Workbook on Science 6

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)

Workbook on Science (Grade 6)

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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.

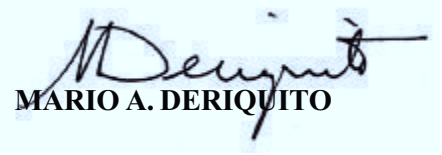
57-75 advocates *Focusing* on helping students stay in school, enhancing reading proficiencies, and improving achievement rates in math, science, and English; student and school *Performance*; and *Community Empowerment and Engagement.*

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 6 SCIENCE

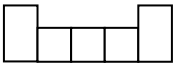
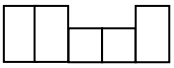
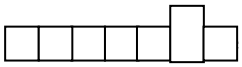
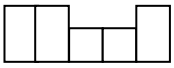
Title **Page**

Title **Page**

Lesson 1: Describe the circulatory system and its major parts.

Exercise A

Directions: Describe the circulatory system and the major parts by filling in the boxes with the letters of the correct answer.

1. The  is about the size of our fist found at the middle chest cavity pointing left.
2. The   the pathways/passages of blood in the body.
3. The  is the "red river" of life.

Directions: Match the part of the heart in column A with the description in column B. Write the letter of the correct answer.

A	B
_____4. Ventricles	A. The upper chambers of the heart
_____5. Atria	B. The tiniest blood vessels
_____6. Capillaries	C. The lower chamber of the heart

Directions: Unscramble the letters to name the circulatory ailment being described by the given clue.

7. ARTREIES _____
   -the thick walled and elastic blood vessels
8. EIVNS_____
   -blood vessels with thinner walls and have bigger diameter
9. EULKOCYSET _____
   -another word for WBC often referred to as the soldiers of the body

Directions: Answer the question honestly.

10. What have you learned about the circulatory system?

_____

_____

_____

Lesson 1: Describe the circulatory system and its major parts.

Exercise B

Directions: Describe the circulatory system and its major parts by filling in the blanks with the correct answer inside the box.

Heart	Blood	Blood Vessels

1. The _____ is a hallow muscular organ about the size of your fist found at the middle of the chest cavity pointing left.

2. The _____ is the red fluid in the body composed of plasma, red blood cells (RBC), white blood cells (WBC) and platelets.

3. The _____ are the pathways of blood in going to the different parts/cells of the body.

Directions: Match the part of the heart in column A with the description in column B. Write the letter of the correct answer.

A	B
_____4. Ventricles	A. They are the thin walled upper chamber of the heart.
_____5. Atria	B. They are the tiniest blood vessels.
_____6. Capillaries	C. They are the two thick-walled lower chamber of the heart.

Directions: Unscramble the letters to name the circulatory ailment being described by the given clues.

7. ARTREIES _____ -the thick walled and elastic blood vessels.
8. VENSI _____ -blood vessels with thin walls and have bigger diameter.
9. LEUKOTYCES _____–another term for white blood cells also often referred to as the "soldiers" of the body

Directions: Encircle the letter of the correct answer to the question.

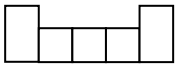
10. What have you learned about the circulatory system?

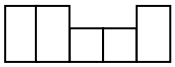
A. It is the body's "pick-up and delivery system".
B. It is the body's "delivery system".
C. It is the body's "pick-up system".
D. It is the body's important system.

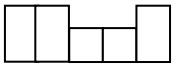
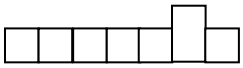
Lesson 2: Explain the function of the circulatory system

Exercise A

Direction: Explain the function of the circulatory system. Write the letters of the answers inside the boxes.

1.  - pumps blood to the different parts of the body.

2.  – carries digested food, oxygen and other substances to the different cells of the body.

3.   – transports blood to all parts of the body.

Directions: Choose the letter of the best answer.

4. _____ fight infections in our body

A. white blood cells C. blood platelets
B. red blood cells D. plasma

5. _____ clots the blood to prevent bleeding

A. white blood cells C. blood platelets
B. red blood cells D. hemoglobin

6. _____ carries blood away from the heart

A. white blood cells C. blood platelets
B. red blood cells D. arteries

Directions: Match the word in column A with the description in column B. Write the letter of the correct answer.

A	B
_____7. Circulation	A. The color of blood coming from the heart
_____8. Red	B. Color of the veins that are closer to the surface of the body
_____9. Blue	C. The complete trip of the blood from the heart to all parts of the body and back to the heart.

Directions: Encircle the letter of the correct answer to the question.

10. Why is the right ventricle called the lung pump?
A. It pumps blood to all parts of the body.
B. It pumps blood towards the lung.
C. It pumps blood towards the pulmonary vein.
D. It pumps blood towards the pulmonary artery.

Lesson 2: Explain the function of the circulatory system

Exercise B

Directions: Explain the function of the circulatory system by matching column A with B. Write the letter of the correct answer on the blank before each number.

