflies, frogs and mosquitoes have _____ stages in their life cycle.

_____ 4. In _____ metamorphosis, the larva does not like its parents.

_____ 5. The larva of frogs are called _____.

_____ 6. In _____ metamorphosis, the young looks very much the adult.

_____ 7. The larva of butterflies are called _____.

_____ 8. A housefly produce about 120 eggs at a time. The eggs become _____.

_____ 9. The larva of mosquitoes are called _____

_____10. The _____ of a living things refers to the stages in their life.

Lesson 18: Identifies proper ways of handling animals.

Exercise A

Directions: Put a check on the statements that shows care for animals.

_____ 1. Giving animals their needs such as food, water, and shelter.

_____ 2. Kicking the dog when it barks at you.

_____ 3. Bringing your pets to the veterinarian for a medical check – up.

_____ 4. Bathing your pets and clean them thoroughly.

_____ 5. Cleaning your pet's ears using cotton buds.

_____ 6. Spanking an animal.

_____ 7. Killing an animal.

_____ 8. Always keeping the shelter of your pets clean.

_____ 9. Shooting a bird.

_____10. Allowing your pets to roam around the street without any guardian.

Exercise B

Directions: True or False. Write T if the statement shows care for animals, F if it is not.

_____ 1. Allow your pets to around the street.

_____ 2. Shooting birds.

_____ 3. Always keep the shelter of your pets clean.

_____ 4. Combing or brushing the hair of animals.

_____ 5. Killing the animals.

_____ 6. Clean your pets ears using a cotton buds.

_____ 7. Bathe your pets and clean them thoroughly

_____ 8. Bring your pets to the veterinarian for a medical check – up.

_____ 9. Kicking the dogs when they bark at you.

_____10. Give animals their needs such as food, water and shelter.

Lesson 19: Demonstrates proper ways of handling animals.

Exercise A

Directions: Look at the pictures. Put a check on the pictures that show concern for animals.

1. 

2. 

3. 

4. 

5. 

6. 

7. 

8. 

9. 

10. 

Lesson 19: Demonstrates proper ways of handling animals.

Exercise B

Directions: Look at the pictures. Cross out the pictures that do not show concern for animals.

1. 

2. 

3. 

4. 

5. 

6. 

7. 

8. 

9. 

10. 

Lesson 20: Identifies the parts of a flower.

Exercise A

Directions: Identify the parts of a flower. Each number in the code stands for a letter. Use the code to write the words.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T

21	22	23	24	25	26
U	V	W	X	Y	Z

1. 19 + 5 + 16 + 1 + 12 = _____

2. 16 + 9 + 19 + 20 + 9 + 12 = _____

3. 19 + 20 + 9 + 7 + 13 + 1 = _____

4. 15 + 22 + 1 + 18 + 25 = _____

5. 19 + 20 + 25 + 12 + 5 = _____

6. 16 + 5 + 20 + 1 + 12 + 19 = _____

7. 19 + 20 + 1 + 13 + 5 + 14 = _____

8. 1 + 14 + 20 + 8 + 5 + 18 = _____

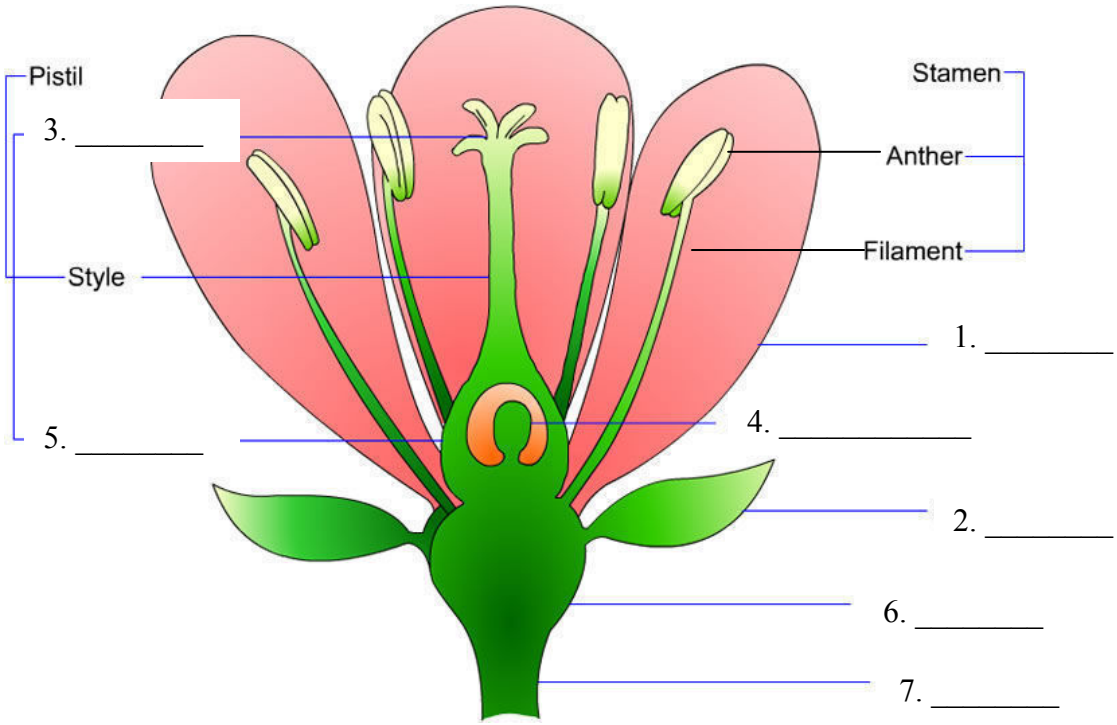
9. 6 + 9 + 12 + 1 + 13 + 5 + 14 + 20 = _____

10. 16 + 15 + 12 + 12 + 5 + 14 + 7 + 18 + 1 + 9 + 14 + 19 = _____

Lesson 20: Identifies the parts of a flower.

Exercise B

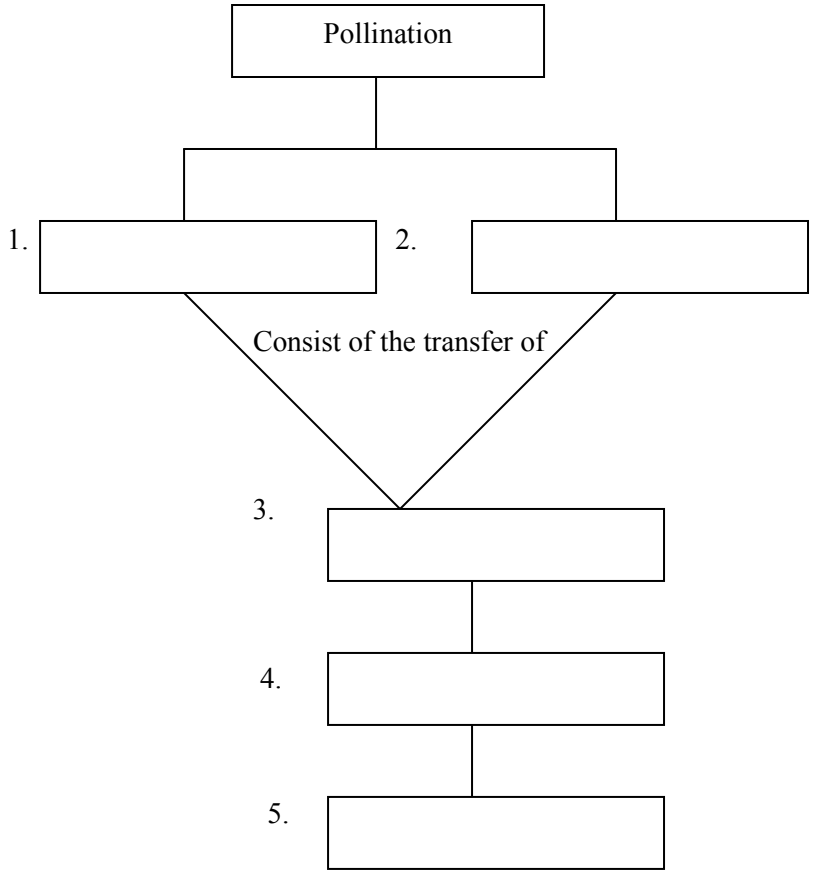
Directions: Identify the parts of a flower. Label the figure below properly.



Lesson 21: Explains the role of pollination in sexual reproduction.

Exercise A

Directions: Supply the missing words in the following concept map.



6. P __ l l __ n __ t __ o __ - is the transfer of the pollen grains of a flower from another to the stigma.

7. S __ __ f - __ o l __ n __ tio __ - is the transfer of pollen from the anther to the stigma of the same flower or from the another of one flower to the stigma in the same plants.

8. Cr __ s __- Poll __ n __ __ __ __ n – is the transfer of pollen grains from the another flower of a plant to the stigma of a flower of another plant.

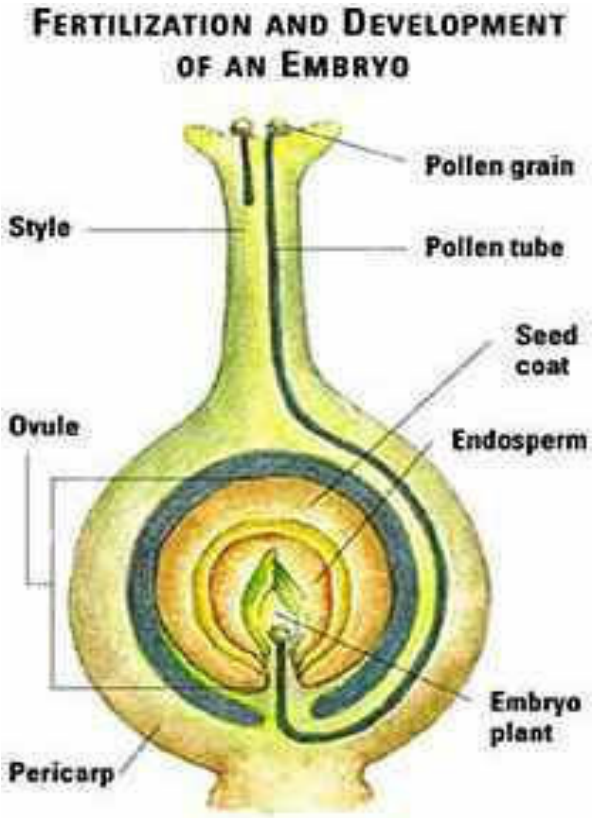
Directions: Give two examples of pollinators.

_____ 9.
> are pollinators.
_____10.

Lesson 21: Explains the role of pollination in sexual reproduction.

Exercise B

Directions: Study the illustration then fill in the blanks below.



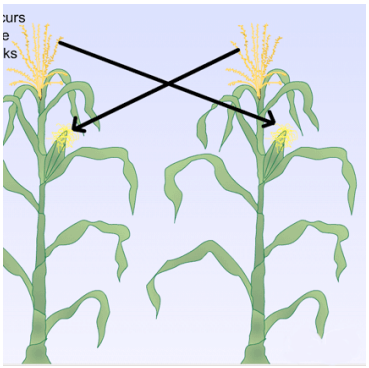
I. Pollination may be: 1. _____ or 2. _____

consists of the transfer of

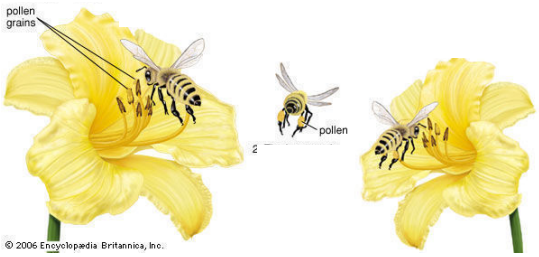
4. _____ from the 3. _____

_____ 5.

Directions: Tell whether each one is an example of self pollination or cross pollination.



6. _____ 7. _____



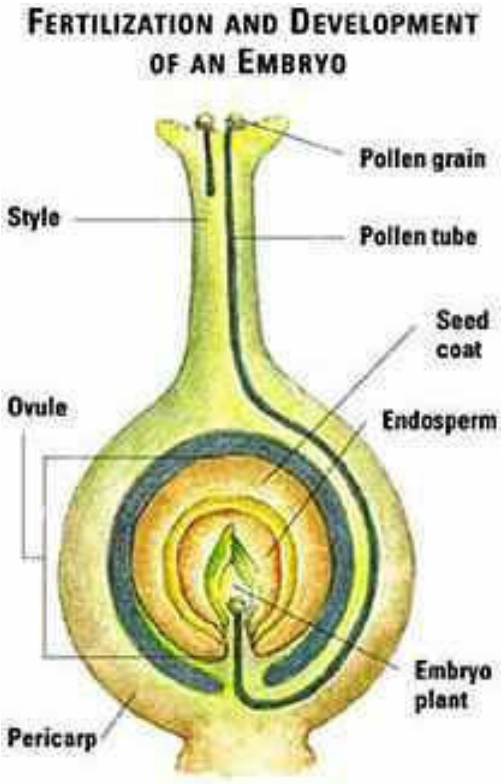
8._____

Directions: Name the agents of pollination shown in each picture.

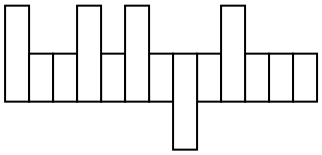
9._____ 10. _____

Lesson 22: Describes the process of fertilization in flower.

Exercise A



Directions: Study the diagram above. Fill in the blanks.

1.  – is a process wherein the pollen grains are transferred to the ovule.

When the _____ lands on the _____ of a flower, a _____ will form. This grows through the _____ down into the _____. Inside are the _____. One of the male sex cells may unite with the _____ to form the _____ plants. This produces, a _____.

Lesson 22: Describes the process of fertilization in flower.

Exercise B

Directions: Arrange the phrases until you come up with the process of how the fruits and seeds are developed. Write the paragraph you formed on the space below.

1. on the stigma of a flower

2. This produces a seed

3. When the pollen lands

4. This grows through the style

5. a pollen tube will form.

6. down into the ovary

7. One of the male sex cells

8. Inside are the ovules.

9. may unite with the egg

10. to form the embryo plant

_____

_____

_____

_____

_____

_____

Lesson 23: **Identifies the main parts of a seed.**

Exercise A

Directions: Study the puzzle. Find all the words that you can find about main parts of a seed.

E	R	S	E	E	D	C	O	A	T	G	E	S
P	P	A	R	T	S	O	F	S	E	E	D	R
I	E	I	D	E	M	B	R	Y	O	G	U	A
C	U	C	H	I	L	U	M	D	I	C	O	T
O	M	O	N	O	C	O	T	E	G	A	R	C
T	N	C	O	T	Y	L	E	D	O	N	I	I
Y	P	A	R	F	S	S	E	E	D	M	I	A
L	Y	T	O	C	O	P	Y	H	O	T	H	Y

Lesson 23: Identifies the main parts of a seed.

Exercise B

Directions: Each number in the code stands for a letter. Use the code to write the words below.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

U	V	W	X	Y	Z
21	22	23	24	25	26

1. 5 + 13 + 2 + 18 + 25 + 15 = _____

2. 5 + 16 + 9 + 3 + 15 + 20 + 25 + 12 = _____

3. 8 + 25 + 16 + 15 + 3 + 15 + 20 + 25 + 12 = _____

4. 18 + 1 + 4 + 9 + 3 + 12 + 5 = _____

5. 3 + 15 + 20 + 25 + 12 + 5 + 4 + 15 + 14 = _____

6. 13 + 15 + 14 + 15 + 3 + 15 + 20 = _____

7. 4 + 9 + 3 + 15 + 20 = _____

8. 19 + 5 + 5 + 4 = _____

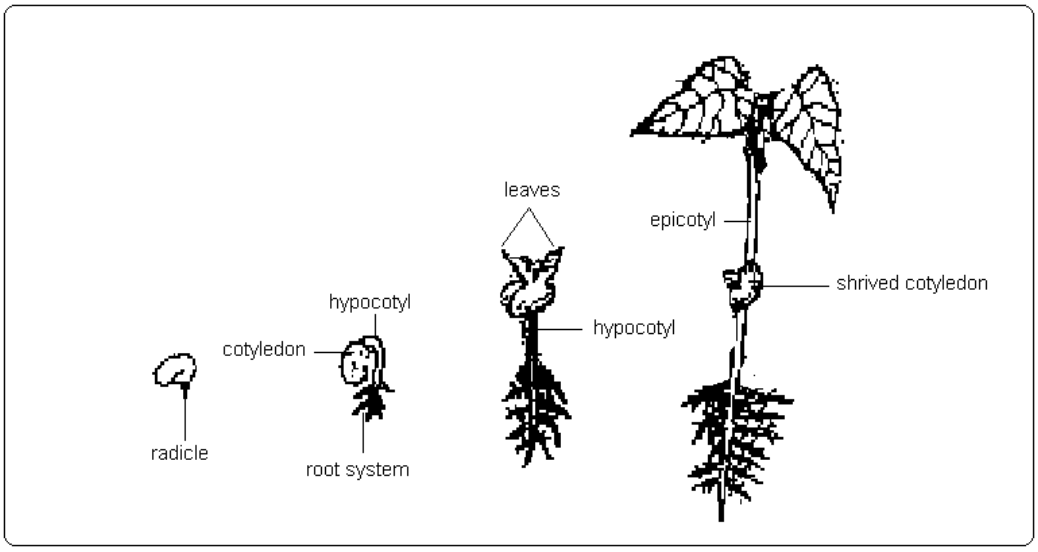
9. 8 + 9 + 12 + 21 + 13 = _____

10. 19 + 5 + 5 + 4 + 3 + 15 + 1 + 20 = _____

Lesson 24: Infers the function of each part of a seed by observing a germinating seed.

Exercise A

Directions: Study the pictures below. Fill in the blanks with the correct words.



Directions: Study the picture above then identify the following:

1. The germination of a seed begins with the absorption of water. Water softens and breaks the _____.

2. The _____ begins to grow and expand, causing the seed to rupture.

3. The _____ comes out from the seed and grows downward into the soil.

4. It becomes the _____ of the plant.

5. Then the _____ comes out and forms a loop or hook.

6 - 7 It continues to elongate and pushes its way up through the soil. As the

hypocotyls hook or loop becomes exposed to sunlight, it straightens. Thus, the

_____ and _____ emerge from the soil.

8. The _____ continues to elongate, thus with its pair of leaves being pushed upward.

9. As _____ takes place, the cotyledons shrivel or become wrinkled and eventually fall off.

10. The seedling or young plant becomes an independent _____.

Lesson 24: Infers the function of each part of a seed by observing a germinating seed.

Exercise B

Directions: Identify the words that would make the statements correct. Write your answer on the blanks.

_____ 1. The _____ is a part of the stem.

_____ 2. The little scar on the seed is the _____.

_____ 3. The _____ is the part of the plant embryo that develops into the primary root.

_____ 4. The _____ is the part of the axis of the plant embryo below the cotyledons.

_____ 5. A _____ contains stored food for the developing plant embryo.

_____ 6. It is a matured ovule.

_____ 7. A _____ is a special organ of plants that helps in the protection and dispersal of seeds.

_____ 8. _____ is the sprouting of seeds.

_____ 9. _____ is a basic need for seed to germinate.

_____10. As _____ takes place, the cotyledons shrivel or become wrinkled and eventually fall off.

Lesson 25: Perform an experiment on seed germination.

Exercise A

Directions: Perform the experiment below.

Identify the variables in the experiment.

Observe and collect data on what a seed needs in order to germinate.

Interpret the results of the experiment on seed germination.