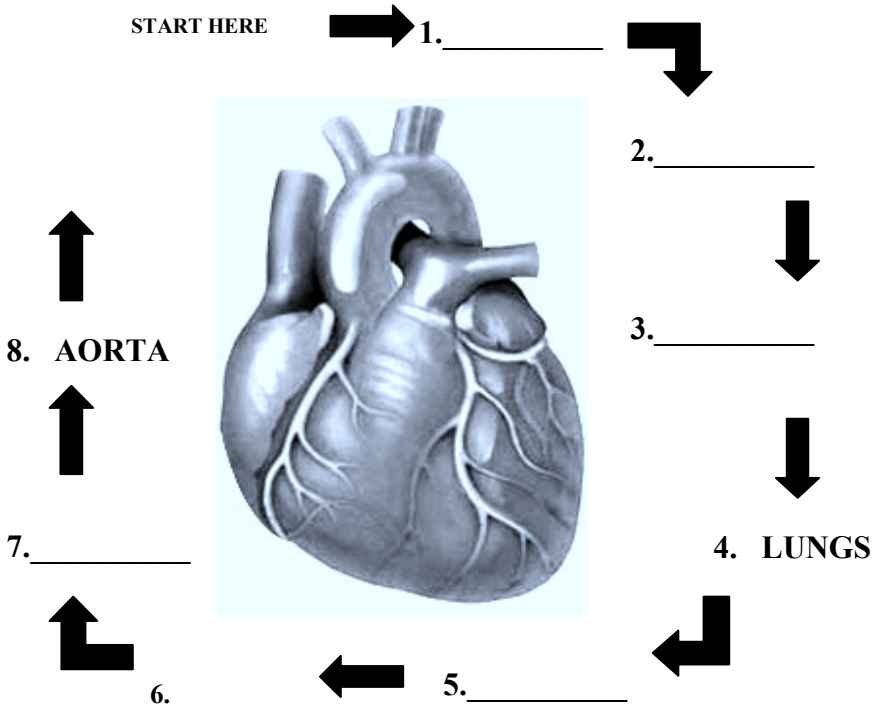
A	B
_____ 1. Circulatory System	A. Pumps blood to the different parts of the body.
_____ 2. Heart	B. Transports blood to all parts of the body
_____ 3. Blood	C. Carries digested food, oxygen and other substances to the different cells of the body
_____ 4. Blood Vessels	D. Carry blood away from the heart
_____ 5. Red Blood Cells	E. Carry blood with oxygen from the lungs to the heart
_____ 6. White Blood Cells	F. Blood cells that carry oxygen and carbon dioxide
_____ 7. Blood Platelets	G. They fight infections in your body
_____ 8.Arteries	H. The very small blood vessels through which nutrients, oxygen and waste materials pass
_____ 9. Veins	I. Helps in the circulation and assimilation of digested food in the body
_____ 10.Capillaries	J. Helps stop bleeding and make the blood clot whenever body is injured

Lesson 3: Illustrates/ demonstrates the movement of blood throughout the body.

Exercise A

Directions: Complete the diagram of blood flow below. Refer to the parts in the box.

Pulmonary veins	Right atrium
Left ventricle	Pulmonary artery
Right ventricle	Aorta
Lungs	Left atrium



Directions: Encircle the letter of the correct answer.

9. What might happen if the heart valves would not close?

A. Blood will continue to flow.
B. Blood will undergo a back flow.
C. Blood will stay flowing.
D. Blood will clot due to the presence of platelets.

10. How is blood circulation affected by tight clothing?

A. Blood circulation is disturbed.
B. Blood circulation is never disturbed.
C. Blood circulation stops for a while.
D. Blood circulation becomes fast.

Lesson 3: Illustrates/ demonstrates the movement of blood throughout the body.

Exercise B

Direction: Trace the flow of blood by filling in the given list. Use the words in the

Right ventricle	Pulmonary artery
Aorta	Right atrium
Left atrium	Lungs
Pulmonary veins	Left ventricle

Oxygen-poor blood…

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

… Oxygenated blood to the different parts of the body.

Directions: Answer the following questions.

9. What might happen if the heart valves would not close?

10. How is blood circulation affected by tight clothing?

Lesson 4: Describes the common ailments of the circulatory system.

Exercise A

Direction: Describe the common ailments of the circulatory system. Encircle the letter of the correct answer.

1. Which is described as an iron deficiency disease?

a. Anemia b. Leukemia c. Stroke d. Hemophilia

2. This disease is sometimes called the blue baby.

a. Heart attack
b. Congenital Heart Disease
c. Hypertension
d. Arteriosclerosis

3. It is known as the cancer of the blood.

a. Anemia b. Heart Attack c. Leukemia d. Hemophilia

Directions: Identify the name of ailment that is described below. Write your answer on the blanks.

Hemophilia	Hypertension
Heart attack	Arteriosclerosis

_____4. It is a disease common among adults
_____ 5. A hereditary disease which is characterized by continuous bleeding due to the non-coagulation of the blood.
_____6. It occurs when the flow of the heart is stopped.

Directions: Unscramble the letters of the ailment of the circulatory system described by the given clues.

7. ROKEST - _____ - Abnormally high blood pressure.
8. CLESISROARTERIOS- _____ -Thickening and hardening of the arteries due to cholesterol.
9. TENPERNOSIHY- _____ - Abnormally high blood pressure.

Directions: Answer the question below.

10. Why is there a need to know the ailments of the circulatory system?

Lesson 4: Describes the common ailments of the circulatory system.

Exercise B

Directions: Describe the common ailments of the circulatory system by encircling the correct word inside the parenthesis.

1. It is known as the cancer of the blood.

(leukemia, anemia, hemophilia, stroke)

2. It is called congenital heart disorders.

(hypertension, heart attack, arteriosclerosis, congenital heart disease)

3. Decrease in the number of hemoglobin in the red blood cells.

(stroke, hemophilia, anemia, leukemia)

Directions: Identify the name of the ailment that is described below.

Hypertension	Heart Attack
Arteriosclerosis	Hemophilia

_____ 4. A sudden rise in blood pressure

_____ 5. This condition is due to iron deficiency.

_____ 6. One of the arteries becomes blocked by a blood clot.

Directions: Unscramble the letters of the ailment of the circulatory system described by the given clue.

7. ARRIOSSTEISORCLE - _____; due to the presence of calcium or lime.

8. EROKEST - _____; happens when there is damage in some parts of the brain.

9. NOISENTREPHY - _____; It causes damage to various organs in the body resulting to other diseases.

Directions: Encircle the letter of the correct answer to the question.

10. Why is there a need to know the ailments of the circulatory system?

A. To avoid sickness of the circulatory system.
B. To become unhealthy.
C. To experience ailments of the circulatory system.
D. To have a chance to visit the doctor often.

Lesson 5: Identify health habits to keep the heart, blood and blood vessels healthy.

Exercise A

Direction: Put a Check on the statements that show desirable habits that prevent/control common ailments of the circulatory system.

_____ 1. Refrain from smoking.

_____ 2. Sleep more than 10 hours a day.

_____ 3. Lead a sedentary life.

_____ 4. Increase intake of polyunsaturated fat.

_____ 5. Refrain from eating food with plenty fiber.

_____ 6. Reduce intake of saturated fat.

_____ 7. Take unprescribed medicine.

_____ 8. Reduce high blood pressure.

_____ 9. Increase physical activity / exercise.

_____ 10. Maintain weight within normal limits.

Exercise B

Directions: Put a check on the practices that are good for your circulatory system.

_____ 1. Eat moderately.

_____ 2. Always feel relaxed.

_____ 3. Avoid smoking.

_____ 4. Drink alcoholic beverages.

_____ 5. Avoid anxieties and worries.

_____ 6. Exercise regularly.

_____ 7. Eat a lot of fruits and vegetables.

_____ 8. Smoke cigarettes three times a day.

_____ 9. Have regular blood pressure check-up

_____ 10. Eat too much fats and salty foods.

Lesson 6: Demonstrate ways of caring for the circulatory system.

Exercise A

Direction: Identify the illustrations that show ways of caring for the circulatory system. On the blanks below each picture, put a check (√) on those that are good habits. Cross out (X) the bad habits.

1._____

2. _____

3. _____

4. _____

Directions: Put a Check (√) on the box beside the statements that show good health habits. Put an X beside the ones that do not show good health habits.

5. ☐ - Eat proper food in the right amount.
6. ☐ - Stress and tension cause heart to be in good tone.
7. ☐ - Eating fatty foods makes the heart strong and healthy.
8. ☐ - Be happy. Look at the bright side and positive of life.
9. ☐ - Avoid exercise, this will tire the heart.

Lesson 6: Demonstrate ways of caring for the circulatory system.

Exercise B

Direction: Identify the illustrations that show ways of caring for the circulatory system. On the blanks below each picture, put a star on those that are good habits. Cross out (X) the bad habits.

1. _____

2. _____

3._____

4._____

Directions: Write G on the box beside the statements that show good health habits. Write B beside the ones that do show bad health habits.

☐ 5. Eat a balanced diet.

☐ 6. Avoid fatty food. Fatty foods contain bad cholesterol.

☐ 7. Avoid extreme anger, too much joy, too much excitement and unnecessary fears.

☐ 8. Get enough rest, sleep and proper exercise.

☐ 9. Avoid harmful drugs, cigarettes and alcohol.

Directions: Encircle the letter of the correct answer to the question.

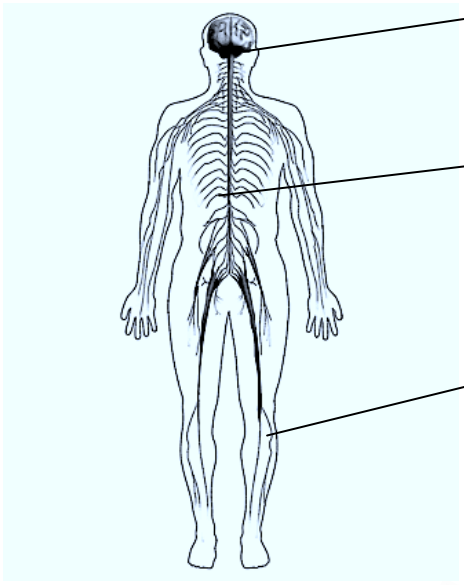
10. Why should we consult a doctor when we are sick?

A. To prevent it from getting worse.
B. To give immediate treatment.
C. To enable the system to function well.
D. All of these.

Lesson 7: Identifies the nervous system and its major parts.

Exercise A

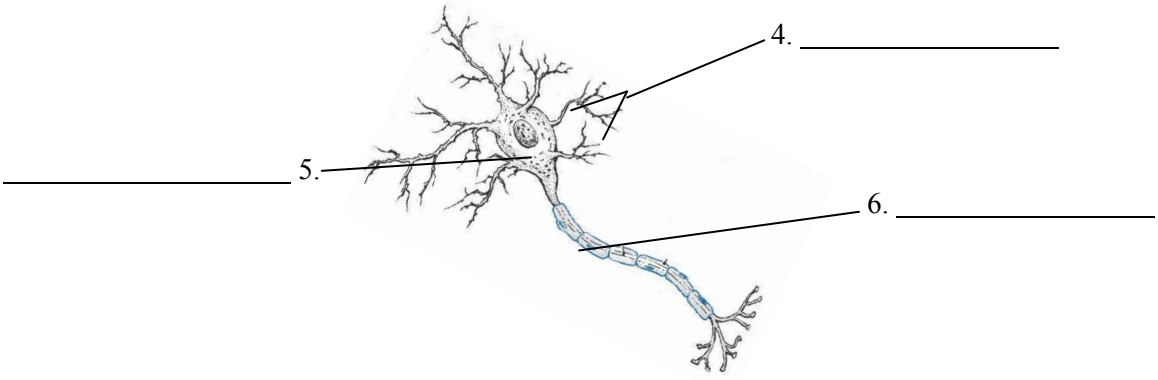
Directions: Identify the main parts of the nervous system by writing the correct answer on the blank.