You need:

*15 mongo seeds

*3 plastic cups

*soil

What to do:

1. Label Cup A, Cup B, Cup C.
2. Bore holes at the bottom of the cups.
3. Put soil in each of the cups A, B, C.
4. Put 5 seeds in each cup.
5. Cover cup C with a transparent bowl.
6. Water cups A, B and C everyday with the same amount of water.
7. Place cups A, B, and C where they can receive enough sunlight.
8. Observe the Exercise-up for 10 days.

	Observations
Cup A.	
Cup B.	
Cup C.	

Directions: Answer the questions below:

1. What happened to the seeds in Cup B? _____

2. Compare the growth of the seedling in Cup A and C. _____

3. Based on your observation, what are needed in seed germination?

_____

_____.

Lesson 25: Perform an experiment on seed germination.

Exercise B

Directions: Perform the experiment.

You need:

*seeds soaked in water (Mongo, corn, peanut, bean)
*cutter
*magnifying lens

What to do:

1. Slice the corn lengthwise by using a knife (be careful). Split the bean, Mongo and peanut with your fingers. Using a magnifying lens, examine their parts carefully.

2. Identify the parts of each seed. Fill out the table below.
Check (√) appropriately.

Seed	No. of cotyledons		Epicotyl	Hypocotyl	Radicle	Seed coat
	One	Two				
Corn						
Peanut						
Mongo						
Bean						

3. Do all seeds have the same parts? _____

4. Which seeds have one cotyledon? two cotyledons? _____

_____

5. *Mono* means one; *di* means two. Based on these word origins, what do you think is a monocot seed? A dicot seed? What is the difference between the two?

_____

Lesson 26: Observing the structure of fruits and seeds

Exercise A

Directions: Give the structures of the following fruits and seeds.

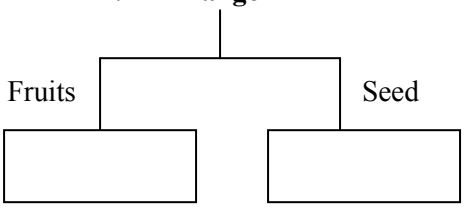
	Fruits	Seed
1. Mango	_____	_____
2. Atis	_____	_____
3. Chico	_____	_____
4. Apple	_____	_____
5. Guava	_____	_____

Lesson 26: Observing the structure of fruits and seeds

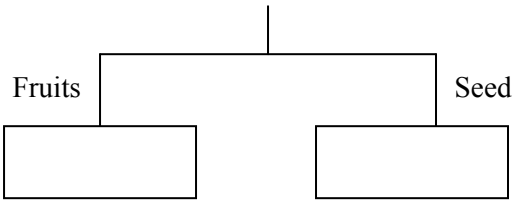
Exercise B

Directions: Give the structure of fruits and seeds.

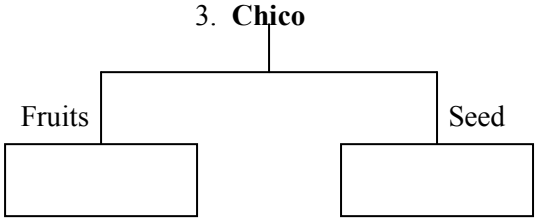
1. **Mango**



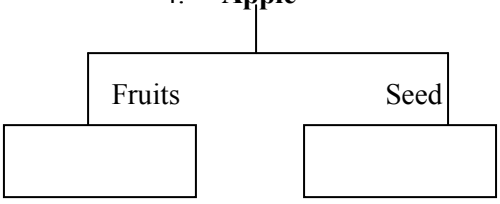
2. **Atis**



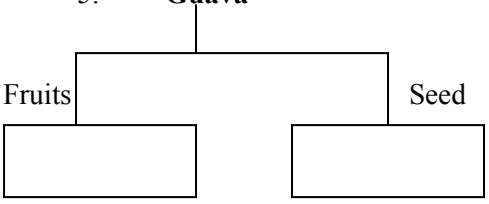
3. **Chico**



4. **Apple**



5. **Guava**



Lesson 27: Describing how certain structures and properties help in seed dispersal.

Exercise A

Directions: Name the agent of the following seed for dispersal (e.g., Wind, Water, Man, or Animals).

Seed	Agents for dispersal
1. Coconut	
2. Ipil – Ipil	
3. Bursting bean fruits	
4. Tomato	
5. Amorseco seed	
6. Corn	
7. Acacia	
8. Cogon	
9. Atis	
10. Santol	

Lesson 27: Describing how certain structures and properties help in seed dispersal.

Exercise B

Directions: Put each seed under its proper agent for seed dispersal.

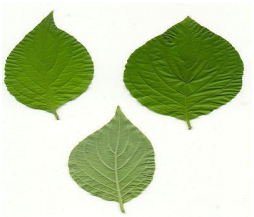
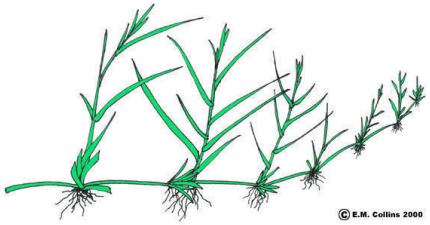
1. Coconut
2. Ipil – Ipil
3. Busting bean fruits
4. Tomato
5. Amorseco seed
6. Corn
7. Acacia
8. Cogon
9. Atis
10. Santol

Man	Water	Wind	Animals

Lesson 28: Describing how plants reproduce asexually.

Exercise A

Directions: Using a line, match each plant in Column A to how it is planted in column B.

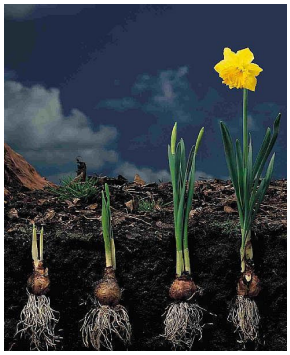
A	B
1. 	a. Stem / Cutting
2. 	b. Bulb
3. 	c. Rhizomes
4. 	d. Stolons / Runners
5. 	e. Sucker
	f. Tuber
	g. Leaves
	h. Layering
	i. Marcotting
	j. Corn

6. 

7. 

8. 

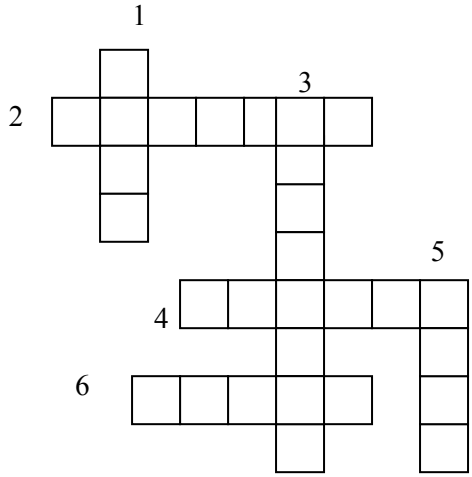
9. 

10. 

Lesson 28: Describing how plants reproduce asexually.

Exercise B

Directions: Fill in the crossword puzzle correctly.



Across:

2. A stem that grows horizontally above the ground.

4. It can grow its own roots and can be separated from the main plant.

6. It is a short, fleshy underground stem that also stores food.

Down:

1. Plants with short, underground stems and thick, fleshly leaves.

3. An elongated, fleshly underground stem that stores food like starch.

5. A growth, sprout or twig is a a plant.

Directions: Give 2 examples of plants for the following

7. Bulb - _____ _____

8. Tuber - _____ _____

9. Runner - _____ _____

10. Shoots - _____ _____

Lesson 29: Demonstrating ways of propagating plants asexually.

Exercise A

Directions: Write the names of the plants in the correct columns.

1. Guava
2. Tamarind
3. Calamansi
4. Mongo
5. Million dollar plant
6. Ivy plant
7. Per ante orange
8. Rambutan
9. Chico
10. San Francisco

Marcotting	Layering	Grafting	Budding

Lesson 29: Demonstrating ways of propagating plants asexually.

Exercise B

Directions: Find names of plants in the puzzle and write them on the correct column.

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

Marcotting	Layering	Grafting	Budding

Lesson 30: Showing how mixtures are formed.

Exercise A

Directions: Encircle the letter of the best answer.

1. Things that are made up of many kinds of distinct materials are called _____.
   a. Suspensions b. Solutions c. Mixtures

2. Which of the following is a mixture?
   a. Ink b. Diamond c. Silver

3. Mixtures composed of materials that can be seen by the naked eye.
   a. Colloids b. Solutions c. Suspensions

4. Mixture that have only one phase.
   a. Homogenous b. Heterogeneous c. Colloids

5. Which among these is a suspension?
   a. Halo – halo b. Cloud c. Leche plan

6. Which pair of materials can form a solution?
   a. Homogeneous b. Heterogeneous c. Colloids

7. Mixtures that have two or more phases are called _____.
   a. Homogeneous b. Heterogeneous c. Colloids

8. Which is an example of a colloid?
   a. Milk b. Halo – halo c. Alcohol

9. Which of the following is a homogeneous mixture?
   a. Sugar dissolved in water b. Salad c. Paint

10. Which statement best describes a suspension?
    a. Suspensions are mixtures composed of materials that are visible to the naked eye.
    b. Suspensions are homogeneous mixtures.
    c. A mixture of water and salt is an example of a suspension.

Lesson 30: Showing how mixtures are formed.

Exercise B

Directions: Match Column A with Column B. You may repeat your answers and have more than one answer per number. Write the letter of your answer on the blanks.

A	B
_____ 1. Mayonnaise	a. Heterogeneous
_____ 2. Soft drink	b. Colloids
_____ 3. Paint	c. Suspensions
_____ 4. Halo – halo	d. Solutions
_____ 5. Vinegar	e. Homogeneous
_____ 6. Soup	f. Mixtures
_____ 7. Hot coffee	g. Solid
_____ 8. Glue	i. Gas
_____ 9. Alcohol	k. Solute
_____ 10. Sand	

Lesson 31: Describing ways of separating mixtures.

Exercise A

Directions: Write P if the mixture can be separated by picking out, E if by evaporation, F by filtration, D by decantation, and M by magnet.

_____ 1. Fruit Salad

_____ 2. Mixture of water and salt

_____ 3. Coconut milk

_____ 4. Seawater

_____ 5. Water and sand

_____ 6. Sand and nail

_____ 7. Rice grain and stone

_____ 8. Water and sugar

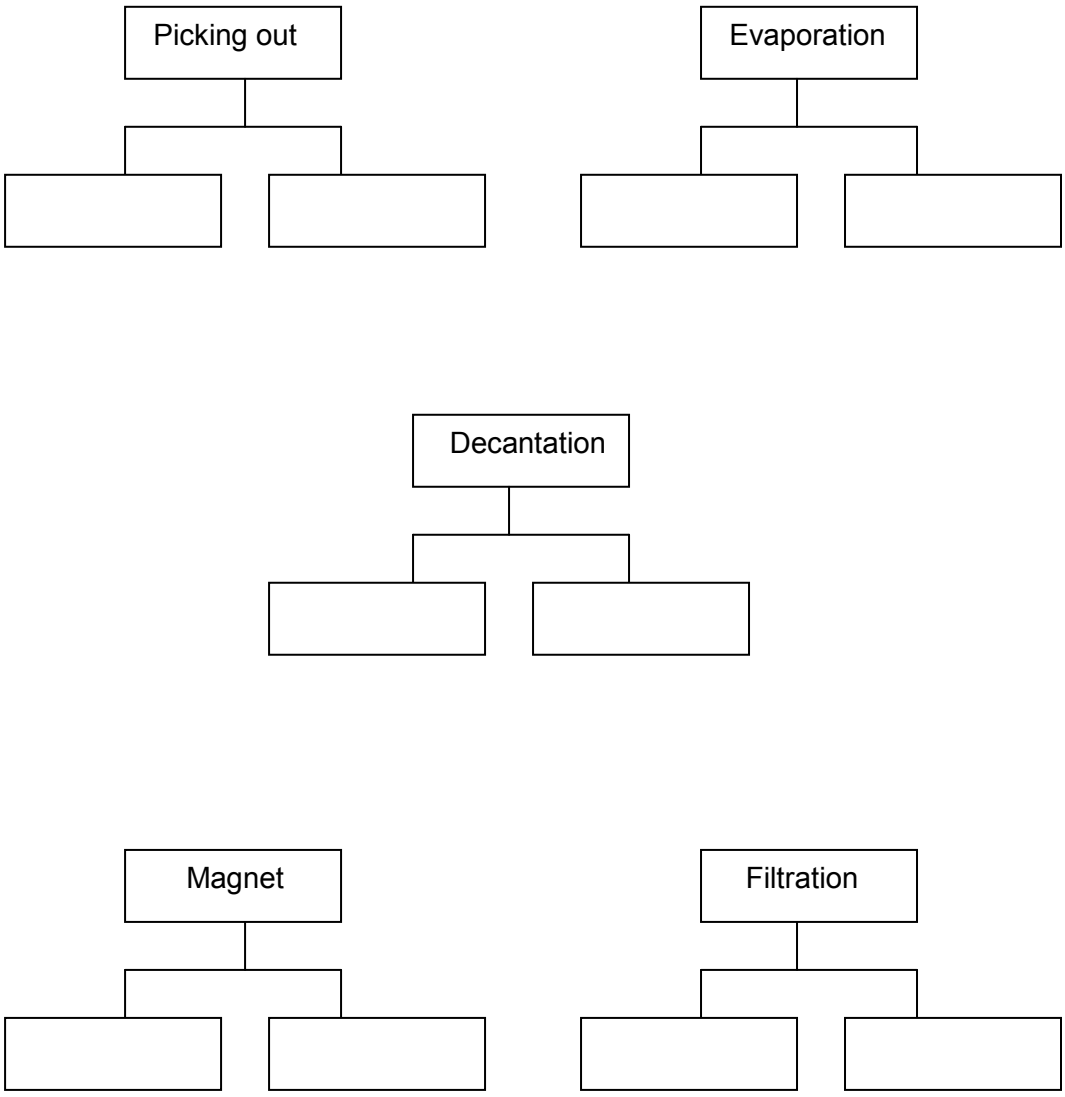
_____ 9. Baking powder and water

_____10. Pebbles, Mongo, seed, rice grains

Lesson 31: Describing ways of separating mixtures.

Exercise B

Directions: Give two types of mixtures that can be separated by the following ways.



Lesson 32: Identifying solids that can be dissolved.

Exercise A

Directions: Do the following activities then answer the question that follows.

You need: sugar, salt, powdered coffee, powdered milk, and powdered juice
5 cups, water, stick or spoon

You must: Mix the following. Then answer the questions that follow.

1. water + salt = What happened to the salt? _____

2. water + powdered coffee = What happened to the powdered coffee? _____

3. water + powdered milk = What happened to the powdered milk? _____

4. water + powdered juice = What happened to the powdered juice? _____

5. water + sugar = What happened to the sugar? _____

Lesson 32: Identifying solids that can be dissolved.

Exercise B

Directions: Classify the given solids into their proper heading.

1. sugar
2. rocks
3. leaves
4. salt
5. MSG
6. piece of wood
7. chocolate powder
8. sand
9. bread
10. candy

Solids that can be dissolved	Solids that cannot be dissolved

Lesson 33: Identifying liquids that can dissolve solid materials.

Exercise A

Directions: Classify the liquids that can dissolve the given solids. Put a chuck under the proper heading. Answer the questions that follow.

Solid Material	**Liquids**				
	Water	Alcohol	Acetone	Oil	Thinner
1. Dried Paint 2. Sugar 3. Dried Nail Polish 4. Butter 5. Salt					

1. Did the liquids dissolve all the materials? _____

2. Which materials were dissolved by

   2.a water? _____

   2.b alcohol? _____

   2.c acetone? _____

   2.d oil? _____

   2.e thinner? _____

3. Which liquids dissolved 3.a dried paint? _____

   3.b sugar? _____

   3.c dried nail polish? _____

4. Based on the activity, what conclusion can you make?

   _____

Lesson 33: Identifying liquids that can dissolve solid materials.

Exercise B

Directions: Classify the liquids that can dissolve the given solids. Put a chuck under the proper heading. Answer the questions that follow.

Material	Liquids				
	Water	**Alcohol**	**Acetone**	**Oil**	**Thinner**
1. Dried Paint 2. Sugar 3. Dried Nail Polish 4. Butter 5. Salt					

1. Did the liquids dissolve all the materials? _____

2. Which materials dissolved by water? _____
   a alcohol? _____
   b acetone? _____
   c oil? _____
   d thinner? _____

3. Which liquids dissolved dried paint? _____
   a sugar? _____
   b dried nail polish? _____

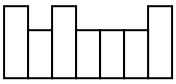
4. Based on the activity, what conclusion can you formulate?

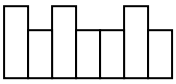
   _____

Lesson 34: Defining solvents and solutes.

Exercise A

Directions: Identify the following, fill in the boxes to get the correct word.

1.  is the substance that dissolves the solute in a solution.

2.  is the substance that is dissolved in a solution.

Directions: Identify the solute and solvent in each solution below.

	Solvent	**Solute**
1. Brine		
2. Alcohol		
3. Vinegar		
4. Orange juice		

Lesson 34: Defining solvents and solutes.

Exercise B

Directions: Write on the opposite side of the following its solute or its solvent given 2 cups of water.

1. ⅓ teaspoon of powdered milk - _____
2. 3 cups of vinegar - _____
3. Detergent soap - _____
4. 5 cups of soy sauce - _____
5. Coffee granules - _____

Directions: Give 5 examples of mixtures, identify the solute and solvent.

	SOLUTE	SOLVENT
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____

Lesson 35: Observing that some solvents can dissolve solutes faster than others.

Exercise A

Directions: Follow the procedures for the experiment below.

You need: powdered orange juice, 6 clear plastic cups, 6 teaspoons, sugar, salt, coffee granules, flour, stick, water, oil, alcohol, acetone, thinner, kerosene

What to do:

1. Label each of the 6 plastic cups with a name of a solvent.
2. Pour each solvent in each plastic cup until half full.
3. Add half – teaspoon of each substance to each plastic cup. Stir each mixture well.
4. Observe what happens.
5. Record your observations in the table below.

	Substance					Fast	Slow
Solvent	Coffee granules	Powdered juice	Flour	Salt	Sugar		
Acetone							
Alcohol							
Water							
Kerosene							
Oil							
Thinner							

a. Did the solute dissolve in all the solvents? _____

b. Which solvent dissolved most of the solute? _____

c. Based on your observation, what conclusion can you formulate?
_____

Lesson 35: Observing that some solvents can dissolve solutes faster than others.

Exercise B

Directions: Write T if the statement is true and F if it is false.

_____ 1. Sugar dissolved faster in water than in oil.

_____ 2. The best solvent for MSG is oil.

_____ 3. Water and vinegar can dissolve salt at the same time / rate.

_____ 4. Powdered chocolate dissolved faster in tap water than in hot water.

_____ 5. Oil can dissolve salt slower than vinegar.

Directions: Do the following.

Materials: 3 cups warm water powdered chocolate
tap water hot water stop watch

1. Put tap water, hot water, and warm water in separate cups.
2. Add the same amount of powdered chocolate in each cup.

3. Record the results.

   How long did the chocolate powdered dissolved in :

   a. tap water? _____

   b. warm water? _____

   c. hot water? _____

4. Based on your findings, do all solvents dissolve in the solutes at the same rate / time?

   _____

Lesson 36: Observing that some solutes spread evenly when mixed with solvents.

Exercise A

Directions: Write SE if the given solute spreads evenly when mixed with solvents and NSE if it does not.

_____ 1. Salt

_____ 2. Sugar

_____ 3. Ink

_____ 4. Oil

_____ 5. Sand

_____ 6. Powdered Milk

_____ 7. Powdered juice

_____ 8. Coffee granules

_____ 9. Pepper

_____10. Chalk dust

Directions: Answer the question.

What is a solution? _____

Lesson 36: Observing that some solutes spread evenly when mixed with solvents.

Exercise B

Directions: Tell which solutes dissolve and which ones do not dissolve in solvents

Solutes	Dissolved	Not Dissolved
1. Salt		
2. Sugar		
3. Ink		
4. Oil		
5. Sand		
6. Powdered Soap		
7. Powdered juice		
8. Coffee granules		
9. Pepper		
10. Chalk dust		

Directions: Answer the question.

What is a solution? _____

Lesson 37: Observing that some solutes, when mixed with solvents, settle at the bottom.

Exercise A

Directions: Determine whether the following is a suspension (S) or colloid (C) when mixed with water.

_____ 1. Powdered milk

_____ 2. Gravel

_____ 3. Syrup

_____ 4. Sugar

_____ 5. Wooden chips

Directions: If you want to make coffee using powdered coffee, which of the following must you do? Put a check if the following apply.

_____ 1. Heat the water

_____ 2. Sprinkle the coffee powder and leave it to rest at the bottom of the glass.

_____ 3.Stir the coffee powder into the water

_____ 4. Freeze the water

_____ 5. Crush the coffee powder into smaller particles.

Lesson 37: Observing that some solutes, when mixed with solvents, settle at the bottom.

Exercise B

Directions: Determine whether the following is a suspension (S) or colloid (C) when mixed with water.

_____ 1. Gravel

_____ 2. Wooden chips

_____ 3. Syrup

_____ 4. Powdered milk

_____ 5. Sugar

Directions: If you want to make coffee using powdered coffee, which of the following must you do? Put a check if the following apply.

_____ 1. Stir the coffee powder into the water

_____ 2. Sprinkle the coffee powder and leave it to rest at the bottom of the glass.

_____ 3. Heat the water

_____ 4. Crush the coffee powder into smaller particles.

_____ 5. Freeze the water

Lesson 38: Describing how some chemical substances can pollute land, water, and air. Describing the effects of polluted land, water, and air on people, animals, and plants.

Exercise A

Directions: Put a √ for activities that pollute the air, a X for those that pollute water, and O for land.

1. Kaingin _____

2. Throwing trash at the wrong place _____

3. Dynamite Fishing _____

4. Smoke Belching _____

5. Trash along the streets _____

6. Throwing trash at the river_____

7. Illegal logging _____

8. Oil spillage at sea _____

9. Not practicing Recyling of trash _____

10. Mining or quarrying _____

Directions: Answer the question below.

What can you do to reduce pollution in your school?

_____
_____
_____
_____

Lesson 38: Describing how some chemical substances can pollute land, water, and air. Describing the effects of polluted land, water, and air on people, animals, and plants.

Exercise B

Directions: Write the letter of the correct answer.

_____ 1. When soil is polluted, which of these could be the result?
a. plant leaves are green
b. plant growth is stunted
c. plants grow healthier

_____ 2. When water is polluted, which of these could be the result?
a. Fish are poisoned and killed.
b. Plants living in water get healthier because they absorb the waste materials.
c. Fish in the river eat garbage.

_____ 3. How can motor vehicles pollute air?
a. They emit fog.
b. They emit mostly black dirty smoke.
c. They emit loud, grating noises.

_____ 4. Which of these makes the soil acidic?
a. decayed plants and animals
b. continuous use of fertilizers
c. too much water

_____ 5. When plants do not grow well on polluted land, the result is:
a. reduced food supply
b. healthier animals
c. more vegetables for food

Directions: Some chemical substances can pollute soil, water and air. Under each column, write 5 chemicals that cause pollution to land, water, or air.

Land	Water	Air
1. 2. 3. 4. 5.		

Lesson 39: Stating that improper handling of some household substances can cause pollution.

Exercise A

Directions: Encircle the letter of the correct answer.

1. Which of the following should you avoid touching to prevent poisoning?
   a. mercury
   b. drinking water
   c. rubbing alcohol

2. Where should you throw a carton box?
   a. Biodegradable garbage bin
   b. Non biodegradable garbage bin
   c. Either A or B

3. Which of the following can cause air pollution?
   a. Oxygen
   b. Plastic garbage
   c. Carbon monoxide

4. How can you prevent water pollution?
   a. Plant trees
   b. Avoid throwing garbage near the water resources
   c. All of the above

5. Which is not a land pollutant?
   a. Garbage bags
   b. Soil
   c. Shampoo bottles

Directions: Answer the questions with a YES or a NO.

_____ 1. Is global warming bad for the environment?

_____ 2. Are landfills enough to stop land pollution?

_____ 3. Are CFC's air pollutants?

_____ 4. Is kerosene dangerous to be handled carelessly?

_____ 5. Are Aluminum cans recyclable?

Lesson 39: Stating that improper handling of some household substances can cause pollution.

Exercise B

Directions: There are common household materials that can cause pollution. Opposite each chemical, tell how you can prevent them from polluting land, water, or soil.

Material	Ways in preventing pollution
1. Plastics	
2. Kerosene	
3. Insecticides	
4. Pesticides	
5. Grease	
6. Soap	
7. Empty bottle of shampoo	
8. Empty bottle of medicine	
9. Paint	
10. Hair Spray	

Lesson 40: Describing the position of materials that have potential energy.

Exercise A

Directions: Tell which object has potential energy

1. 

_____

2. 

_____

3. 

_____

4. 

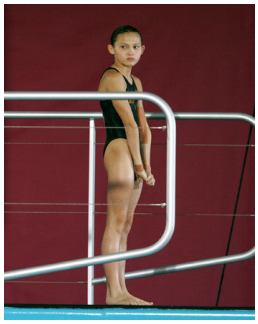
_____

5. 

_____

6. 

_____

7. 

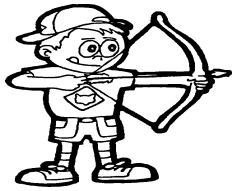
_____

8. 

_____

9. 

_____

10. 

_____

Lesson 40: Describing the position of materials that have potential energy.

Exercise B

Directions: Name ten objects / situations that show potential energy.
Ex. A fruit that hangs on a tree branch has potential energy.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

Lesson 41: Describing the condition of materials that have kinetic energy.

Exercise A

Directions: Write KE on the blanks beside the objects that have kinetic energy.

_____ 1. Waterfall

_____ 2. A running car

_____ 3. Battery

_____ 4. Volleyball at rest

_____ 5. An erupting volcano

_____ 6. A swimming fish

_____ 7. Fruits

_____ 8. Spoon on the table

_____ 9. Falling leaf on the ground

_____ 10. A boy kicking the ball

Exercise B

Directions: Put a check on the blank if the statement shows motion.

_____ 1. the spoon on the top of the table

_____ 2. the rotating blade of the electric fan

_____ 3. the wheels of a moving car

_____ 4. a stone rolling down the hill

_____ 5. a bicycle ridden by a girl

_____ 6. notebook in the bag

_____ 7. rolling skates

_____ 8. gasoline in a drum

_____ 9. a food in a plate

_____ 10. the kite flying in the sky.

Lesson 42: Differentiating potential energy from kinetic energy.

Exercise A

Directions: Write KE if the statement demonstrates kinetic energy, PE if potential energy.

1. a candle on top of the altar _____

2. children running a race _____

3. a ball on top of the bed _____

4. a diver on the diving board _____

5. pouring rain _____

6. falling Ipil – Ipil pods _____

7. waterfalls _____

8. books on the table _____

9. trashcan in the streets_____

10. a turning diver_____

Lesson 42: Differentiating potential energy from kinetic energy.

Exercise A

Directions: Tell whether there is energy in motion or energy at rest. List down in the table where each activity belongs.

1. an unlit candle
2. boys running a race
3. stone on the top of the hill
4. diver on the board
5. the rain
6. falling Ipil – Ipil pods
7. waterfalls
8. books on the table
9. needle in a box
10. woman sewing a cloth

Energy at rest	Energy in motion

Lesson 43: Showing that kinetic energy makes a material work or move.

Exercise A

Directions: Put a Check on the blanks beside the situations which demonstrate movement.

_____ 1. a bag on the floor.

_____ 2. a ball falling down the ground.

_____ 3. the wheel of a parked car.

_____ 4. a boy running on the street.

_____ 5. a marble rolling on the table.

_____ 6. the rotating blade of the electric fan.

_____ 7. book being pushed by a girl.

_____ 8. a carabao pulling the bamboo cart.

_____ 9. a closed door.

_____ 10. food stored in the refrigerator.

Lesson 43: Showing that kinetic energy makes a material work or move.

Exercise B

Directions: Put a check on the following pictures that show movement.

1. 

2. 

3. 

4. 

5. 

6. 

7. 

8. 

9. 

10. 

Lesson 44: Demonstrating that work is a way of changing energy

Exercise A

Directions: Identify the following Write your answers on the blank beside each number.

_____ 1. _____ is the capacity to do work.

_____ 2. All moving objects have _____.

_____ 3. Kinetic energy depends upon the _____ and _____

_____ 4. of an object.

_____ 5. The exertion of force that results in the movement of an object through a distance.

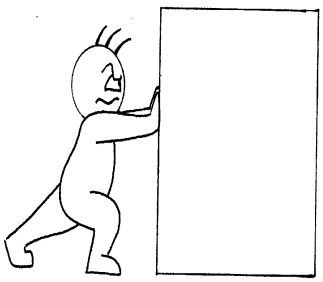
Directions: Look at the picture. Tell the ways by which work can be done to the object.

6. 

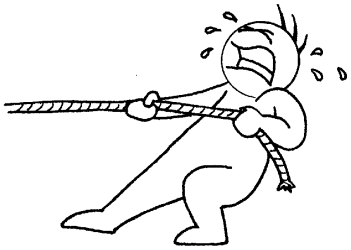
_____

7. 

_____

8. 

_____

9. 

_____

10. 

_____

Lesson 44: Demonstrating that work is a way of changing energy

Exercise B

Directions: Fill in the blanks with the correct word or words.

1. The push or pull that makes things move is called _____.

2. When you walk on the ground, your feet push down. At the same time, the ground pushes up. This is an example of _____ forces.

3. A moving object will keep moving while a still object will remain still. This is called _____.

4. A ball is on the table. You can make it move by applying _____ on it.

5. A ball is rolling. You can stop it when you apply _____ on it.

Directions: How can you make each object move? Write push, pull, or push and pull on the blank.

6. Kicking the ball _____

7. Flower Vase on top of the table _____

8. Door _____

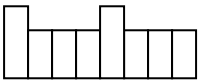
9. Yoyo _____

10. Top _____

Lesson 45: Identifying conditions when friction occurs to resist motion.

Exercise A

Directions: Fill in the box to make the statement correct.

 is what resists motion.

Directions: How can you create friction? Tell and Draw two ways.

1.
_____

2.
_____

Exercise B.

Directions: On the blanks, draw ☺ if the statement / word resist motion and ☹ if it does not.

_____ 1. moving car on a slippery road

_____ 2. weight

_____ 3. contact of two heavy objects

_____ 4. shoes and slippers that have spikes

_____ 5. two rough surfaces

_____ 6. walking on newly cleaned floor

_____ 7. road with humps

_____ 8. brakes of the bicycle

_____ 9. smooth objects

_____ 10. sandpaper

Lesson 46: Comparing how objects move on different surfaces.

Exercise A

Directions: Using the given objects below, identify whether they are smooth or rough then put them under the proper box then check if they increase or decrease friction.

Smooth surface	**Increase**	**Decrease**
Ex. Wet floor		√
Rough surface	**Increase**	**Decrease**

Linoleum Mirror

Sand paper Floorwax

Shoes with spikes Stone / rocks

Rough roads

Lesson 46: Comparing how objects move on different surfaces.

Exercise B

Directions: Write T if the statement is correct, F if it is not.

_____ 1. The amount of friction depends on the kind of materials in contact.

_____ 2. It is easy to push a box on a rough surface than on a smooth surface.

_____ 3. Mirror has a smooth surface.

_____ 4. It is better to wear shoes or slippers with rough soles to avoid slipping.

_____ 5. Objects move faster on smooth surfaces because smooth surfaces have less friction and less resistance to a moving object.

_____ 6. Brakes help the car stop when needed.

_____ 7. Objects move with the same ease on a rough or smooth surface.

_____ 8. Applying floor wax makes a surface rough.

_____ 9. Rough surfaces increase friction.

_____ 10. It is easier to travel on a rough surface then on a cemented road.

Lesson 47: Inferring that rough surfaces increase friction.

Exercise A

Directions: Which situations tend to increase friction? Put a check on the blank before the number.

_____ 1. applying grease to the hinge of the door

_____ 2. walking on a path covered with the sand and pebbles

_____ 3. using shoes with spikes

_____ 4. applying floor wax on the floor

_____ 5. rubbing sand paper on a piece of wood

_____ 6. putting oil on pedal chains

_____ 7. wiping the glass with tissue paper

_____ 8. put grooves to a flashlight

_____ 9. crumpling a sheet of paper

_____10. rubbing alcohol on the palms of the hands

Exercise B

Directions: Do the following.

1. Get an object with a rough surface.
2. Cover ½ portion of the object with plastic sheet or wax paper.
3. Push 2 similar wood blocks at the same time on top of the object, one on the uncovered surface and the other on the covered surface.

Directions: Answer the following questions:

a. Where did the wood move easily?
_____

b. What kind of surface did it move slowly?
_____

c. Do rough surface increase friction?
_____

Lesson 48: Describing the condition necessary for producing heat.

Exercise A

Directions: Find the words in puzzle which are necessary for producing heat.

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

Directions: Identify the following terms.

1. F __ __ c __ __ o n and Ele __ tr __ ci__ __ produce heat.

2. F __ e__ s are materials which may be burned to produce heat.

3. Continuous and enough supply of ox__ g__ __, enough to raise the fuel to its ig __ i __ ion p__ __ nt is necessary to make fuels burn and produce h __ __ t.

Lesson 48: Describing the condition necessary for producing heat.

Exercise B

Directions: Complete the missing letters to form the correct terms.

1. F __ e __ s

2. H __ __ t

3. El __ c t __ __ __ __ ty

4. F __ __ __ ti __ n

5. O __ y __ __ n

6. K __ __dli __ __ p __ in __

Directions: Define the following:

7. Fuels - _____

8. Friction - _____

9. Kindling Point - _____

10. Heat - _____

Lesson 49: Observing that heat transfers from a hot to a cold body.

Exercise A.

Directions: Do the following experiment.

You need: spoon
hot water
bowl

What to do:

1. Put some water into the bowl.

2. Put the metal spoon into the bowl of hot water.

3. Observe, answer the following questions:

    a. Did the bowl's temperature change as the hot water was poured into it? _____

    b. Did the metal spoon's temperature change when you dipped it in the bowl with hot water? _____

    c. What caused the bowl to become hot? _____

    d. How about the spoon? _____

    e. So, was there a transfer of heat? _____

Directions: Give the three methods of heat transfer

1. _____

2. _____

3. _____

Lesson 49: Observing that heat transfers from a hot to a cold body.

Exercise B

Directions: Write True if the statement is true, False if it is not.

_____ 1. Heat is caused by rapidly moving molecules.

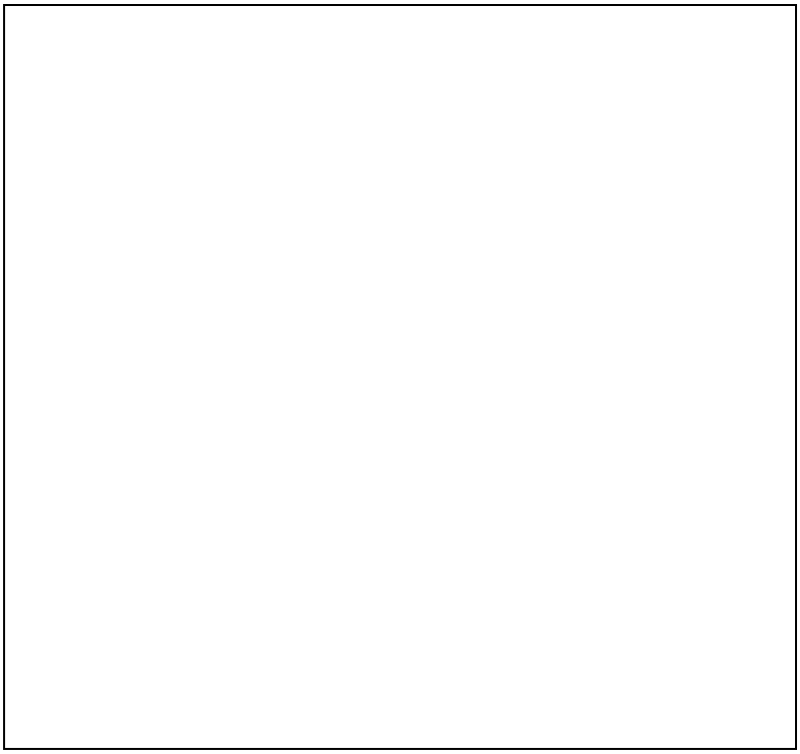
_____ 2. Heat can also transfer by waves through space.

_____ 3. Heat can only be transferred in solids.

_____ 4. A stone under the sun becoming warm is an example of heat transferred from a hot to cold body.

_____ 5. Conduction is a method of heat being transferred from molecule to molecule

Directions: Draw an illustration showing the movement of heat from hot to cold body.



Lesson 50: Explaining how heat is produced during the energy transformation.

Exercise A

Directions: Complete the words to make the statements correct.

1. H__ __ t is produced from many kinds of fuel. It travels from an area of higher temperature to an area of lower temperature.

2. When stored energy is reactivated com__ __ __ t__ o __ could possibly occur.

3. When heat is transferred through a material, the process is called co__ d__ c__ __ on.

4. The energy emitted from a source in the form of rays or waves (e.g. heat, light, or sound) is called ra __ ia __ ion.

5.When heat is transferred because of temperature difference, the process is called c__nve__ t__on.

Directions: Use the following devices, observe how energy changes.
Ex. Oven toaster ⟶ electrical energy to heat.

1. lamp ⟶ _____

2. electric fan ⟶ _____

3. toy car ⟶ _____

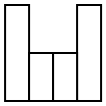
4. clock _____

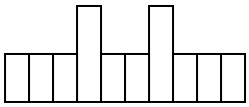
5. calculator ⟶ _____

Lesson 50: Explaining how heat is produced during the energy transformation.

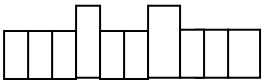
Exercise B

Directions: Fill in the boxes to get the word that would make the statement correct.

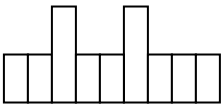
1.  is produced from many kinds of fuel. It travels from an area of higher temperature to an area of lower temperature.

2. When stored energy is reactivated,  occurs.

3. The energy emitted from a source in the form of rays or waves (e.g. heat, light, or sound)



4. When heat is transferred through air space the process is called



5. When heat is transferred because of temperature difference, the process is called:

Directions: Use the following devices observes how energy changes.

Ex. Oven toaster → electrical energy to heat.

1. cassette recorder → _____
2. refrigerator → _____
3. bicycle → _____
4. television → _____
5. jeepney → _____

Lesson 51: Describing the change in physical / chemical state of an object caused by heat.

Exercise A

Directions: Write A if it is caused by taking in heat and N if it does not.