1. _____

2. _____

3. _____

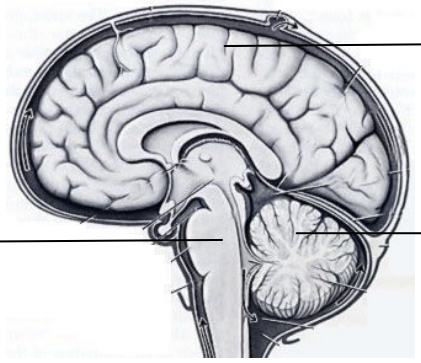


4. _____

_____ 5.

6. _____

Directions: Identify the parts of the brain.



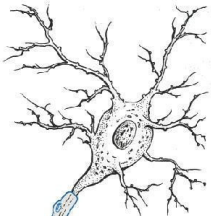
7. _____

9._____ _____ _____ 8._____

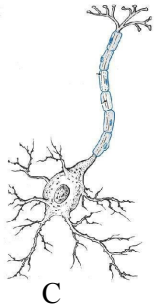
10. Which of the following shows an illustration of a spinal chord? Write the letter of the correct answer on the blank.

ANSWER: _____

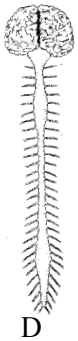
A



B



C



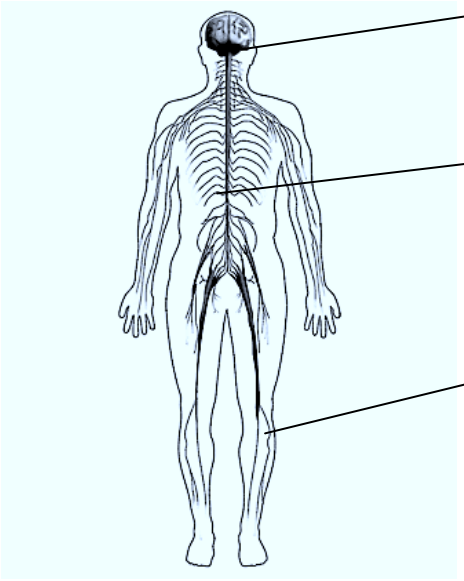
D

Lesson 7: Identifies the nervous system and its major parts.

Exercise B

Direction: Identify the main parts of the nervous system by choosing the correct answer from the box.

Nerves	Spinal cord
Brain	Axon



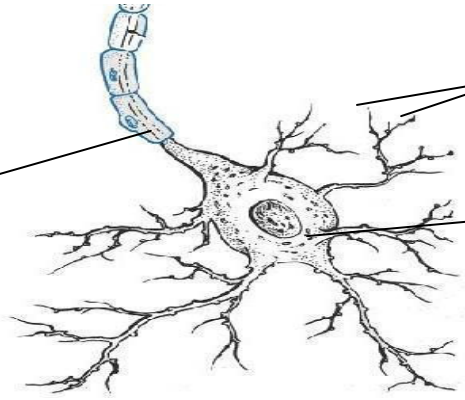
1. _____

2. _____

3. _____

Directions: Identify the main parts of the nerve cell by choosing the letter of the correct answer inside the box.

A. Cell body	C. Nucleus
B. Axon	D. Dendrites

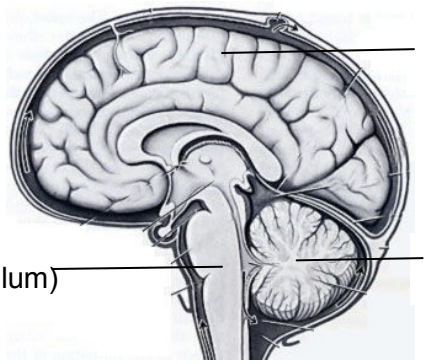


4. _____

5. _____

6. _____

Directions: Identify the division of the brain by choosing the answer inside the parenthesis.

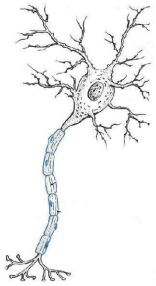


7. (cerebellum, cerebrum, brain stem)

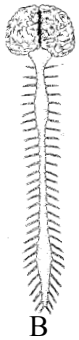
8. (cerebrum, brain stem, cerebellum)

9. (brain stem, cerebrum. cerebellum)

10. Which of the following shows an illustration of a spinal chord? Write the letter of the correct answer on the blank.



A



B

C

D

ANSWER: _____

Lesson 8: Describe how the nervous system works.

Exercise A

Directions: Arrange the statements below in order to show how the nervous system works. A is the first statement and E is the last statement. Write your answers on the blanks.

_____ 1. is carried by the nerves to the spinal cord

_____ 2. Message is carried by nerves back to the body organ which will do the desired action.

_____ 3. message from the sense organ

_____ 4. then message is sent to the brain where it is interpreted

_____ 5. message is sent back to the spinal cord

Directions: Arrange the phrases to describe how the reflex action works with 1 as the first statement. Write your answer on the blanks.

_____ 6. Message is sent back to the affected organ of the sense organ.

_____ 7. Message is received by the sensory nerve endings.

_____ 8. Message is sent to the spinal cord.

Exercise B

Directions: Arrange the statements below in order to show how the nervous system works with 1 as the first statement. Write your answers on the blanks.

_____ 1. then to the brain

_____ 2. message from sense organ

_____ 3. is carried to the spinal cord

_____ 4. back to the spinal cord

_____ 5. back to the body organ which will do the desired action.

Directions: Arrange the parts of the brain to show how the reflex action works with 1 as the first brain part. Write your answer on the blanks.

_____ 6. sense organ

_____ 7. nerves

_____ 8. spinal cord

_____ 9. sense organ

Directions: Encircle the letter of the correct answer to the question below.

10. Why is the nervous system important?
    a. It enables the body to coordinate bodily activities.
    b. It acts as a storehouse of information.
    c. Information outside and inside the body are processed, and interjected by the nervous system.
    d. All of the above

Lesson 9: Practices desirable habits that help prevent and control common ailments of the nervous system.