_____ 1. Cool air in an air-conditioned room.

_____ 2. Freezing water

_____ 3. Boiling water

_____ 4. Ice candy

_____ 5. Melting candle wax

_____ 6. Boiled eggs become hard.

_____ 7. Change in color of cooked shrimps.

_____ 8. Cold food in refrigerator.

_____ 9. Pork becomes soft after boiling.

_____10. Ice cream

Exercise B

Directions: Write P if it is a physical change and C if a chemical change.

_____ 1. boiling water

_____ 2. fried fish

_____ 3. burning paper

_____ 4. stretching rubber

_____ 5. cooking leche flan

_____ 6. burning railroad tires

_____ 7. bending of wire using fire.

_____ 8. burning candle

_____ 9. melting ice

_____ 10. boiling egg

Lesson 52: Showing how heat travels by conduction from hot to cool bodies.

Exercise A

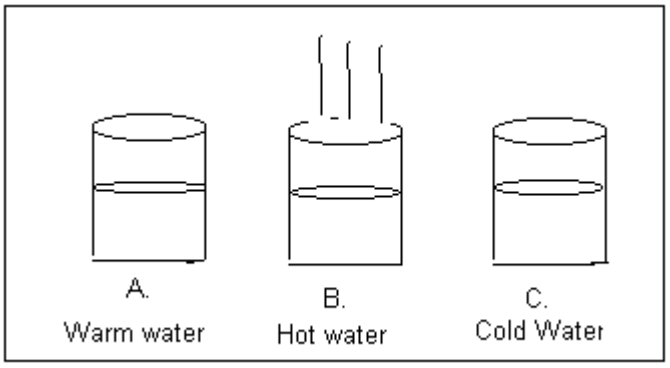
Directions: Rearrange the letters to form the mystery word.

D U T C O N C I O N: _____

Directions: Perform the following experiment:

You need: 3 glasses
warm water
cold water
hot water
spoon

What to do:



a. Take note of the different temperatures in each glass.

b. Pour the water in glass B to glass C. What happened to glass C?

_____

c. Dip a spoon into a cup of hot water? What happened to the spoon, is the spoon hot or cold?

_____

d. How does the heat travel in solids? _____

Lesson 52: Showing how heat travels by conduction from hot to cool bodies.

Exercise B

Directions: Observe as the teacher will perform the following experiment.

You need: candle
spoon

What to do:

1. Light the candle.
2. Hold a spoon over the flame for two to three minutes.

Answer the following:

a. What do you think happened to the temperature of the spoon? _____

b. What caused the temperature change of the spoon? _____
_____

c. When you leave a spoon in a bowl of hot soup, the spoon will become hot.
How does the heat travel in the spoon? _____

Directions: Rearrange the letters to from the mystery word.

D U T C I O N C O N : _____

Lesson 53: Showing that heat travels by radiation through space.

Exercise A

Directions: Rearrange the letters to form the mystery words:

a. T I O N V E C C O N - _____

b. R I O N A I D T A - _____

Directions: Write C if heat transfer through Convection R if through radiation.

_____ 1. Clothes in the clothesline.

_____ 2. Microwaving chocolate doughnuts.

_____ 3. Ironing clothes.

_____ 4. Broiling of barbecue over charcoal.

_____ 5. Feeling warm under the sun.

_____ 6. A fireplace making a room warm.

_____ 7. Roasting lechon.

_____ 8. A room becomes warm when you turn off the electric fan.

Lesson 53: Showing that heat travels by radiation through space.

Exercise B

Directions: Perform the following experiments.

A.

You need: spoon
metal wire
wood, water, beaker or drinking glass, tripod(if available)
paper, mongo seed
wire gauzes

What to do:

1. Place each object in the sunlight for one hour.
2. After an hour, feel the objects. Are they warm? _____.
3. What caused the increase in the temperature of each object?
   _____.
4. Based on your activity, In what way does heat travel?_____.
5. Why do all things under the sun feel warm?
   _____
   _____.

B. You need: alcohol lamp, tripod, wire gauze, beaker

1. Fill ¾ of the beaker with water.
2. Put mongo seeds into the beaker with water.
3. Exercise up the alcohol lamp, tripod and wire gauzes.
4. Allow the water to boil. Observe what happen.

* if these materials are not available, you can ask an adult to use a pan, fill it with some water, put the mongo seeds in the pan then allow the water to boil. Observe what will happen.

Directions: Answer the following questions:

1. Describe the movement of the mongo seeds?
   _____
2. Why did the mongo seed move that way?
   _____

Directions: Rearrange the following letter to form the mystery words:

1. V E C C O N T I O N - _____
2. N A I D R I O T - _____

Lesson 54: Describe Ways of Preventing Fire

Exercise A

Directions: Put a check mark on the blank before the number if the practice will prevent fire.

_____ 1. Keep flammable materials, such as paper, curtain and clothes away from a stove or lighted candle.

_____ 2. Turn on television or other appliances for long hours.

_____ 3. Avoid overloading an electrical outlet.

_____ 4. Put out flame from the candle before going to bed.

_____ 5. Allow children to play with matchsticks.

_____ 6. Examine LPG tanks regularly for leaks.

_____ 7. Repair faulty electrical wires.

_____ 8. Use safe and non-flammable cleaning fluids at home.

_____ 9. Be sure to turn the LPG tank off before you leave it.

_____ 10. Worn – out electric wires and outlets should be repaired or replaced immediately.

Lesson 54: Describe Ways of Preventing Fire

Exercise B

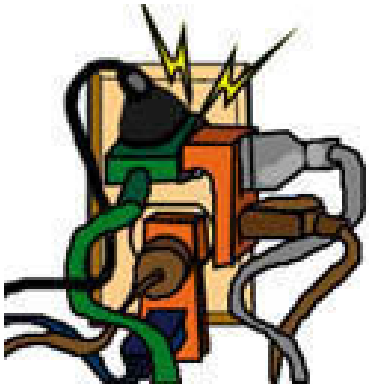
Directions: Look at the pictures below. Put a check mark on the picture if the following practices will prevent fire.

1. 

2. 

3. 

4. 

5. 

6. 

7. 

8. Fire station:
639-6688

Hospital:
541-6413

9. 

10. 

Lesson 55: Describes condition necessary in putting out fire. Follow safety rules / emergency measures in case of fire.

Exercise A

Directions: Interview a fireman nearest to your town / Barangay (You could also ask your parents if there is no fireman available). Accomplish the lists below.

A. List 5 ways in putting out fire.

1. _____
2. _____
3. _____
4. _____
5. _____

B. List 5 ways safety rules in case of fire.

1. _____
2. _____
3. _____
4. _____
5. _____

Exercise B

Directions: Answer the following questions correctly.

1. What are the ways you can do to prevent fire?

_____

_____

_____

_____

_____

_____

_____

2. What are the safety rules you can do in case of fire?

_____

_____

_____

_____

_____

_____

Lesson 56: Demonstrating how excessive land manipulation causes soil erosion

Exercise A

Directions: Perform the experiment correctly.

You need: Shallow dish or pan
Soil
Block of wood
Sprinkle
Water
Rubber
Gloves
Catch basin

1. Wear gloves. Make a mud mound on shallow or pan.

2. Moisten and mold the mound and make a small hill.

3. Place a block of wood under the pan. This will make the mound's slope steeper.

4. Use a sprinkle to water the mound. Describe the appearance of the mound?

   _____

   _____

5. What happens to the soil and rock particles when carried away or eroded by flowing water?

   _____

6. Looking at the mountains that have no more trees due to illegal logging, how could rain/water worsen soil erosion? _____

Lesson 56: Demonstrating how excessive land manipulation causes soil erosion

Exercise B

Directions: Perform the experiment.

You need: An Electric fan
Old newspaper
Dry sand
Cover of biscuit box

1. Place the dry sand in the cover of a biscuit box.
2. Turn on the electric fan over the soil.
3. Observe what happens.
    a. What happens to the soil when the electric fan was turned on?

       _____.
    b. Where does the soil particle go? _____
    c. How is soil carried away? _____

       _____

       How does wind worsen soil erosion? _____

       _____
    d. How does strength of wind affect soil erosion? _____

       _____

Lesson 57: Describing how people and animals cause soil erosion.

Exercise A

Directions: Elaborate more on how the following human activities could cause weathering of rocks and soil erosion.

a. Road construction =

_____

b. Cutting of tree =

_____

c. Mining =

_____

d. Painting =

_____

e. Quarrying =

_____

Exercise B

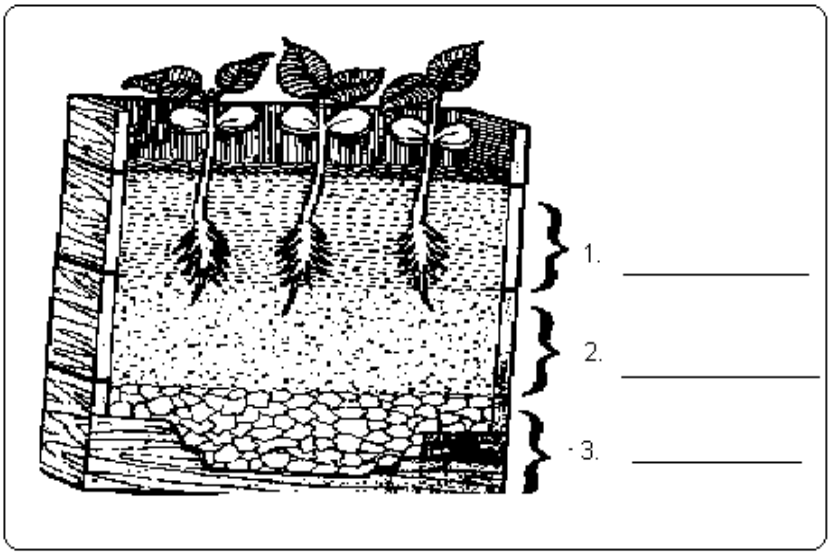
Directions: Describe how the following activities can cause erosion.

1. Farming
2. Mining
3. Cutting trees
4. Using dynamite
5. Construction of roads
6. Kaingin
7. Illegal logging
8. Quarrying

Lesson 58: Explaining how erosion affects the condition of the soil

Exercise A

Directions: Study the picture below. Identify the following then write the descriptions/functions of each layer below the picture.



Top soil - _____

_____

Sub soil - _____

_____

Bedrock - _____

_____

Directions: Answer the following correctly.

1. How does erosion affect the condition of the soil?

   _____

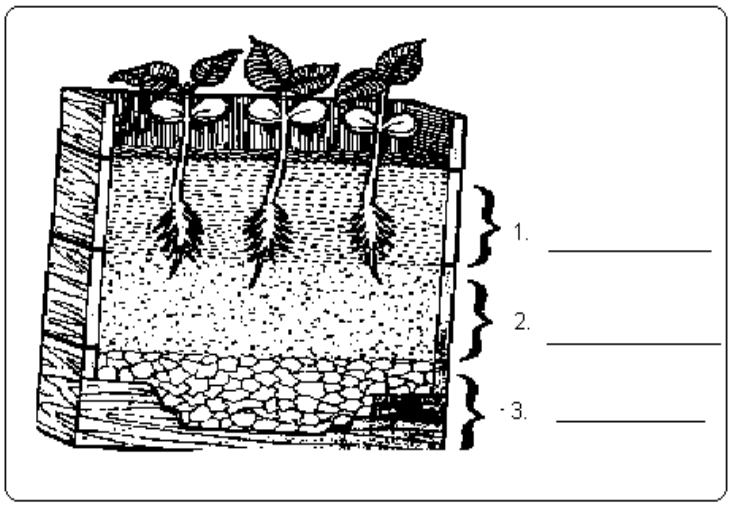
   _____

2. Give 5 examples through which erosion affects the condition of the soil.
   a. _____
   b. _____
   c. _____
   d. _____
   e. _____

Lesson 58: Explaining how erosion affects the condition of the soil

Exercise B

Directions: Study the picture below. Identify the following then write the descriptions/functions of each layer below the picture.



Directions: Explain the function and description of the answers to Part I.

_____

_____

_____

_____

_____

_____

What does the erosion do to the soil? _____

_____

Directions: Give 5 effects of erosion to humans.

a. _____

b. _____

c. _____

d. _____

e. _____

Lesson 59: Identifies the different ways of preventing soil erosion.

Exercise A

Directions: Using a line, Match the descriptions in column A to the word/s being described in column B.

Column A	B
1. trees and other plants are planted to deflect air currents	a. planting Trees
2. ridges on the hillside that slow downs the flow of water and prevent soil erosion	b. ripraps
3. plant and crops are planted across the slope of the land to slow down the flow of water and prevent soil erosion	c. crop rotation
4. allows vegetation such as grass to continue growing in certain parts of the grazing field	d. contour farming
5. Planting of different crops on a particular area at different times.	e. terracing
6. Plants are planted in bare areas.	f. strip cropping
7. Allows water to be absorbed by their roots. Absence of this can cause landslide and floods.	g. cover cropping
8. Two types of crops are planted in alternating rows.	h. ponds
9. Stones cemented in steep slopes of land laid together to prevent landslides.	i. keeping grazing animals far apart
10. An enclosure that collects water.	j. wind beakers

Lesson 59: Identifies the different ways of preventing soil erosion.

Exercise B

Directions: Identify and describe the following.

1. strip cropping

2. contouring

3. terracing

4. field and gully planting

5. wind beaker

6. crop rotation

7. crop cover

8. ponds

9. ripraps

10. planting trees

Lesson 60: Describing how forests prevent soil erosion.

Exercise A

Directions: Perform the experiment.

You need: rectangular trays
soil samples
sprinkle with water
grasses or plants

What to do:

1. Fill the 2 rectangular trays with the same amount and kind of soil.

2. Put grass or plants on one tray.

3. The other with no grass or plants.

4. Sprinkle the same amount of water to both trays.

5. Which tray has more soil left? _____

Directions: Give evidences that forests can prevent soil erosion.

6. _____
7. _____
8. _____
9. _____
10. _____

Lesson 60: Describing how forests prevent soil erosion.

Exercise B

Directions: Answer the questions correctly.

1. What is the reason why we need to plant trees, not only in the forest, but even in our own school and yard?

_____

_____

_____

_____

_____

2. How do forests prevent soil erosion?

_____

_____

_____

_____

_____

Lesson 61: Demonstrate how to prevent soil erosion

Directions: Perform the experiment and answer the questions that follow.

You need: 3 plastic cups
Mongo seed
Grass
Soil

What to do:

1. Put about the same amount of soil in the 3 plastic cups.
2. Plant the grass in one cup and the Mongo seed in another.
3. Water all 3 cups for a week.
4. Remove the soil from the cups and place on an area where it is visibly elevated (pulling the plants out / cutting or tearing the cups).
5. Continue watering the mounds of soil for a week while observing the height of the 3 mounds.

1. Which of the three mounds lost the most amount of height? The least?

   _____

   _____

2. Relate this to forest and the effects if deforestation.

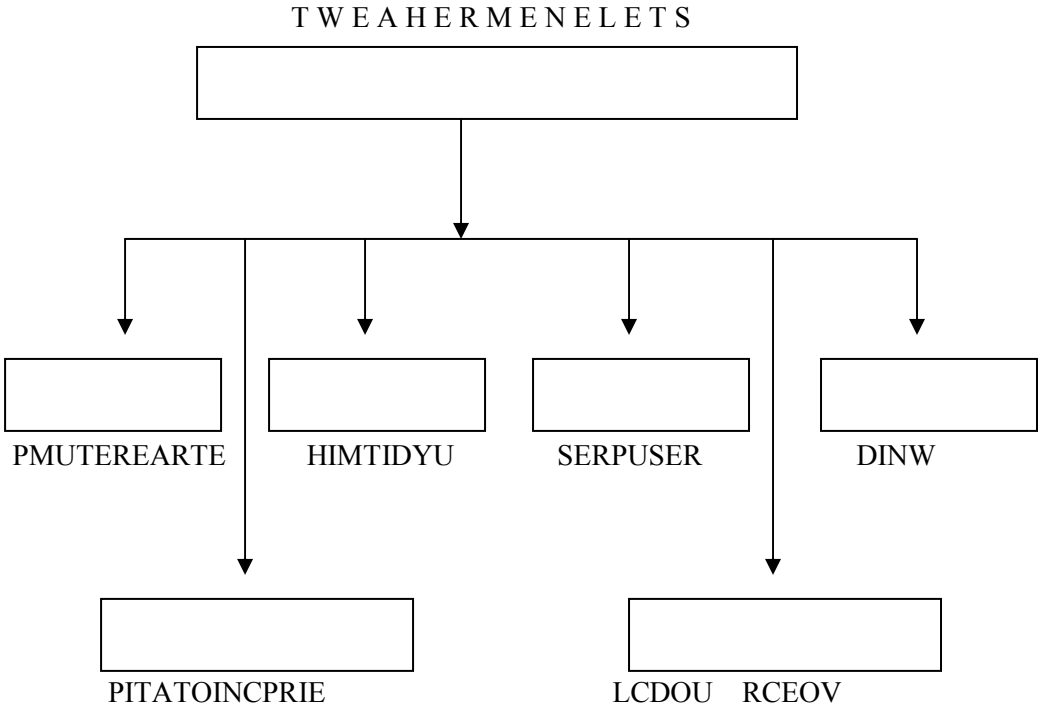
   _____

   _____

Lesson 62: Inferring that weather elements affects daily weather condition.

Exercise A

Directions: Rearrange the letters to form the mystery words. Write them on the boxes.



Directions: Answer the question correctly.

How do the weather elements affect daily weather condition?

_____

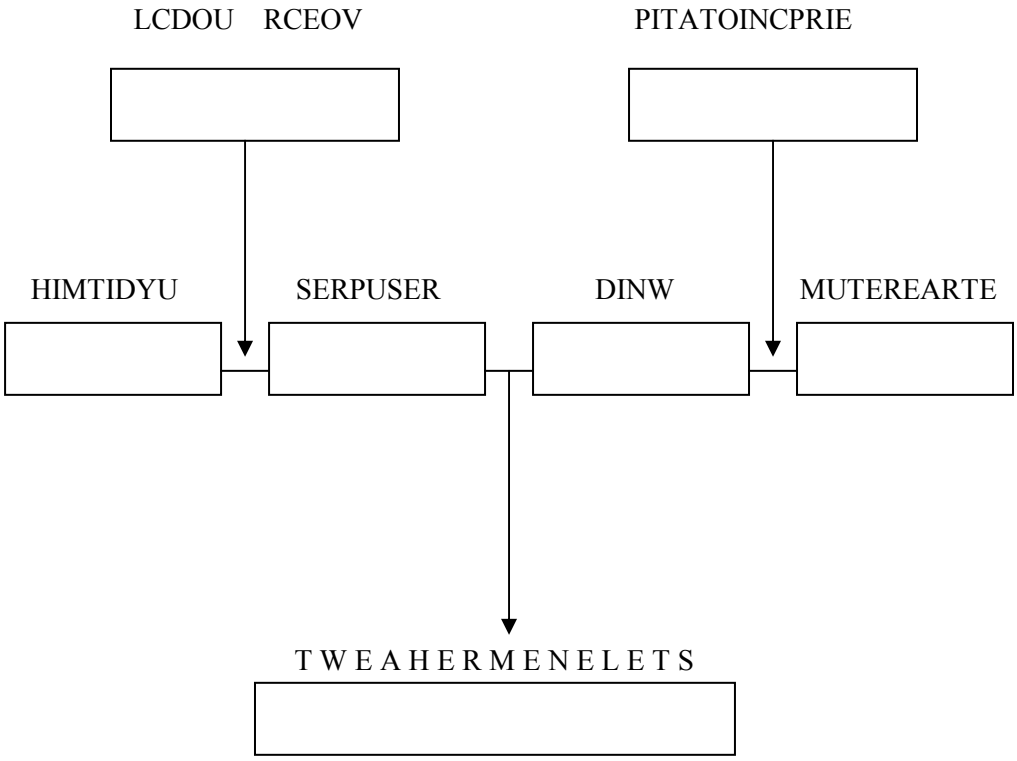
_____

_____

Lesson 62: Inferring that weather elements affects daily weather condition.

Exercise B

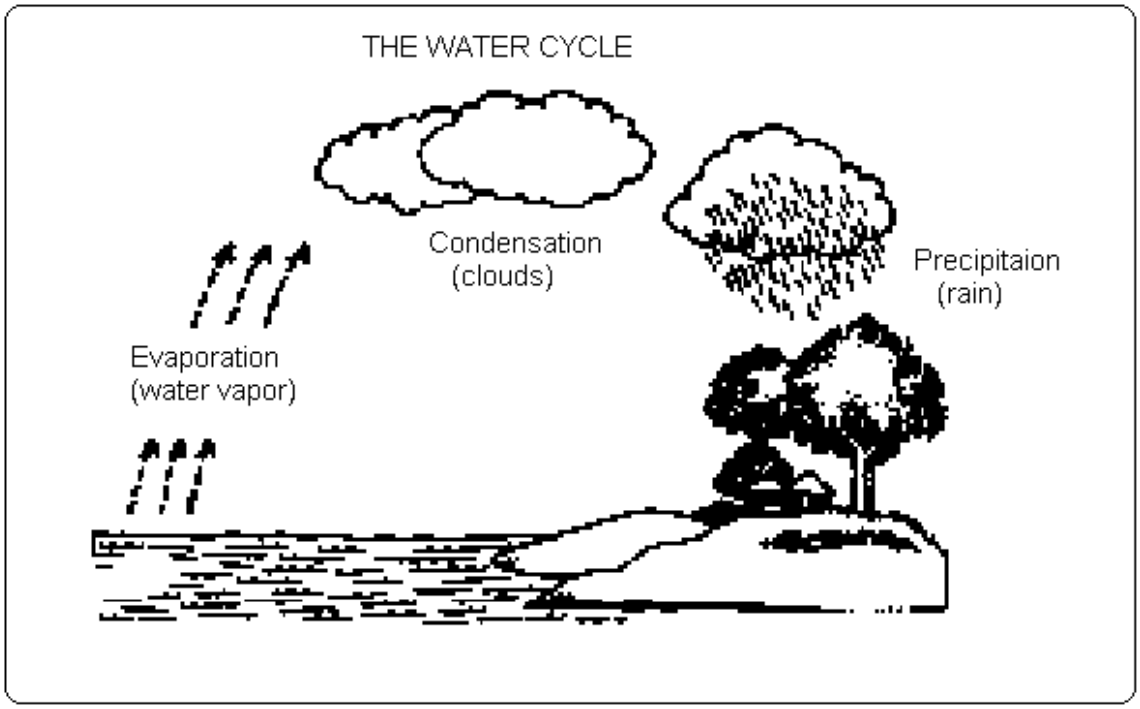
Directions: Rearrange the letters to form the mystery words. Write them on the boxes.



Lesson 63: Observing how clouds are formed.

Exercise A

Directions: Study the illustration below then answer the questions.



1. Describe how clouds are formed.

_____

_____

_____

2. Explain why cloud formation is important?

_____

_____

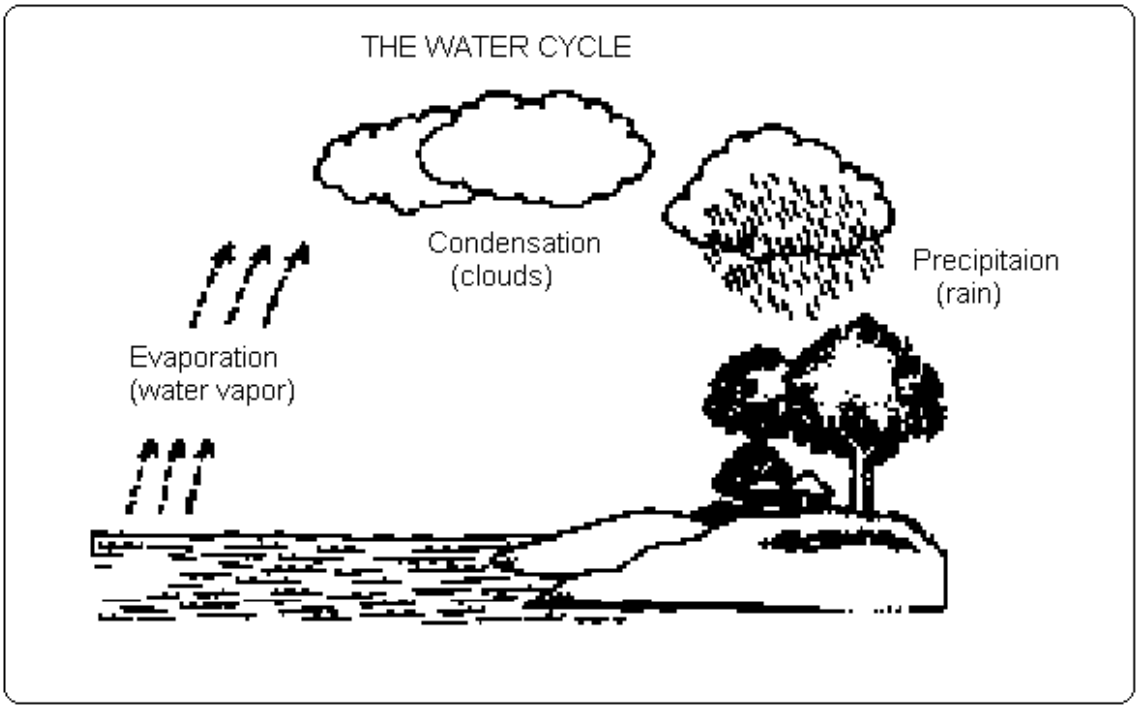
Directions: Give the 4 types of clouds.

1. _____
2. _____
3. _____
4. _____

Lesson 63: Observing how clouds are formed.

Exercise B

Directions: Study the illustration below then answer the questions.



Show in general how clouds are formed:

_____

_____

What is the importance of having clouds, what will happen if they don't exist?

_____

_____

Directions: Give the 4 types of clouds.

1. _____
2. _____
3. _____
4. _____

Lesson 64: Demonstrate how air temperature is measured using a thermometer.

Exercise A

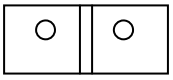
Directions: Perform the experiment then answer the questions that follow.

You need:

matchsticks	candle	thermometer
shoe box	cardboard	
cutting materials	ice cubes	

Procedure:

1. Cut a line that runs through the middle of the shoebox cover and insert a piece of cardboard in the hole to divide the inside of the box into two sections.

2. Punch a hole on opposite sides of the shoebox cover 

3. Place ice cubes on one side of the inside of the shoebox and a cup with hot water on the other side.

4. Place a thermometer on one hole and record the temperature. Do the same for the other.

5. At what side is the temperature higher?

_____

_____

6. Create a diagram showing that cold air sinks and warm air rises, place arrowheads in the diagram to show the path of air.

Lesson 64: Demonstrate how air temperature is measured using a thermometer.

Exercise B

Directions: Perform the experiment.

You need: 2 thermometers (you can work in pairs, each one will bring a thermometer)

What to do:

1. Place one thermometer inside the shoebox and the other outside the shoebox.
2. Record the thermometer readings every 30 minutes.
3. Complete the chart below based on your findings.

Time	Inside the shoebox	Outside the shoebox
8:30 a.m.		
9:00 a.m.		
9:30 a.m.		
10:00 a.m.		
10:30 a.m.		

Directions: Answer the following.

1. The hotness or coldness of an object is called _____.
2. An instrument used to measure temperature is called _____.
3. Does the temperature change during the day? _____.
4. How did the temperature inside the shoebox change throughout the day?
5. At what time of the day is the air warmest inside the shoebox?
6. How about outside the shoebox, what time of the day is the air warmest?
7. Which has a cooler temperature, the inside of the shoebox or the outside of the shoebox?

Lesson 65: Recording air temperature reading in chart form.

Exercise A

Directions: Perform the experiment.

You need:
Laboratory thermometer or a simple thermometer when this will be done at home

What to do:

1. Observe and record the daily temperature for one week.
2. Complete the chart below.

The Air Temperature Chart

Date/Day	**Time**		**Temperature for the Day**	
Ex. Dec. 1/ Mon	A.M. 7:00	P.M. 3:00	A.M. 28˚C	P.M. 29.5˚C
1.				
2.				
3.				
4.				
5.				
6.				
7.				

Directions: Answer the following questions.

1. What day has the lowest air temperature? _____.
2. What is the lowest temperature reading? _____.
3. What day has the highest air temperature? _____.
4. What is the highest temperature reading? _____.
5. Is air temperature the same at all times? _____.

Lesson 65: Recording air temperature reading in chart form.

Exercise B

Directions: Perform the experiment.

You need: Laboratory thermometer, or a simple thermometer when this will be done at home

1. Observe and record the daily temperature for a week.
2. Complete the table below:

Date/Day	Time		Temperature for the Day	
1.				
2.				
3.				
4.				
5.				
6.				
7.				

Directions: Answer the following questions.

1. What day has the highest air temperature? _____

2. What is the highest temperature reading? _____

3. What day has the lowest air temperature? _____

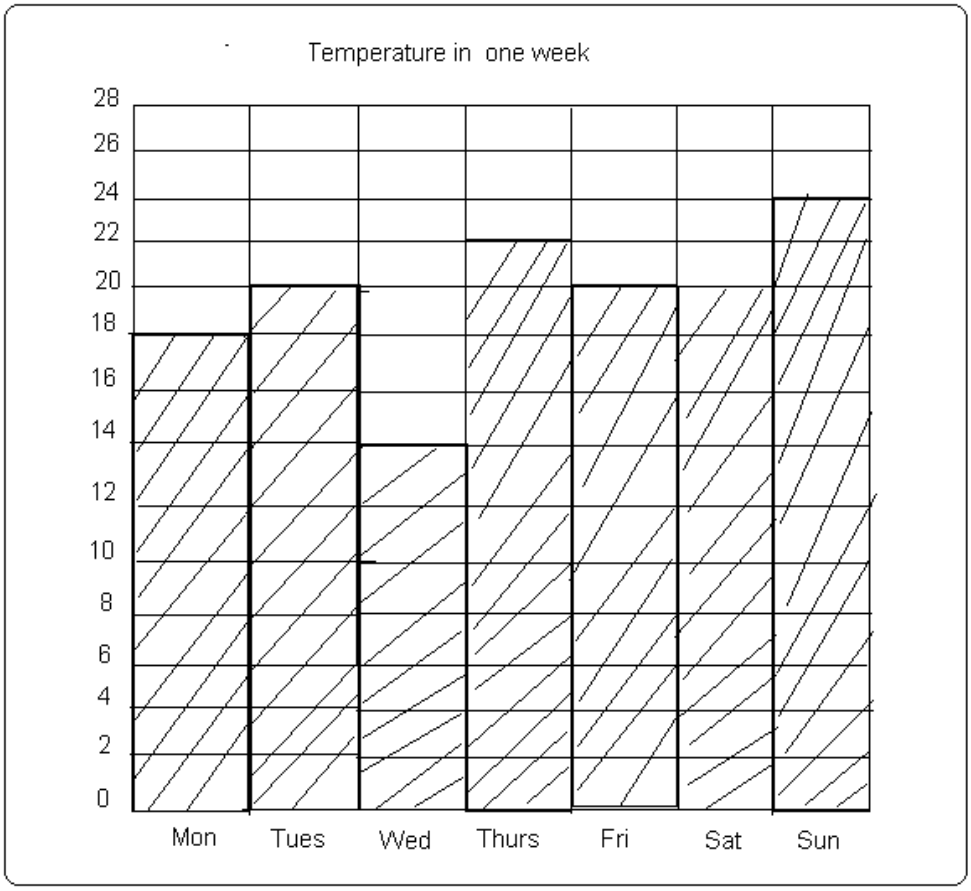
4. What is the lowest temperature reading? _____

5. Is air temperature the same at all times? _____

Lesson 66: Comparing air temperature readings in different weather conditions.

Exercise A

Directions: Using the bar graph below, answer the following questions:

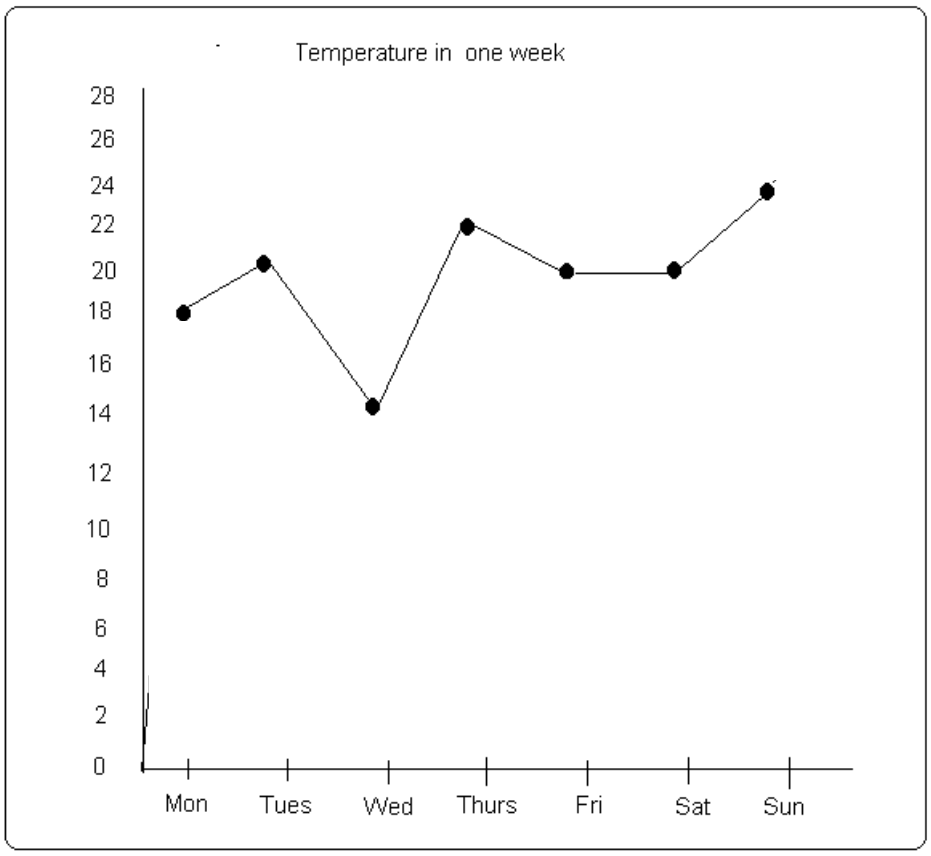


1. Which day has the highest temperature? _____
2. Which day has the lowest temperature? _____
3. What is the difference between the lowest and the highest temperature? _____.
4. During which day is the temperature 20°C? _____
5. What is the difference between the temperature on Monday and Thursday? _____

Lesson 66: Comparing air temperature readings in different weather conditions.

Exercise B

Directions: Using the line graph below, answer the following questions:



1. Which day has the lowest temperature? _____
2. Which day has the highest temperature? _____
3. What is the difference between the lowest and the highest temperature? _____
4. During which day is the temperature 20˚C? _____
5. What is the differenc between the temperature on Thursday and Saturday? _____

Lesson 67: Interpreting the weather condition from air temperature reading.

Exercise A

Directions: Study the table below

The Air Temperature

Day	Temperature	
	8:00 a.m.	2:00 p. m.
1. Monday	26.5°c	31.5°c
2. Tuesday	28.5°c	32.1°c
3. Wednesday	24° c	24°c
4. Thursday	27°c	30°c
5. Friday	30°c	32°c
6. Saturday	22°c	28°c
7. Sunday	31°c	33°c

Directions: Write T if the statement is true and F if the statement is false.

_____ 1. Sunday morning at 8:00 a.m. is a sunny day.

_____ 2. The highest temperature recorded is 32.1°c.

____ 3. It is best to wear a jacket on Monday afternoon.

_____ 4. Wednesday has the lowest temperature during the week.

Lesson 67: Interpreting the weather condition from air temperature reading.

Exercise B

Directions: Study the table below and answer the questions that follow.

The Air Temperature

Day	Temperature	
	8:00 a.m.	**2:00 p. m.**
1. Monday	25.5°c	29.5°c
2. Tuesday	28.5°c	31.5°c
3. Wednesday	26.5° c	32°c
4. Thursday	28°c	31.5°c
5. Friday	27°c	30°c
6. Saturday	25°c	31°c
7. Sunday	24.5°c	33.5°c

Directions: Write T if the statement is true and F if the statement if it is false.

_____ 1. Sunday morning is a sunny day.

_____ 2. The highest temperature recorded was 32°c.

_____ 3. The temperature on Thursday at 8:00 a.m. was 28°c.

_____ 4. When should you wear a jacket, in the morning on Thursday?

_____ 5. The lowest temperature was recorded on Friday afternoon.

Directions: In general what do you notice about the temperature everyday? (Comparing 8:00 a.m. with 2:00 p.m.)

_____

_____

Lesson 68: Observing changes in wind speed and direction

Exercise A

Directions: Study the chart.

Date	Time	Wind Speed	Wind Direction
May 22	9:00 a.m.	Gentle	Northwest
	4:00 p.m.	Moderate	Northwest
May 23	9:00 a.m.	Moderate	East
	4:00 p.m.	Strong	East
May 24	9:00 a.m.	Moderate	West
	4:00 p.m.	Light	Southwest

Direction: Draw a smiling face (☺) if the sentence is true and a frowning face (☹) if the sentence is false.

_____ 1. The weather in one place may differ from the weather in another place.

_____ 2. The temperature of air can change suddenly.

_____ 3. A wind vane tells the speed of the wind.

_____ 4. The wind speed on May 22 at 9:00 a.m. is gentle.

_____ 5. May 24 is the best day for kite flying.

Lesson 68: Observing changes in wind speed and direction.

Exercise B

Directions: Study the chart.

Date	Time	Wind Speed	Wind Direction
May 25	8:00 a.m.	Moderate	Southwest
	3:00 p.m.	Light	West
May 26	8:00 a.m.	Moderate	East
	3:00 p.m.	Strong	Northwest
May 27	8:00 a.m.	Moderate	East
	3:00 p.m.	Gentle	Northwest

Directions: Answer the following questions.

1. Does the wind speed remain the same throughout the day? _____
2. Does wind direction remain the same throughout the day? _____

Directions: Write T if the sentence is true and F if the sentence is not.

_____ 1. The temperature of air can change suddenly.

_____ 2. The weather in one place may differ from the weather in another place.

_____ 3. The wind speed on May 27 at 8:00 a.m. is gentle.

_____ 4. May is the good month for swimming.

_____ 5. The wind vane tells direction of the wind.

Lesson 69: Constructing instruments to measure wind speed and direction.

Exercise A

Directions: Perform the following activities.

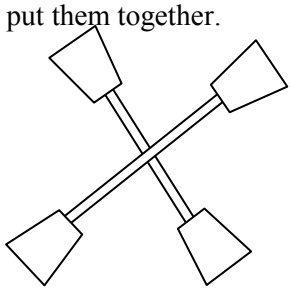
You need:

4 small ice cream cups (one cup with a different color)
2 wooden rods of the same size
Wooden support

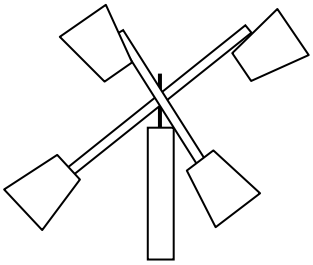
I. Anemometer

1. Nail the cups to the ends of the two rods or sticks.

2. Drill a hole on top of the wooden support and on the center of the rods. The holes should be bigger than the nails to be used to put them together.