Exercise A

Direction: Identify the illustrations which show desirable habits that help prevent and control common ailment for the nervous system? Put a check (√) on the desirable habits and cross out (X) the bad habits.

1. _____

2. _____

3. _____

4. _____

Directions: Check (√) all the desirable health habits. Put (X) on all the bad habits.

☐ 5. Avoid smoking.

☐ 6. Relax your nerves and spend your leisure time wisely.

☐ 7. Do not watch out for falling debris or objects when passing along a construction site.

☐ 8. Avoid drinking beer.

☐ 9. Eat too much junk food.

Lesson 9: Practices desirable habits that help prevent and control common ailments of the nervous system.

Exercise B

Direction: Identify the illustrations which show desirable habits that help prevent and control common ailment for the nervous system? Put a check (√) on the desirable habits and cross out (X) the bad habits.

1. _____

2. _____

3. _____

4. _____

Directions: Write G on the boxes beside the statements that show desirable health habits and B for all the bad health habits.

☐ 5. Smoke cigarette three times a day.

☐ 6. Drink alcoholic beverages.

☐ 7. Eat moderately.

☐ 8. Exercise regularly.

☐ 9. Always feel relaxed.

☐ 10. Stay away from drugs.

Lesson 10: Identifies the physical, mental, emotional and social needs of a person.

Exercise A

Directions: Identify if the following pictures show physical, mental, emotional and social activities. Write P if the picture shows physical activity, M if mental activity, E if emotional activity, and S if it is a social activity.

1. ____

6. ____

2. ____

7. ____

3. ____

8. ____

4. ____

9. ____

5. ____

10. ___

Lesson 10: Identifies the physical, mental, emotional and social needs of a person.

Exercise B

Direction: Read the statements below. On the blanks, write C if the statement is correct and IC if it is incorrect.

_____ 1. Nobody needs love.

_____ 2. We need somebody to share our feelings.

_____ 3. An emotionally healthy person can easily relate with others.

_____ 4. Sleep is important to be emotionally and mentally healthy.

_____ 5. Our family and friends are there to help us when we have problem.

_____ 6. When we have a problem, we should find someone to blame for our problem.

Lesson 11: Describe the effect of physical, mental and emotional state on one's health.

Exercise A

Direction: Describe the effects of physical, mental and emotional states by writing the letter of each statement in their proper column.

Physical	Mental	Emotional

A. Reading good books and newspapers.

B. Having positive and happy thoughts.

C. Spending time with your family.

D. Playing basketball and jogging.

E. Sleeping for 8-10 hours.

F. Interacting with other people.

G. Solving the problem on low grades by studying very hard.

H. Eating a proper diet.

I. Helping fire and flood victims.

J. Fighting infection so that body parts work well.

Lesson 11: Describe the effect of physical, mental and emotional state on one's health.

Exercise B

Directions: Honestly accomplish the activity checklist below.

ACTIVITY	Always	Sometimes	Never
1. Reading good books and newspapers.			
2. Having positive and happy thoughts.			
3. Spending time with your family.			
4. Playing basketball and jogging.			
5. Sleeping for 8-10 hours.			
6. Interacting with other people.			
7. Solving the problem on low grades by studying very hard			
8. Eating a proper diet.			
9. Helping fire and flood victims.			
10. Fighting infection so that body parts work well.			

Lesson 12: Describe the effects of relationships with family, friends and society on mental, emotional and physical well-being.

Exercise A

Direction: Observe if you do or feel the following. Honestly accomplish the activity below.

5- almost always	2. almost never
4- very often	1- never
3- sometimes	

1. Experience tension and anxieties. _____
2. Perform my duties. _____
3. Get along well with others. _____
4. Fell jealous of my brothers or sisters. _____
5. Blame others for my mistakes. _____
6. Recognize my mistakes. _____
7. Put my best effort to solve my problem. _____
8. Afraid of the future. _____
9. Feel angry or worried. _____
10. Feel happy and satisfied. _____

Analyze your answers. If your answers to items 1-6 and 9-10 are 1-never and 4-very often, and to items 6-9, your answers are 3-sometimes and 7 are 5-almost always, you are a emotionally, socially and mentally healthy person.

Lesson 12: Describe the effects of relationships with family, friends and society on mental, emotional and physical well-being.

Exercise B

Directions: Copy the table in your notebook. Answer the questions honestly by checking the appropriate column.

	Always	Sometimes	Never
<u>With Family</u> 1. Do you respect the members of your family? 2. Do you help in household chores? 3. Do you share problems with family members?			
<u>With Friends</u> 4. Do you apologize for a wrong doing? 5. Do you quarrel with your friends? 6. Do you cooperate with others in one's project?			
<u>With Others in the Community</u> 7. Are you shy and withdrawn? 8. Do you listen well with others? 9. Do you handle difficult people so well? 10. Do you inspire/encourage people to do well?			

Lesson 13: Ways of maintaining one's health such as: preventing common ailments, knowing where to seek help, demonstrating positive attitude to stay healthy.

Exercise A

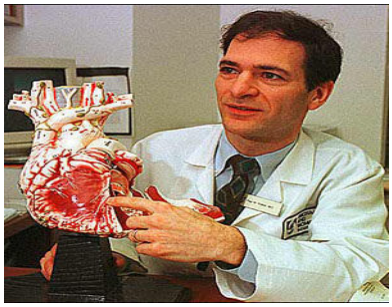
Directions: Read each sentence carefully. On the blank, if you think the sentence is correct, Write TRUE. If not, write FALSE.

_____ 1. Some diseases/illnesses are inherited.
_____ 2. Communicable diseases can be caused by germs.
_____ 3. Cancer is the number one killer disease today.
_____ 4. The body has some natural defenses against diseases.
_____ 5. Some diseases are caused by a person's health habits.

Directions: Identify what each doctor performs. Complete the statements below.