Insert a nail in the holes to put the rods and the wooden support together. Using candle drippings, wax the inside of the holes and the nail to reduce friction.



3. Set up your improvised instrument outside the classroom.

4. Count the number of revolutions the instrument makes.

    a. How many spins did it make for 2 minutes? _____

    b. How many spins did it make for 3 minutes? _____

    c. How many spins did it make for 4 minutes? _____

    d. How many spins did it make for 5 minutes? _____

    e. How many spins did it make for 10 minutes? _____

Lesson 69: Constructing instruments to measure wind speed and direction.

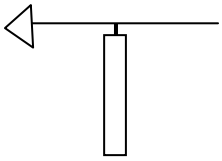
Exercise B

Directions: Perform the experiment.

You need: 1 arrow – shaped pointer made of thick board
2 straws
1 rod or stick
thumb tacks

Do the following:

1. Attach a short straw to the arrow-pointer. Then attach the straw on the stick using thumb tacks. Be sure that the straw is bigger than the rod / stick to allow free movement.



2. Plant the instrument firmly on high ground. Mark the four general direction: North, East, South and West. Use a compass to align the north side.

3. Observe how the arrow moves.

Time	Wind Direction
9:00 a.m.	_____
12:00 noon	_____
2:00 p.m.	_____
2:30 p.m.	_____
3:00 p.m.	_____

Lesson 70: Measuring and recording wind speed and direction.

Directions: Using the improvised wind vane and anemometer, observe the wind speed and wind direction for one week. Record your observation on the chart below.

Wind Speed and Wind Direction Chart

Day	Wind Speed	Wind Direction
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		
Saturday		
Sunday		

Directions: Answer the following questions.

a. When did the cups move slowly? _____

b. When did the cups move fast? _____

c. Does wind speed always change? _____

d. Where did the wind vane point on Thursday? _____

e. Does wind direction always change? _____

Lesson 71: Inferring that weather elements may vary at different locations at the same time.

Exercise A

Directions: Refer to the weather chart below in answering the questions that follow.

Weather Report in Northern Luzon

Variables	Monday	Tuesday	Wednesday	Thursday	Friday
1. Time	10 a.m.	10 a.m.	10 a.m.	10 a.m.	10 a.m.
2. Wind Speed	Moderate	Light	Light	Moderate	Strong
3. Temperature	30°c	33°c	32°c	28°c	22°c
4. Wind Direction	East	East	North	Northeast	East
5. Sky	Clear	Clear	Cloudy	Cloudy	Dark
6. Rain	None	None	None	Shower	Strong

Weather Report in Eastern Visayas

Variables	Mon.	Tues.	Wed.	Thurs.	Fri
1. Time	10 a.m.	10 a.m.	10 a.m.	10 a.m.	10 a.m.
2. Wind Speed	Slow	Moderate	Moderate	Light	Fast
3. Temperature	27°c	28°c	20°c	21°c	22°c
4. Wind Direction	North	East	East	East	North East
5. Sky	Partly cloudy	Partly cloudy	Cloudy	Cloudy	Clear
6. Rain	None	None	Shower	Shower	None

Directions: Answer the following questions.

1. What was the temperature reading last Monday in Northern Luzon? _____

2. Was the temperature last Monday in Northern Luzon the same with that in eastern Visayas?

   _____

3. What was the wind direction in Northern Luzon last Friday?_____

4. What was the wind direction in Eastern Visayas last Tuesday?_____

5. What was the temperature reading last Friday in Eastern Visayas?_____

6. Was the temperature last Friday in Northern Luzon the same with that in Eastern

   Visayas?_____

7. Was the sky clear or cloudy in Eastern Visayas Last Wednesday? How about in Northern

   Luzon?_____

8 – 10 What can you infer about the weather elements observed in two

   different places at the same time?_____

Lesson 71: Inferring that weather elements may vary at different locations at the same time.

Exercise B

Directions: Refer to the weather chart below in answering question that follow.

Weather Report in Central Luzon

Variables						
Date	Time	Wind Speed	Temperature	Wind Direction	Sky Clear	Rain
Mon.	9:00 a.m.	Strong	24°c	Southeast	Cloudy	Rain Shower
Tues.	9:00 a.m.	Light	30°c	North	Clear	None
Wed.	9:00 a.m.	Moderate	28°c	East	Clear	None
Thurs.	9:00 a.m.	Light	31°c	East	Cloudy	None
Fri.	9:00 a.m.	Strong	26°c	Northwest	Cloudy	Strong Rain

Weather Report in Central Visayas

Variables						
Date	Time	Wind Speed	Temperature	Wind Direction	Sky Clear	Rain
Mon.	9:00 a.m.	Moderate	28.5°c	North	Partly cloudy	Rain shower
Tues.	9:00 a.m.	Slow	26°c	East	Cloudy	Rain shower
Wed.	9:00 a.m.	Strong	23°c	East	Cloudy	Strong rain
Thurs.	9:00 a.m.	Moderate	30°c	Northeast	Clear	None
Fri.	9:00 a.m.	Light	32°c	East	Clear	None

Directions: Answer the following questions.

1. What was the temperature reading last Friday in Central Visayas?_____

2. Was the temperature last Wednesday in Central Visayas the same with that in Central Luzon?_____

3. What was the wind direction of central Visayas last Monday?_____

4. What was the wind direction of Central Luzon last Thursday?_____

5. What was the temperature reading last Thursday in Central Visayas?_____

6. Was the temperature last Tuesday in Central Luzon the same with that in Eastern Visayas?_____

7. Was the sky clear or cloudy in Central Luzon last Tuesday?
   How about in Central Luzon?_____

8 – 10 What can you infer about the weather elements observed in two different places at the same time? _____

Lesson 72: Using a model to show how the earth rotates on its axis.

Exercise A

Directions: Perform the experiment then answer the questions that follow.

What you need:

globe
flashlight
pin

What to do:

1. Place the globe on the table. Mark the Philippines on it by sticking a pin on it or just putting any mark on it of you are not allowed to punch the globe.
2. Turn the globe slowly and let the flashlight shine on one side of the globe. The flashlight represents the sun.
3. Observe and describe the earth's rotation.

a. What does the globe represent? _____

b . How did the globe move? _____

c. Where did it move? _____

d. Did it move away from its place?_____

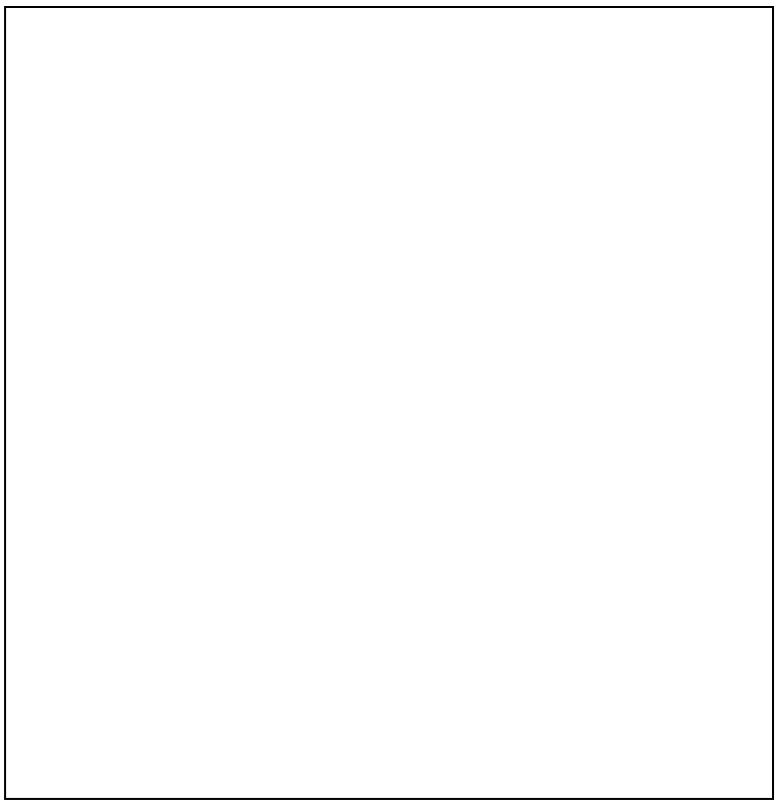
e. Did it turn around in its place? _____

f. What do you call the turning around in its place? _____

Lesson 72: Using a model to show how the earth rotates on its axis.

Exercise B

Directions: Draw how the earth rotates in its axis.



Lesson 73: Earth's rotation

Exercise A

Directions: Write T to those statements that are true and F to those that are false.

_____ 1. The earth rotates on its axis.

_____ 2. The earth stops rotating after 6 hours.

_____ 3. One complete rotation of the earth is done in 24 hours or one day.

_____ 4. The earth makes 26 rotations in a month.

_____ 5. The earth does not stop rotating.

Exercise B

Directions: Write T if the statement is true and F if it is false.

_____ 1. The earth makes 26 rotations in a month.

_____ 2. The earth rotates on its axis.

_____ 3. The earth stops rotating after 6 hours.

_____ 4. One complete rotation of the earth is done in 24 hours or one day.

_____ 5. The earth does not stop rotating.

Lesson 74: Show that the Earth's rotation on its axis causes day and night.

Exercise A

Directions: Write the letter of the correct answer.

_____ 1. During daytime we can see the _____
a. sun b. moon c. stars

_____ 2. The movement of a body about its axis..
a. revolution b. rotation c. equinox.

_____ 3. A day is made up of _____
a. 12 hours b. 30 days c. 24 hours

_____ 4. Earth rotate on its _____
a. axis b. equator c. orbit

_____ 5. The places on earth that is at the opposite side of the light source experiences _____
a. night b. day c. sun exercise

Directions: Write T if the statement is true write F if the statement if false.

_____ 1. Earth's rotation causes day and night.

_____ 2. Earth rotates on its orbit.

_____ 3. When a place faces the sun, it experience daytime.

_____ 4. When a place does not face the sun, it experience nighttime.

_____ 5. The number of hours for Friday is not the same as that for Sunday.

Exercise B

Directions: Write the letter of the correct answer.

_____ 1. A day is made up of _____
a. 12 hours b. 30 days c. 24 hours

_____ 2. The movement of a body about on axis within itself.
a. revolution b. rotation c. equinox.

_____ 3. During daytime we can see the _____
a. sun b. moon c. stars

_____ 4. The places on earth that are at opposite side of the light source experiences _____
a. night b. day c. sun

_____ 5. Earth rotates on its _____
a. axis b. equator c. orbit

Directions: Write T if the statement is true write F if the statement if false.

_____ 1. Earth rotates on its orbit.

_____ 2. Earth's rotation causes day and night.

_____ 3. The number of hours for Friday is not the same as that for Sunday.

_____ 4. When a place does not face the sun, it experiences nighttime.

_____ 5. When a place faces the sun, it experience daytime.

Lesson 75: Earth's rotation

Exercise A

Directions: Identify the following words to make the statements correct. Write your answer on the blanks provided.

_____ 1. The earth rotates on its axis. The two opposite ends of the axis

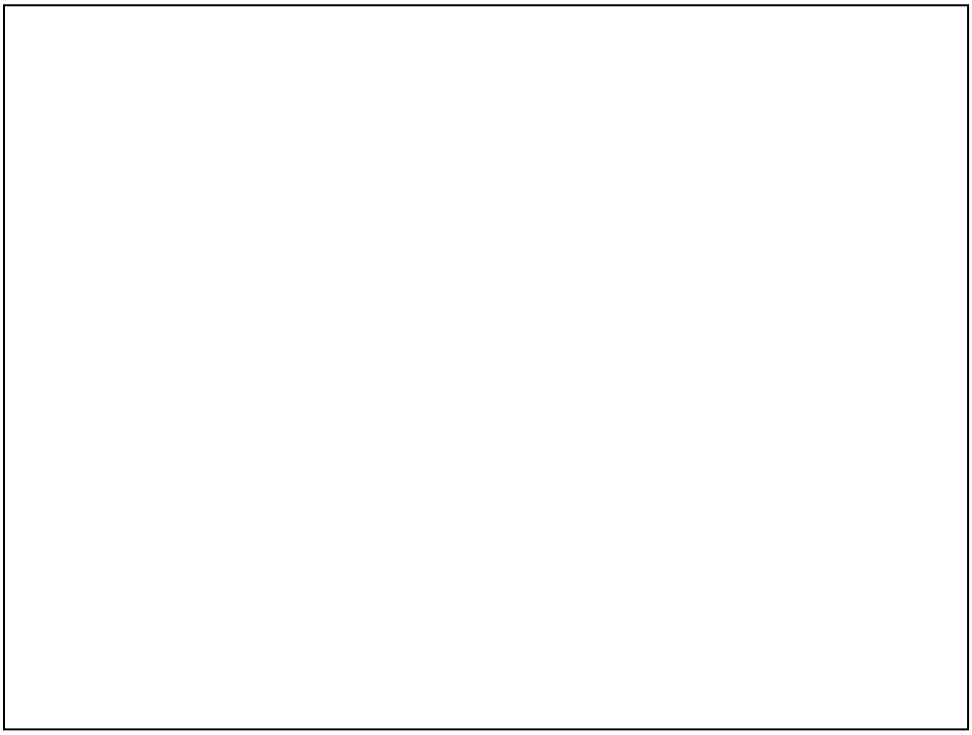
_____ 2. are _____ and _____.

_____ 3. The _____ represents the earth.

_____4. The earth rotates from _____ to 5. _____ direction.

_____ 6. As seen from the North Pole, the earth rotates in _____ direction.

Directions: Draw the rotation of the earth on its axis. Use arrows to illustrate the direction of its movement.



Lesson 75: Earth's rotation

Exercise B

Directions: Identify the following words to make the statements correct. Write your answer on the blanks provided.

_____ 1. As seen from the North Pole, the earth rotates _____ in direction.

_____ 2. The _____ represents the earth.

_____ 3 . The earth rotates on its axis. The two opposite ends of

_____ 4. Axis are _____ and _____.

_____ 5. The earth's rotation from the South Pole the direction will be_____.

_____ 6. The earth rotate from _____ to _____

_____ 7. Direction.

Directions: Answer the question correctly.

8 – 10. How does the earth rotate on its axis?

_____

_____

Lesson 76: Describes the movement of the earth around the sun.

Exercise A

Directions: Identify the following words to make the statements correct. Write your answer on the blanks provided.

_____ 1. The motion of earth around the sun is called _____

_____ 2. There are _____ days in one year.

_____ 3. The earth travels around the sun, it follows a path called_____.

_____ 4. The time it takes for earth to revolve around the sun is called a _____.

_____ 5. The year with a 29th day of February is called a _____.

Directions: Draw an illustration of how the earth travels around the sun.

Lesson 76: Describes the movement of the earth around the sun.

Exercise B

Directions: Identify the following words to make the statements correct. Write your answer on the blanks provided.

_____ 1. The time it takes for earth to revolve around the sun is called a _____.

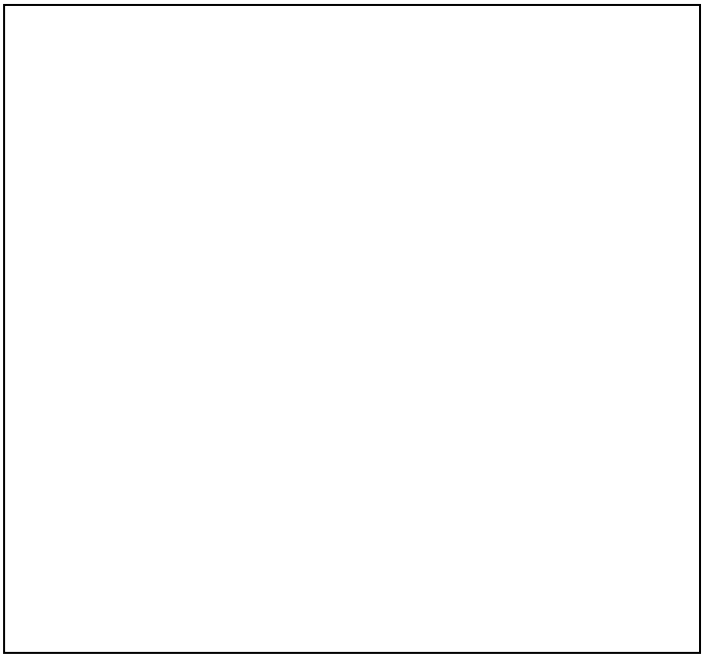
_____ 2. The year with a 29th day of February is called a _____.

_____ 3. The earth travels around the sun, it follows a path called_____.

_____ 4. The motion of earth around the sun is called. _____

_____ 5. There are _____ days in one year.

Directions: Draw an illustration of how the earth travels around the sun.



Lesson 77: Earth's Revolution I

Exercise A

Directions: Write the letter of the best answer on the blank provided.

_____ 1. What is an earth year?

a. one complete rotation of the earth
b. one complete revolution of the earth
c. a year that has 366 days.

_____ 2. Earth takes _____ days to revolve around the sun.

a. 360 b. 365¼ c 366¼

_____ 3. Earth' s orbit is described as _____

a. elliptical b. flat c. circle

_____ 4. How many days in a leap year?

a. 366 b. 365 c. 367

_____ 5. Every four years, we _____ a day to the month of February.

a. add b. subtract c. multiply

_____ 6. So, what does the earth's revolution mean?

a. turning of the earth on its axis
b. the sun's travel around the earth
c. the earth's movement around the sun

_____ 7. Earth revolves around the _____

a. sun b. moon c. solar system.

_____ 8. As the earth revolves, it follows a path called _____

a. axis b. orbit c. comet

Lesson 77: Earth's Revolution I

Exercise B

Directions: Write the letter of the best answer on the blank provided.

_____ 1. Earth takes _____ days to revolve around the sun.

a. 360 b. 365¼ c 366¼

_____ 2. Every four years, we _____ a day to the month of February.

a. add b. subtract c. multiply

_____ 3. As the earth revolves, it follows a path called _____

a. axis b. orbit c. comet

_____ 4. Earth' s orbit is described as _____

a. elliptical b. flat c. circle

_____ 5. What is an earth year?

a. one complete rotation of the earth
b. one complete revolution of the earth
c. a year that has 366 days

_____ 6. How many days in a leap year?

a. 366 b. 365 c. 367

_____ 7. What does the earth's revolution mean?

a. turning of the earth on its axis.
b. the sun's travel around the earth.
c. the earth's movement around the sun.

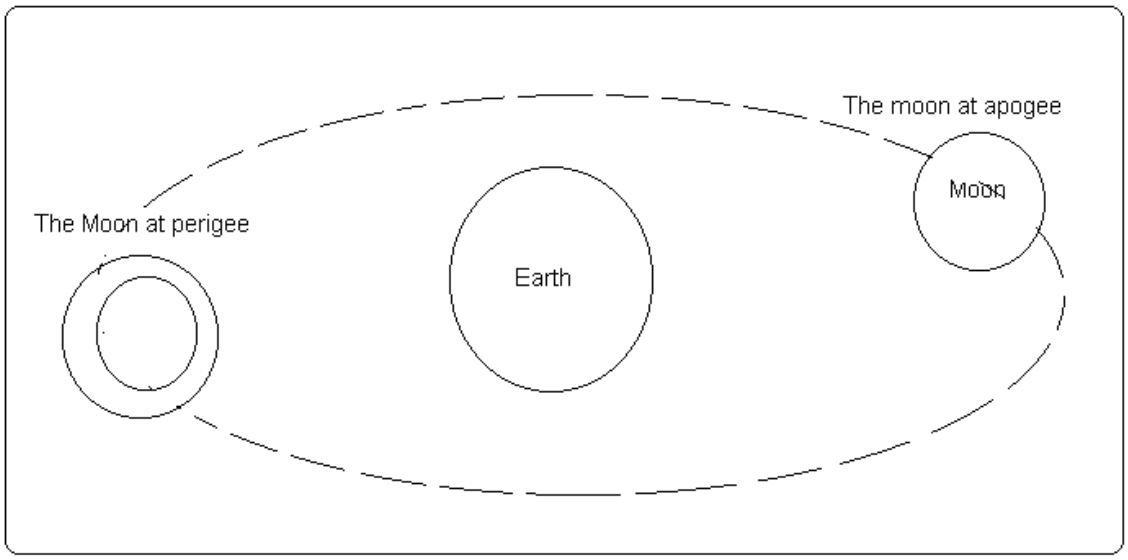
_____ 8. So, the earth revolves around the _____

a. sun b. moon c. solar system

Lesson 78: Earth's revolution II

Exercise A

Directions: Study the illustration



Directions: Write True or False if the statement is true, False if it is not.

_____ 1. The moon moves around the earth in 30 days.

_____ 2. When the moon is at its nearest distance to our planet it is at its perigee.

_____ 3. The full moon always appears once a month only.

_____ 4. The moon remains at the same position while earth revolves around it.

_____ 5. The moon moves around earth and together with earth around the sun.

_____ 6. The moon is the satellite of the earth.

_____ 7. When the moon is at its farthest distance to our planet it is at its apogee.

_____ 8. The time between one full moon and next is approx. 27 days.

_____ 9. Earth does not move as the moon revolves around the sun.

_____10. It takes 27½ days for the moon to complete one rotation on its axis.

Lesson 78: Earth's revolution II

Exercise B

Directions: Put a check if the statement is true and X if it is false.

_____ 1. The moon moves around earth and together with earth around the sun.

_____ 2. The moon is the satellite of the earth.

_____ 3. When the moon is at its farthest distance to our planet, it is at its apogee.

_____ 4. The moon remains at the same position while earth revolves around it.

_____ 5. The full moon always appears once a month only.

_____ 6. The moon moves around the earth in 30 days.

_____ 7. When the moon is at its nearest distance to our planet, it is at its perigee.

_____ 8. It takes 30 days for the moon to complete one rotation on its axis.

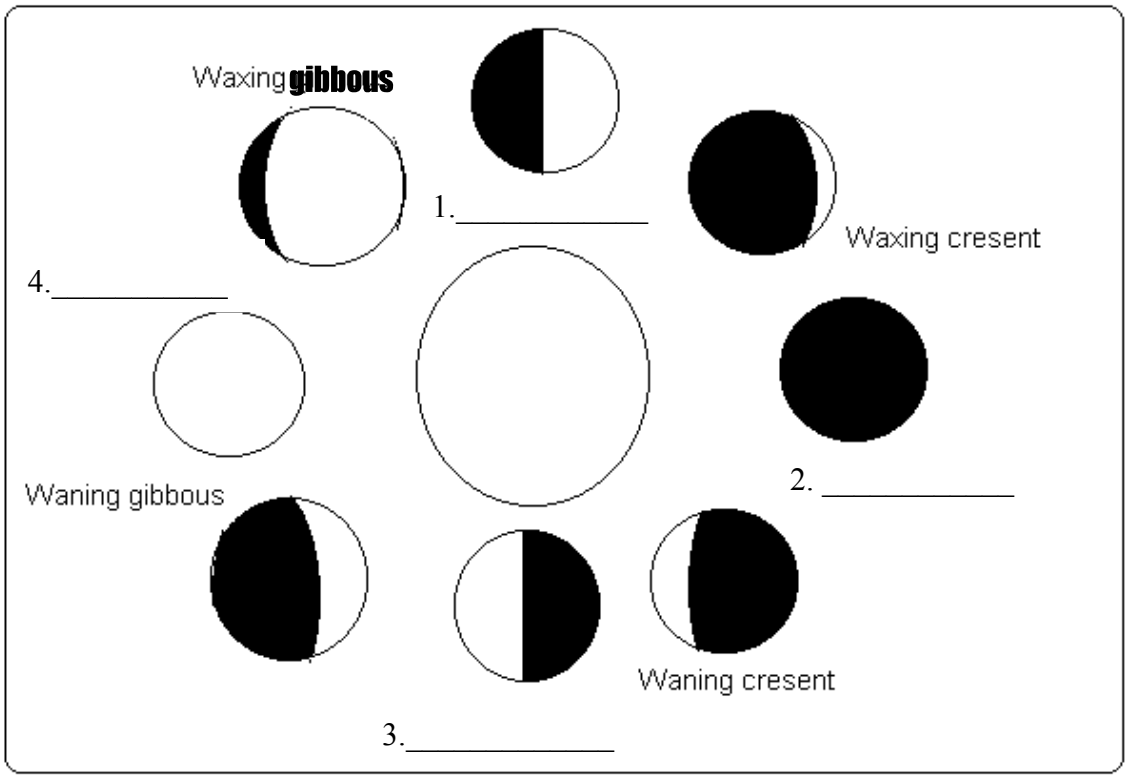
_____ 9. Earth does not move as the moon revolves around the sun.

_____10. The time between one full moon and next is 29 ½ days

Lesson 79: Phases of the moon

Exercise A

Directions: Identify the phases of the moon.



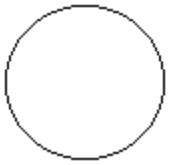
Lesson 79: Phases of the moon

Exercise B

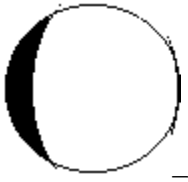
Directions: Illustrate the phases of the moon.

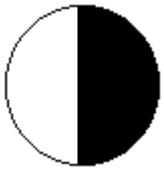
Directions: Identify the phases of the moon as sun in different position from night to night.

1.  _____

2.  _____

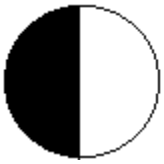
3.  _____

7.  _____

8.  _____

4.  _____

5.  _____

6.  _____

Lesson 80: Explain why there are seasons.

Exercise A

Directions: Identify the following.

1. Two factors that account for the changes in seasons:

   a. _____

   b. _____

2. The part of the year that is titled toward the sun is _____.

3. When it is summer in the northern hemisphere, it is the opposite in the

   _____.

4. The two seasons in the Philippines

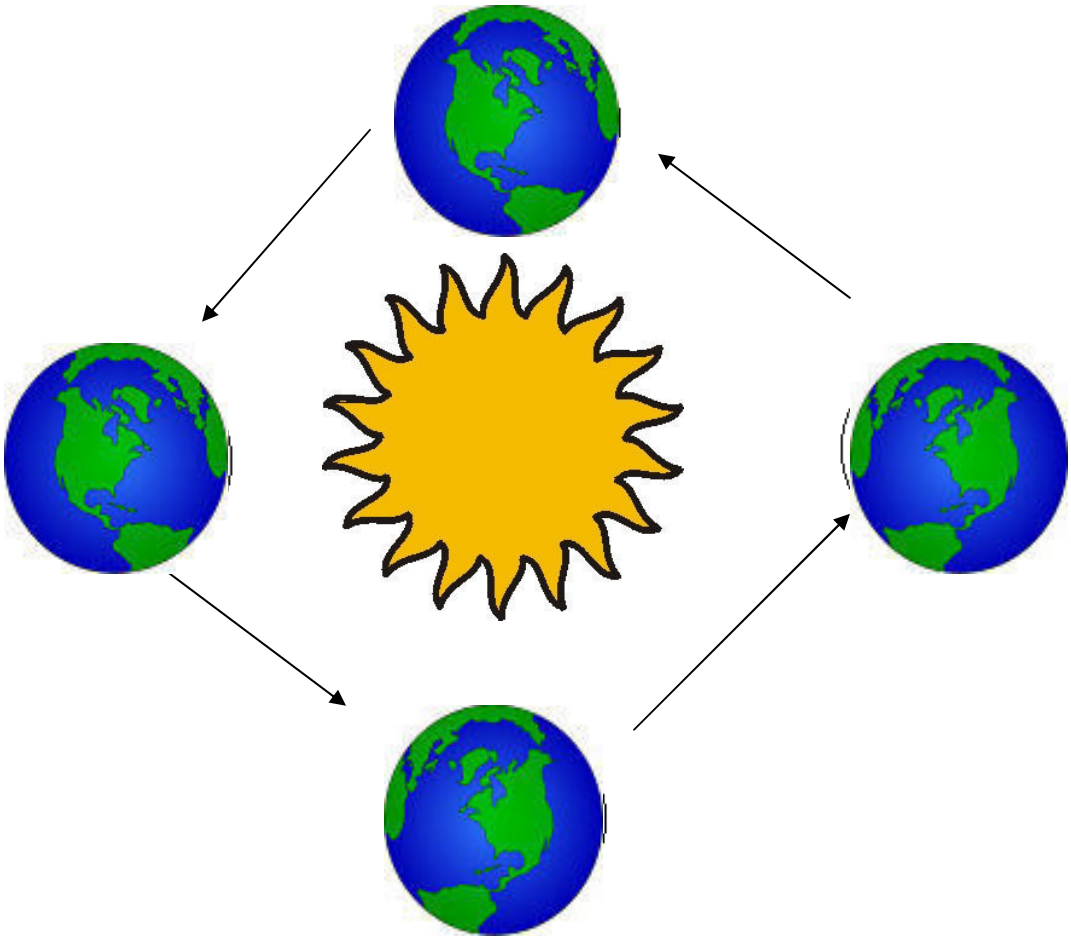
   a. _____

   b. _____

Lesson 80: Explain why there are seasons.

Exercise B

Directions: Study the illustration below then answer the question that follows.



What can you infer about earth revolution around the sun?

_____

_____

Directions: Identify the following.

1 – 2. Seasons in the Philippines:_____,_____

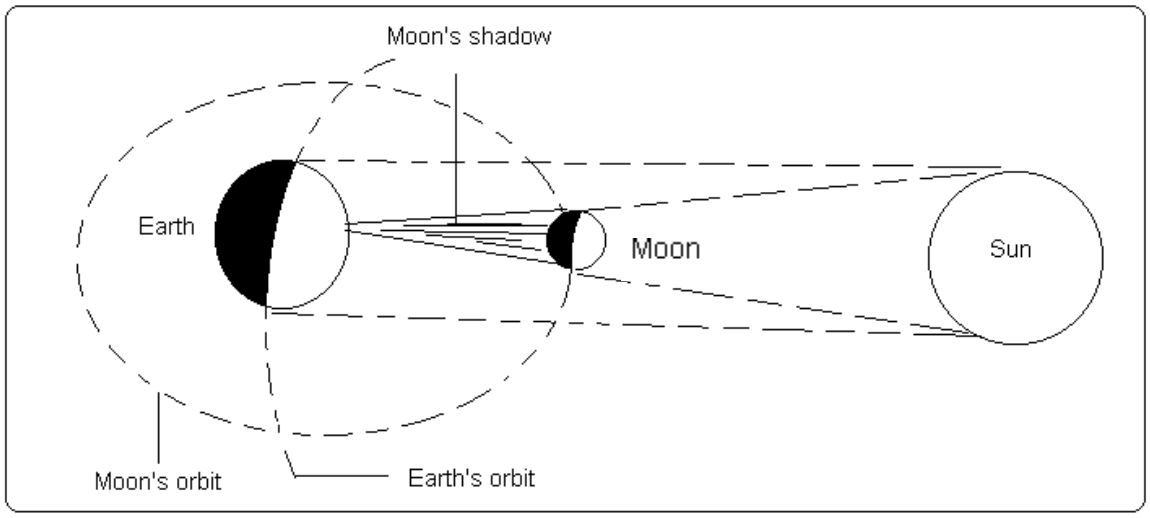
3 – 4 Two factors that account for the changes in seasons._____,_____

5 – 8 Four seasons experience most in the other countries._____,_____,_____,_____

Lesson 81: Explains how solar and lunar eclipse occur.

Exercise A

Directions: Study the picture below and answer the following questions briefly.



a. Does the moon cover the light from the sun? _____

b. What happens when the moon casts a shadow on earth? _____

c. What phenomenon occurs on the place where the moon casts a shadow on earth?_____

d. What is a solar eclipse?

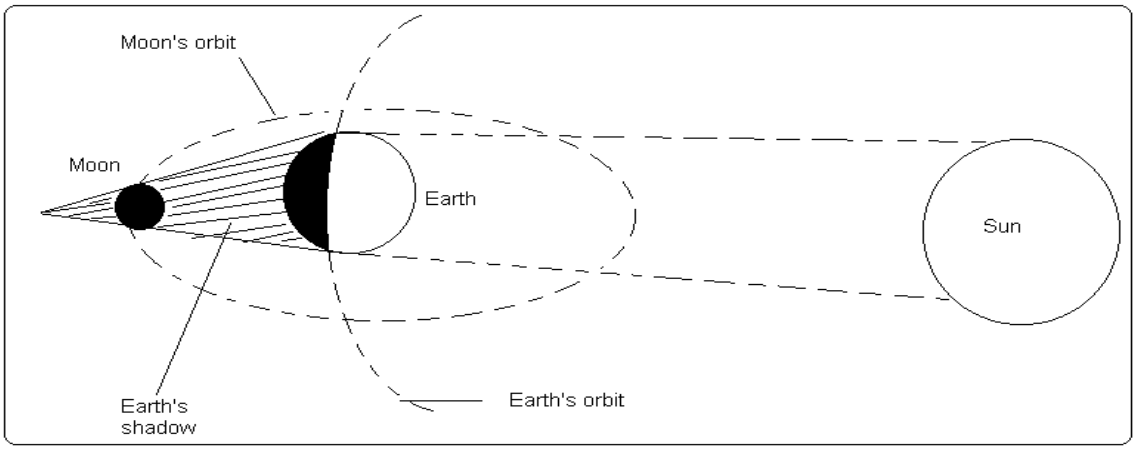
_____

_____

Lesson 80: Explain why there are seasons.

Exercise B

Directions: Study the picture below and answer the following questions briefly.



Directions: Study the picture above and answer the following questions briefly.

a. Which is in the middle position? _____

b. Does the earth cover the light from the sun? _____

_____

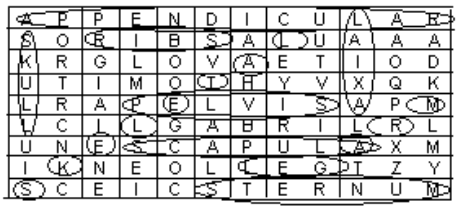
c. What happens when the earth is in the middle between the moon and sun?

_____

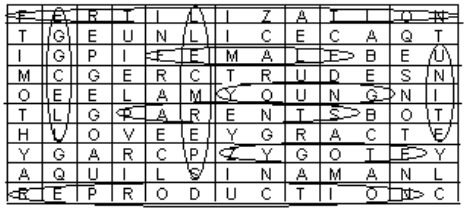
d. What is a lunar eclipse? _____

ANSWER KEY FOR GRADE 4 SCIENCE

Lesson 1.: Exercise A I. A. 1. Axial 2. Appendicular B. 1. Skull 2. Vertebral column 3. Ribs 4. Sternum C. 1. Arm 2. Leg
Exercise B.



1. Skull 2. Ribs 3. Pelvis 4. Leg 5. Arm 6. Scapula 7. Sternum 8. Appendicular 9. Axial 10. Skeletal **Lesson 2 Exercise A.** I. 1. Ligaments 2. Tendons 3. Cartilage II. 1. Pivotal Joint 2. Ball and Socket 3. Gliding Joint 4. Hinge Joint 5. Ball and Socket 6. Hinge Joint **Exercise B.** I. 1. T 2. F 3. F 4. T 5. F II. 1. C 2. A 3. B 4. A 5. B **Lesson 3 Exercise A.** I. 1. Skull 2. rib cage 3. spinal column II. 1. B 2. D 3. C 4. A 5. Flat **Exercise B. 1.** Hip bones 2. Spinal column 3. Rib cage 4. Skull 5. Spinal cord 6. Lungs and 7. Heart 8. Brain **Lesson 4. Exercise A**. Skeletal muscles, Tendons, Smooth muscles, and Cardiac muscles **Exercise B.** I. 1. a 2. C 3. C 4. A 5. A II. 1. D 2. C 3. E 4. B 5. A **Lesson 5. Exercise A.** I. 1. Biceps 2. Triceps 3. Contracts 4. Relaxed 5. Hard II. (Answers May vary) **Exercise B.** I. 1. F 2.T 3. T 4. T 5. T **Lesson 6. Exercise A.** I. 1. C 2. D 3. E 4. B 5. A II. 1. C 2. D 3. E 4. B 5. A **Exercise B.** (Answers may vary) **Lesson 7.** (Discussion) **Lesson 8. Exercise A.** I. 1. ✓ 2. ✓ 3. X 4. ✓ 5. X 6. X 7. ✓ 8. ✓ 9. ✓ 10. ✓ **Exercise B.** 1. X 2. X 3. ✓ 4. X 5. ✓ 6. X 7. ✓ 8. X 9. ✓ 10. ✓ **Lesson 9. Exercise A.** I. 1. Mouth 2. Salivary glands 3. Esophagus 4. Stomach 5. Liver 6. Gall bladder 7. Pancreas 8. Large intestines 9. Small intestines 10. Rectum **Exercise B.** (Answer May Vary) **Lesson 10. Exercise A.** I. 1. Digestion is the process of breaking down food. 2. Mouth 3. Teeth 4. Saliva 5. Esophagus 6. Stomach 7. small intestine 8. Gastric 9. large intestine 10. Anus **Exercise B.** I. 1. Mouth 2. Esophagus 3. Stomach 4. small intestines 5. large intestines II. 1. secretes bile 2. secretes pancreatic juice 3. Temporarily stores bile and empties it into the small intestines **Lesson 11. Exercise A.** I. 1. T 2. T 3. F 4. T 5. T 6. F 7. T 8. T 9. T 10. F **Exercise B.** 1. X 2. X 3. ✓ 4. ✓ 5. X 6. ✓ 7. X 8. X 9. ✓ 10. ✓ **Lesson 12.** (Role Playing) **Lesson 13. Exercise A.** I. 1. F 2. E 3. B 4. A 5. C 6. K 7. J 8. H 9. G 10. I **Exercise B.** 1. D 2. J 3. A 4. B 5. G 6. F 7. C 8. H 9. E 10. I **Lesson 14. Exercise A.** I. 1. E 2. G 3. J 4. K 5. B 6. D 7. A 8. A 9. C 10. B **Exercise B.** 1. Cat 2. Fish 3. Horse 4. Dog 5. Rat 6. Cow 7. Goat 8. Rabbit 9. Pig 10. Carabao **Lesson 15. Exercise A.**