An ophthalmologist treats
6. _____.

A surgeon performs
7. _____.



A cardiologist treats
8. _____.

An obstetrician treats women
during 9. _____.

Lesson 13: Ways of maintaining one's health such as: preventing common ailments, knowing where to seek help, demonstrating positive attitude to stay healthy.

Exercise B

Directions: Put a check (√) if the following statement shows a positive attitude to stay healthy and cross (X) if not.

_____ 1. Get enough sleep, rest and exercise.

_____ 2. Take harmful substances such as drugs or carbonated drinks.

_____ 3. Eat two times a day.

_____ 4. Drink 5 to 7 glasses of water.

_____ 5. Be mentally and emotionally healthy.

_____ 6. Do not use a clean handkerchief to cover your mouth.

_____ 7. Stay in crowded places.

_____ 8. Do not go to bed hungry or too full.

_____ 9. Make sure that your bedroom is comfortable.

_____ 10. Get regular physical and dental check-ups.

Lesson 14: Illustrates feeding relationships between organisms through a food web.

Exercise A

Directions: Illustrate five food chains using the organisms below.

1.

2.

3.

4.

5.

Lesson 14: Illustrates feeding relationships between organisms through a food web.

Exercise B

Directions: Illustrate five food chains using the organisms below.

1.

2.

3.

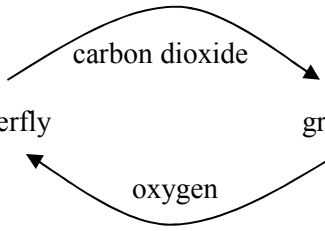
4.

5.

Lesson 15: Constructs the diagram of the oxygen-carbon dioxide cycle.

Exercise A

Directions: Construct three simple diagrams of the oxygen-carbon dioxide cycle by using arrows.



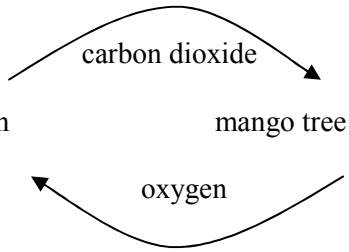
1.

2.

3.

Exercise B

Directions: Construct three simple diagrams of the oxygen-carbon dioxide cycle by using arrows.



1.

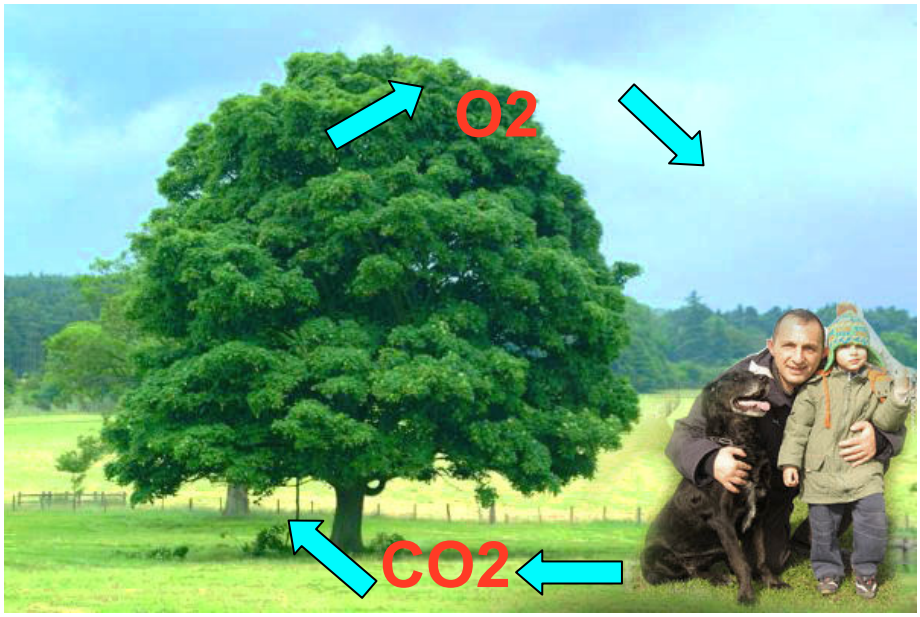
2.

3.

Lesson 16: Interprets the diagram of the oxygen-carbon dioxide cycle.

Exercise A

Directions: Study the diagram below. Arrange the events to interpret the diagram of the oxygen-carbon dioxide cycle. Write the numbers on the blank with 1 as the first sequence.



_____ Animals give off carbon dioxide (CO2) into the air.

_____ Animals take oxygen (O2) from the air needed for respiration or breathing.

_____ During the day plants perform photosynthesis.

_____ In this process there is a continuous exchange of oxygen and carbon dioxide between animals and plants in an ecosystem.

_____ Plants take carbon dioxide from the air needed for photosynthesis.

_____ In the process of photosynthesis plants give off oxygen into the air.

Lesson 16: Interprets the diagram of the oxygen-carbon dioxide cycle.

Exercise B

Directions: Read the statements below. Write True or False on the blank.

_____ 1. Oxygen is taken in by plants at daytime.

_____ 2. Carbon dioxide is given off by animals.

_____ 3. There are nutrients in the food we eat.

_____ 4. All plants can make their own food.

_____ 5. Plants need oxygen.

_____ 6. Plants and animals are dependent on each other.

_____ 7. Oxygen-carbon dioxide cycle is a continuous exchange of oxygen and carbon dioxide by plants and animals.

_____ 8. Oxygen is taken by animals at daytime.

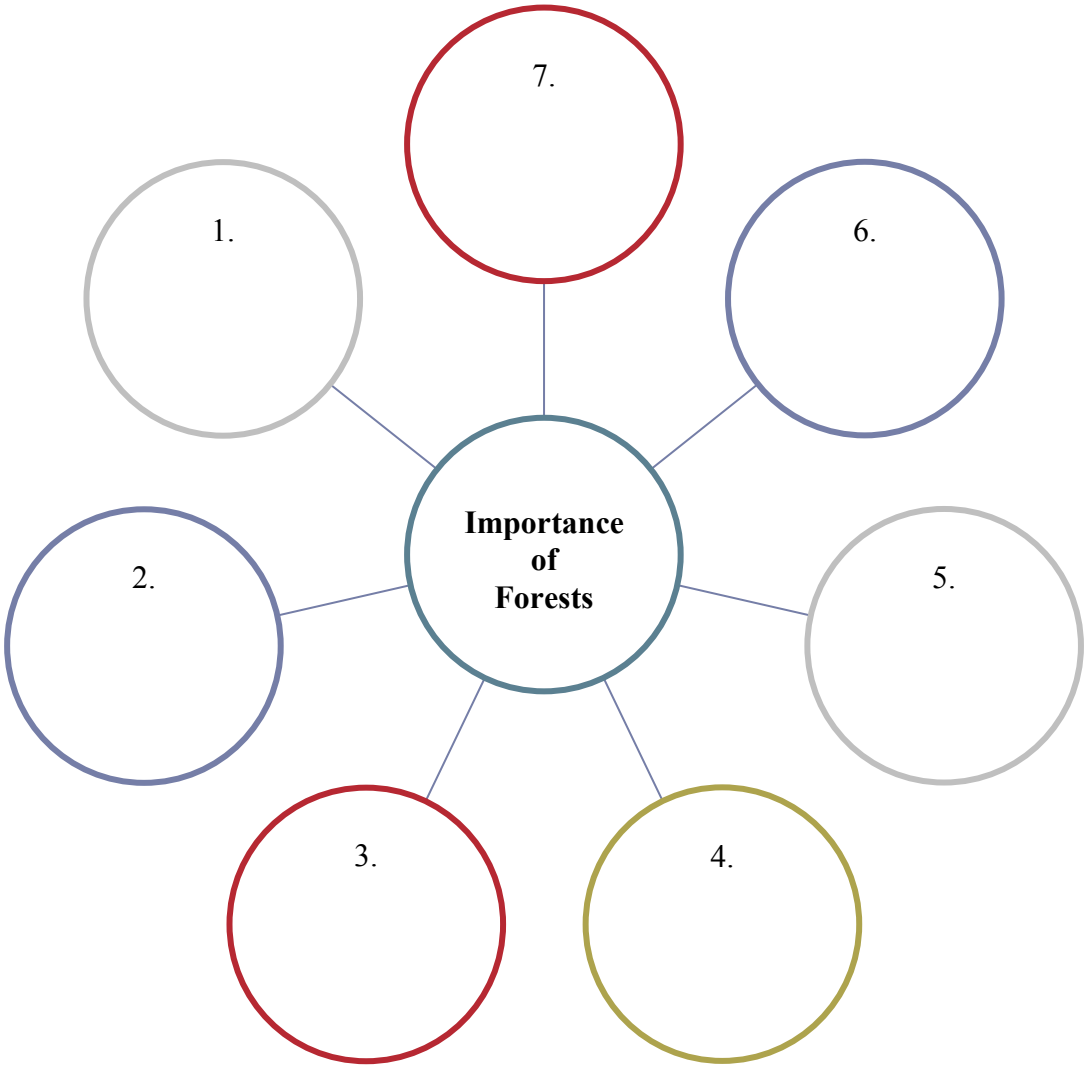
_____ 9. All Animals need carbon dioxide.

_____10. All living things give off carbon dioxide.

Lesson 17: Explains the importance of forests.

Exercise A

Directions: List some things you get and use from the forest. Write them in the mind map below then answer the question that follows.



Why are forests important?

_____

_____

_____

_____

_____.

Lesson 17: Explains the importance of forests.

Exercise B

Directions: Encircle the number of the sentence that shows the importance of forests.

1. Serves as the habitat of wildlife.

2. Contains plants that are sources of different medicines.

3. Helps decrease the level of underground water.

4. Serves as watersheds or sources of water for rivers and streams.

5. Called the lungs of the earth because it provides us with oxygen.

6. It helps in the increase of global temperature and changes in climate.

7. Provides us with water, paper, photographic film and important chemicals.

8. Provides lumber for building houses and making of furniture.

9. Serves as a place of security and economic opportunity.

10. Protects the topsoil of mountains and hills from erosion.

Lesson 18: Describes the effect of deforestation.

Exercise A

Directions: Describe the effect of deforestation by checking all the effects and crossing out those that are not.

_____ 1. Reduction of the supply of food

_____ 2. Loss of water sheds

_____ 3. Change in climate

_____ 4. Floods

_____ 5. Growing of new trees

_____ 6. Soil erosion

_____ 7. Increase in food production

_____ 8. Loss of biodiversity

_____ 9. Decrease in water supply

_____ 10. Increase in soil fertility

_____ 11. Displacement or loss of wildlife

_____ 12. Increase supply in building materials

_____ 13. Sedimentation in water reservoirs

_____ 14. Increase the income of the community

_____ 15. Loss of soil fertility

Exercise B

Directions: Encircle the letters of the statements that describe the effects of deforestation.

A. Reduced supply of food

B. Washing away of topsoil

C. Increase in soil fertility

D. Greenhouse effect

E. Loss of useful plants

F. Growing of new trees

G. Displacement of wildlife and extinction of species.

H. Increase in food production

I. Change in climate

J. Provides us with oxygen

K. Decrease in water supply

L. Increase the level of underground water

M. Loss of water sheds

N. Flash floods

O. Drought

Lesson 19: Identify some human activities that disrupt the cycle in an ecosystem (e.g. deforestation, intensive farming, fish culture, inefficient garbage disposal).

Exercise A

Directions: Encircle the number of human activities that disrupt the cycles of an ecosystem.