10. Fertilization **Exercise B.** I. 1. A 2. A 3. B 4. A 5. B 6. A 7. B 8. C 9. B 10. A **Lesson 16. Exercise A.** I. 1. tadpole 2. Tadpole with 2 legs 3. adult Frog 4. Egg 5. larva/caterpillar 6. butterfly 7. larva or wriggler 8. Pupa 9. adult mosquito **Exercise B.** I. A. 1. Tadpole 2. young adult 3. Adult B. 1. larva/caterpillar 2. Pupa 3. Adult C. 1. Wriggler 2. Pupa 3. Adult **Lesson 17. Exercise A.** I. 1. life cycle 2. Caterpillar 3. Maggots 4. Wrigglers 5. Tadpole 6. Metamorphosis 7. Chrysalis 8. Complete 9. Different 10. Incomplete **Exercise B.** I. 1. Metamorphosis 2. Chrysalis 3. Different 4. Complete 5. Tadpole 6. Incomplete 7. Caterpillar 8. Maggots 9. Different 10. life cycle **Lesson 18. Exercise A.** I. 1. ✓ 2. X 3. ✓ 4. ✓ 5. ✓ 6. X 7. X 8. ✓ 9. X 10. X **Exercise B.** I. 1. F 2. F 3. T 4. T 5. F 6. T 7. T 8. T 9. F 10. T **Lesson 19. Exercise A.** I.1. ✓ 2. 3. 4. ✓ 5. ✓ 6. 7. ✓ 8. 9. ✓ 10. ✓ **Exercise B.** I. 1. 2. X 3. X 4. 5. 6. X 7. 8. 9. 10. **Lesson 20. Exercise A.** I.1. sepal 2. Pistil 3. Stigma 4. Ovary 5. Style 6. Petals 7. Stamen 8. anther 9. Filament 10. pollen grains **Exercise B.** I. 1. Petals 2. Sepals 3. Stigma 4. Ovule with sac 5. Ovary 6. receptacle 7. Peduncle **Lesson 21. Exercise A.** I. 1. self – pollination 2. cross – pollination 3. pollen grains 4. Anther 5. Stigma 6. Pollination 7. self – pollination 8. cross – pollination 9. Man, Wind

10. insects **Exercise B.** I. 1. self – pollination 2. cross – pollination 3. pollen grains 4. Anther 5. Stigma 6. self – pollination 7. cross – pollination 8. cross – pollination 9. insects / bee 10. bird / **Lesson 22. Exercise A.** I. 1. Fertilization 2. Pollen 3. Stigma 4. pollen tube 5. Style 6. Ovary 7. Ovules 8. Egg 9. Embryo 10.seed **Exercise B.** I. When the pollen lands on the stigma of a flower, a pollen tube will form. This grows through the style down into the ovary. Inside are the ovules . one of the males sex cells may unite with the egg to form the embryo plant. This produces seed **Lesson 23. Exercise A.**

1. seed 2. seed coat 3. Hilum 4. Embryo 5. Epicotyl 6. Hypocotyl 7. Radicle 8. Cotyledon 9. monocot 10. Dicot **Exercise B.** I. 1. Embryo 2. Epicotyl 3. Hypocotyl 4. Radicle 5. Cotyledon 6. Monocot 7. Dicot 8. Seed 9. Hilum 10. seed coat **Lesson 24. Exercise A.** I. 1. seed coat 2. Embryo 3. Radicle 4. Root 5. Hypocotyl 6. Cotyledons 7. Epicotyl 8. Epicotyl 9. Photosynthesis 10. Plant **Exercise B.** I. 1. Epicotyl 2. Hilum 3. Radicle 4. Hypocotyl 5. Cotyledons 6. Seed 7. Fruit 8. Germination 9. water/soil 10. Photosynthesis **Lesson 25. Exercise A.**

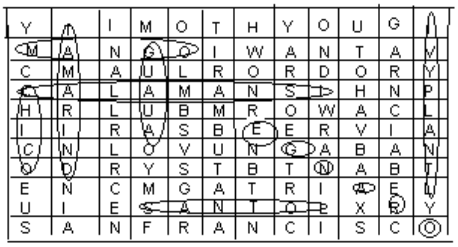
Man	Water	Wind	Animals
Atis Santol Tomato	Coconut	Bursting bearfruit Parachute seed Amorseco seed Ipil - Ipil Acacia Cogon	Corn Atis

(Answer May Based on the experiment) **Exercise B.** (Answer May be based on the experiment) **Lesson 26. Exercise A.** (Answer May Vary) **Exercise B.** (Answer May Vary) **Lesson 27. Exercise A.** I. 1. Water 2. Wind 3. Wind 4. Man 5. Wind 6. Animal 7. Wind 8. Wind 9. Man 10. Man **Exercise B.**

Lesson 28. Exercise A.. 1. G 2. B 3. D 4. F 5. C 6. A 7. J 8. E 9. I 10. B Exercise B. Cross word Puzzle: Across:2. Runners 4. Shoots 6. Tuber Down: 1. Bulb 3. Rhizomes 5. Stem 7 – 10 (Answer May Vary) **Lesson 29. Exercise A.**

Marcotting	Layering	Grafting	Budding
Guava Tamarind Mango Chico	Ivy plant Million dollar plant	Mango Tamarind Chico Perante orange	Rambutan calamansi Perante orange

Exercise B.



Marcotting: > Tamarind >Mango >Chico > Santol Layering: > Ivy plant Grafting > Mango > Tamarind > Chico > Orangec Budding: > Calamansi > Orange **Lesson 30. Exercise A.** I. 1. C 2. A 3. C 4. A 5. A 6. C 7. B 8. A 9. A 10. A **Exercise B.** I. 1. B 2. e / d 3. B 4. C 5. e / d 6. A 7. e / d 8. B 9. e / d 10. C **Lesson 31. Exercise A.** I. 1. P 2. E 3. F 4. E 5. D 6. M 7. P 8. E 9. D 10. P **Exercise B.** (Answers May Vary) **Lesson 32. Exercise A.** (Answer May Vary) **Exercise B.**

Solids that can be dissolved	Solids that cannot be dissolved
Choco powder	Rock
Salt	Sand
Sugar	Piece of wood
Candy	Leaves
Bread	
Veitshin	

Lesson 33. Exercise A. (Answers are exact, be done first by author) Exercise B. (Answer May Vary) **Lesson 34. Exercise A.**
I. 1. Solvent 2. Solute

Solvent	Solute
water	Salt

Water	Isopropyl/ethyl alcohol
Water	Acetic acid
water	Powdered Juice

Exercise B. I. 1. Solute 2. Solvent 3. Solute 4. Solvent 5. Solute II. (Answer May Vary) **Lesson 35. Exercise A.** (Answer May be based on the student activities, but author should have definite answers) **Exercise B.** I. 1. T 2. F 3. T 4. F 5. T II. (Answer May be based on the student activities) **Lesson 36.**

Exercise A. I. 1. SE 2. SE 3. SE 4. NSE 5. NSE 6. SE 7. SE 8. SE 9. NSE 10. NSE (Answer May Vary) **Exercise B.**

Solutes		
1. Salt	Dissolved	
2. Sugar	Dissolved	
3. Ink	Dissolved	
4. Oil		Not Dissolved
5. Sand		Not Dissolved
6. Veitshin	Dissolved	
7. Powdered juice	Dissolved	
8. Coffee granule		
9. Pepper	Dissolved	Not Dissolved
10. Chalk dust		Not Dissolved

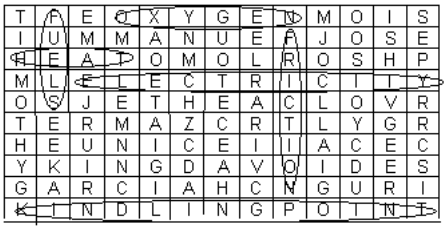
(Answer May Vary)

Lesson 37. Exercise A. I. 1. C 2. S 3. C 4. S 5. S II. 1. ✓ 2. X 3. ✓ 4. X 5. X **Exercise B.** I. 1. S 2. S 3. C 4. C 5. S **Lesson 38. Exercise A.** I. 1. O 2. O 3. X 4. ✓ 5. O 6. X 7. O 8. X 9. O 10. O **Exercise B.** I. 1. B 2. A 3. B 4. B 5. A II. (Answer May Vary) **Lesson 39. Exercise A.** I. 1. A 2. A 3. C 4. C 5. B 6. II. 1 Yes 2. No 3. Yes 4. Yes 5. Yes **Exercise B.** (Answer May Vary) **Lesson 40.**

Exercise A. I. 1. Man 2. Coconut fruit 3. Food 4. Battery 5. Stones 6. Monkey 7. Diver 8. Jackfruit 9. Sling shot 10. Bow and arrow **Exercise B.** (Answer May Vary) **Lesson 41. Exercise A.** I. 1. KE 2. KE 3. 4. 5. KE 6. KE 7. 8. 9. KE 10. KE **Exercise B.** I. 1. 2. ✓ 3. 4. ✓ 5. ✓ 6. 7. ✓ 8. 9. 10. ✓ **Lesson 42. Exercise A.** I. 1. PE 2. KE 3. PE 4. KE 5. KE 6. KE 7. KE 8. PE 9 – 10. (Answer May Vary) **Exercise B.**

Energy at Rest	**Energy in Motion**
1	**2**
3	**5**
4	**6**
8	**7**
9	**10**

9 – 10 (Answer May Vary) **Lesson 43. Exercise A.** I. 1.X 2.✓ 3. X 4. ✓ 5. ✓ 6. ✓ 7. ✓ 8. ✓ 9. X 10. X **Exercise B.** I. 1. ✓ 2. ✓ 3. X 4. ✓ 5. ✓ 6. ✓ 7. ✓ 8. ✓ 9. X 10. ✓ **Lesson 44. Exercise A.** I. 1. Energy 2. kinetic energy 3. Mass 4. Velocity 5. Work 6. Pulling 7. Pushing 8. Pushing 9. Pulling 10. Lifting **Exercise B.** I. 1. Work 2. Balanced 3. Inertia 4. Force 5. Force 6. Push 7. Push 8. push and pull 9. push and pull 10. push and pull **Lesson 45. Exercise A.**I. Friction 1 – 2 (Answer May Vary) Exercise B. I. 1. ☹ 2. ☹ 3. ☺ 4. ☺ 5. ☺ 6. ☺ 7. ☺ 8. ☺ 9. ☹ 10. ☺ **Lesson 46. Exercise A**.I. (Answer May Vary) **Exercise B.** I. 1. T 2. F 3. T 4. T 5. T 6. T 7. F 8. F 9. T 10. F Lesson 47. Exercise A. I. 1. X 2. ✓ 3. ✓ 4. X 5. ✓ 6. X 7. X 8. X 9. ✓ 10. X **Exercise B.** (Answer will be based on the student activity. Let the teacher perform the activity so that he/she will know the EXACT result of the activity, since the activity requires EXACT answers.) **Lesson 48. Exercise A.** I.



1. Fuels 2. Heat 3. Electricity 4. Friction 5. Oxygen 6. Kindling point II. 1. Friction, Electricity 2. Fuels 3. Oxygen 4. Kindling point 5. Heat **Exercise B**. I. 1. Fuels 2. Heat 3. Electricity 4. Friction 5. Oxygen 6. Kindling point II. *Fuels-substances that can be burned to produce heat or power *Friction-resistance to motion between bodies in contact *Kindling point-the point which an object will start to burn or be on fire *Heat-a form of energy that causes a body to rise in temperature. **Lesson 49. Exercise A.** I.(answers will be based on student's activity) II. 1. 1.conduction 2. Convention 3. Radiation **Exercise B.** I. 1. True 2.true 3.false 4. False 5.true II. (answers may vary) **Lesson 50. Exercise A.** I. 1. Heat 2. Combustion 3. Conduction 4. Radiation 5. convection. II. 1. Electrical to light/heat 2. 2. Electrical to mechanical 3. Potential to mechanical 4. Electrical to mechanical 5. Electrical to mechanical **Exercise B.** I. 1. heat 2. Combustion 3. Conduction 4. Radiation 5. Convection II. 1. Electrical to mechanical 2. Electrical to heat 3. Potential to mechanical 4. Electrical to mechanical 5. Electrical to mechanical **Lesson 51. Exercise A.** I. 1. N 2. N 3. A 4. N 5. A 6. A 7. A 8. N 9. A 10. N

Exercise B. I. 1.P 2. C 3. C 4. P 5. C 6. M 7. M 8. M 9. M 10. M **Lesson 52. Exercise A.** I. Conduction II. (Answer will be based on the student activity) **Exercise B.** I. (Answer will be based on the student activity) **Lesson 53. Exercise A.** I. A. Convection B. Radiation II.1. C 2. R 3. R 4. R 5. R 6. C 7. R 8. C **Exercise B.** I.A&B.(There are exact answers.) II. 1.convection- heat transferred through a change in temperature 2. radiation- heat transferred throughout space **Lesson 54. Exercise A.** I. 1. ✓ 2. X 3. ✓ 4. ✓ 5. X 6. ✓ 7. ✓ 8. ✓ 9. ✓ 10. ✓ **Exercise B.** I. 1. X 2. X 3. X 4. ✓ 5. X 6. X 7. ✓ 8. ✓ 9. X 10. ✓ **Lesson 55. Exercise A.** I. (Answer May Vary) **Exercise B.(**Answer May Vary) **Lesson 56. Exercise A.** (Answer will be based on the student activity) **Exercise B.** (Answer will be based on the student activity) **Lesson 57. Exercise A.** (Answer May Vary) **Exercise B.** (Answer May Vary) **Lesson 58.Exercise A.** I. *Top Soil-the rich upper layer of soil in which plants have most of their roots *Subsoil-the layer lying under the top soi *Bedrock-the solid rock found under surface maeterials such as soil II. (answers may vary) **Exercise B.** (answers may vary) **Lesson 59. Exercise A.** I. 1. J 2. E 3. D 4. I 5. C 6. G 7. A 8. F 9. B 10. H **Exercise B.** 1.strip cropping – planting diff. crops in alternate plots. 2.contouring-making of furrows along the natural contour lines so as to avoid erosion 3.terracing- planting by creating a series of flat platforms of earth with sloping sides 4.field and gully planting-planting using channels or hollows worn by running water. 5.wind beaker-planting "barricades" for wind 6.crop rotation-planting diff. drops in alternate seasons 7.crop cover- planting barricades on top 8.ponds-artificially enclosed body of water 9.ripraps-foundations or walls made of broken stones thrown together irregularly or loosely, as in water or a soft bottom 10.planting trees-provides barricades and soil protection **Lesson 60. Exercise A.** (Answer will be based on the student activity) **Exercise B.** 1.Becausse soil protection should be everywhere 2.Roots go deep and hold the soil firmly **Lesson 61. Exercise A.** (Answer will be based on the student activity) **Lesson 62. Exercise A.** I. 1. Weather elements 2. Temperature 3. Humidity 4. Pressure 5. Wind 6. Precipitation 7. cloud cover 8 – 10 (Answer May Vary) Explain: (Answer May Vary) **Exercise B.** I. 1. cloud cover 2. Precipitation 3. Humidity 4. Pressure 5. Wind 6. Temperature 7. Weather elements **Lesson 63. Exercise A.** I.(Answer will be based on the student activity) II. 1. Cirrus 2. Cumulus 3. Nimbus 4. Stratus **Exercise B.** (same with exercise A) **Lesson 64. Exercise A.** (Answer will be based on the student activity) **Exercise B.** (Answer will be based on the student activity) **Lesson 65. Exercise A**. (Answer will be based on the student activity) **Exercise. B.** (Answer will be based on the student activity) **Lesson 66. Exercise A.** I. 1. Sunday 2. Wednesday 3. 10°c 4. Friday 5. 40 °c **Exercise B.** I. 1. Wednesday 2. Sunday 3. 10° 4. Tuesday & Saturday 5. 2 °c **Lesson 67. Exercise A.** A. 1.T 2. F 3. T 4. F 5. F B. (Answer May Vary) **Exercise B.** I. 1. F 2. F 3. F 4. F II. (Answer May Vary) **Lesson 68. Exercise A.** I. 1. ☺ 2. ☺ 3. ☹ 4. ☺ 5. ☺ II. 1. No 2. Yes 3. No 4. Yes 5. (Answer May Vary) **Exercise B.** I. 1. No 2. No II. 1. True 2. True 3. False 4. False 5. True **Lesson 69. Exercise A. (**Answer will be based on the student activity) **Exercise B.** (Answer will be based on the student activity) **Lesson 70. Exercise A.** (Answer will be based on the student activity) **Lesson 71.Exercise A.** I. 1. 30°c 2. No 3. East 4. North east 5. 22°c 6. No 7. Yes, The same in the Northern Luzon 8 – 10 (Answer May Vary) **Exercise B.** I. 1. 32°c 2. No 3. North 4. East 5. 30° 6. No 7. Yes , No 8 – 10 (Answer May Vary) **Lesson 72. Exercise A.** a.earth b. clockwise c.axis d. no e. yes f. rotation **Exercise B.** (Answer May Vary) **Lesson 73. Exercise A.** I. 1. T 2. F 3. T 4. F 5. T **Exercise B.** I. 1. F 2. T 3. F 4. T 5. T **Lesson 74. Exercise A.** I. 1. A 2. B 3. C 4. A 5. A II. 1. T 2. F 3. T 4. T 5. F **Exercise B.** I. 1. C 2. B 3. A 4. A 5. A II. 1. T 2. T 3. T 4. T 5. F **Lesson 75. Exercise A.** I. 1. North poles 2. South poles 3. Globe 4. West 5. East 6. Counter clockwise 7. Clockwise 8 – 10 (Answer May Vary) **Exercise B.** I. 1. Counter clockwise 2. Globe 3. South poles 4. North poles 5. Clockwise 6. West 7. East 8 – 10 (Answer May Vary) **Lesson 76. Exercise A.** I. 1. Revolution 2.365 ¼ 3. Orbit 4. Leap Year 5. Year II. (Answer May Vary) **Exercise B.** I. 1. Leap year 2. Year 3. Orbit 4. Revolution 5. 365¼ II. (Answer May Vary) **Lesson 77. Exercise A.** I. 1. B 2. B 3. A 4. A 5. A 6. C 7. A

8. B **Exercise B.** I. 1. B 2. A 3. B 4. A 5. B 6. A 7. C 8. A **Lesson 78. Exercise A.** I. 1. F 2. T 3. F 4. F 5. T 6. T 7. T 8. T 9. F 10. T **Exercise B.** I. 1. ✓ 2. ✓ 3. ✓ 4. X 5. X 6. X 7. ✓ 8. X 9. X 10. ✓ **Lesson 79. Exercise A.** I. 1. first quarter 2.new moon 3.last quarter 4.full moon **Exercise B.** I. (Answer May Vary) II. 1. Waning crescent 2. Full moon 3. New moon 4. Waning gibbous 5. Waxing crescent 6. First quarter 7. Waxing gibbous 8. Last quarter **Lesson 80. Exercise A.** I. 1. A. Tilting of the earth's axis at 23½ degrees. B. Revolution of the earth around the sun. 2. Summer 3. southern hemisphere 4. Dry and Wet Seasons II. (Answer may Vary) **Exercise B.** I. (Answer may vary) II. 1. Dry seasons 2. Wet Seasons 3. Tilting of the earth's axis at 23½ degrees 4. Revolution of the earth around the sun. 5. Winter 6. Spring 7. Summer 8. Fall **Lesson 81.** I. a. Yes b. a portion of the Earth that experiences daytime becomes dark c. solar d. The moon is between sun and earth **Exercise B** a.earth b.yes c. the moon does not receive any light from the sun and is not visible in the sky d.the earth is between sun and moon

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For general inquiries
The 57-75 Movement
c/o LCF Secretariat
Unit 704 Midland Mansion Condominium
#839 Arnaiz Avenue, Makati City
Tel: 02.970-0230 ● Fax: 02.892-9084
taskforce5775.org ● www.57-75.org

For workbook concerns
Ateneo Center for Educational Development
3rd Floor Höffner Building, Social Development Complex
Ateneo de Manila University, Katipunan Road
Loyola Heights, Quezon City
Tel: 02.426-6001 loc. 4028 ● Fax: 02.426-5693
aced.admu@yahoo.com ● www.ateneo.edu