1. conserving water
2. burning garbage
3. smoke-belching vehicles
4. killing insects and birds
5. using pesticides
6. dynamite fishing
7. hunting
8. planting trees
9. throwing plastic in canals
10. cleaning surroundings

Exercise B

Directions: Put an X on the activities of human beings that disrupt our ecosystem and put a check on those that do not.

_____ 1. Pollute the air

_____ 2. Recycling

_____ 3. Kill insects and birds

_____ 4. Clean your surroundings

_____ 5. Segregating solid waste

_____ 6. Throw garbage anywhere

_____ 7. Destroy plants

_____ 8. Dumping of garbage in rivers

_____ 9. Using pesticides

_____ 10. Throw plastics in canals, rivers or any water ways.

Lesson 20: **Infers the harmful effects of certain activities on a bigger or a more complex ecosystem e.g. pond ecosystem.**

Exercise A

Directions: Study the pictures below. Answer the questions that follow.

1. How do kaingin activities disrupt the cycle of an ecosystem? _____
   _____.
2. What are the harmful effects of dynamite and cyanide fishing on the cycle of our ecosystem? _____
   _____
   _____
3. How does illegal logging affect the cycles of our ecosystem? _____
   _____
4. What is/are the effect/s of global warming on our environment? _____
   _____
5. What are man's activities that cause global warming? _____
   _____
   _____

Lesson 20: Infers the harmful effects of certain activities on a bigger or more complex ecosystem e.g. pond ecosystem.

Exercise B

Directions: Put an X on the statements that show harmful effects of complex ecosystem and put check (√) on those that are not.

_____ 1. killing insects and birds

_____ 2. burning garbage

_____ 3. hunting

_____ 4. planting trees

_____ 5. using pesticides

_____ 6. cleaning surroundings

_____ 7. dynamite fishing

_____ 8. smoke belching vehicles

_____ 9. conserving water

_____ 10. throwing garbage in canals, rivers or any water trap

Lesson 21: Infer that shortage of food, water and space may occur due to a growing population.

Exercise A

Directions: Infer the things that may occur to a growing population by matching items in column A with B. Write the letter correct answer in the blanks.

A	B
_____ 1. not enough space to live in	A. food shortages
_____ 2. air, water and land are filthy	B. spread of disease
_____ 3. lack of nutrients needed by the body	C. malnutrition
_____ 4. viruses and bacteria bring about plagues	D. pollution
_____ 5. decrease in food supply needed for consumption	E. space shortage
	F. population

Directions: Read the phrases below then write them in their proper/appropriate columns.

FOOD SHORTAGE	WATER SHORTAGE	SPACE SHORTAGE

- build houses along river banks, railroad tracks and even under bridges
- more people; more water is needed
- poor distribution of water supply
- more members to feed; the smaller the amount of food each family member gets
- people throw garbage in rivers and seas.
- building of houses are very close to each other

Lesson 21: Infer that shortage of food, water and space may occur due to a growing population.

Exercise B

Directions: Read each situation carefully then write the type of problem that is connected to over-population. Refer to the box below.

Shortage of Food	Shortage of Water
Shortage of Space	

_____ 1. More people line up waiting for their turn to get water.

_____ 2. People line up to buy rice.

_____ 3. Rice prices increase.

_____ 4. Big families build shanties on side walks.

_____ 5. People dump industrial wastes into bodies of water.

_____ 6. People build houses even under bridges.

_____ 7. Some people squat on private or vacant government lots.

_____ 8. When there is a great demand for food but the supply is low.

_____ 9. Rising prices of food causes malnourished and undernourished citizenry.

_____ 10. Poor distribution of water supply.

Lesson 22: Infer that land, water and air may become limited and eventually polluted due to over population

Exercise A

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

_____ 1. Lesser living space is available as population increases.

_____ 2. Contamination of land, water and air occur as inhabitants increase in number.

_____ 3. In over crowded places we can't see squatters living in waiting sheds and trees.

_____ 4. More people produce more wastes which may not be disposed off properly.

_____ 5. People are not affected with the bulk of garbage around them.

_____ 6. Garbage accumulates on land and in water systems.

_____ 7. Overpopulated places are conducive to bacterial diseases like measles and dysentery etc.

_____ 8. Landfills contaminate groundwater resources.

_____ 9. Overcrowded places like in big cities, people build their houses very close to each other.

_____ 10. Too much garbage is never a problem in big cities.

Exercise B

Directions: Put a check beside the correct statements and X for the wrong ones.

___ 1. Garbage disposal becomes a problem in crowded places.

___ 2. There is less garbage in over crowded places.

___ 3. Diseases like tuberculosis, measles and sore eyes easily spread in over crowded places.

___ 4. People are healthy in over crowded places.

___ 5. Garbage is easy to manage in crowded places.

___ 6. People can never be affected by the heap of garbage around them.

___ 7. Garbage is very hard to manage in crowded places.

___ 8. People are forced to build houses along riverbanks just to get close to their work.

___ 9. Children are seen playing on the streets for there are no more playgrounds.

___ 10. People still can enjoy fresh air even in the area (place) is crowded.

Lesson 23: Infers that over population affects one's health and that of the community.

Exercise A

Directions: Draw a ★ on the blank beside the correct statements and ○ for the wrong ones.

_____ 1. Polluted air is never safe for people's consumption.

_____ 2. Smoke emitted by vehicles is harmful to our health.

_____ 3. Most health problems are usually the result of over population.

_____ 4. Health problems occur due to a rapid growing population.

_____ 5. Contagious diseases are usually caused by dirty surroundings.

_____ 6. Poor nutrition can lead to poor health conditions.

_____ 7. Poor water supply may result in poor hygiene.

_____ 8. More people mean more garbage.

_____ 9. Over population affects the health of the people.

_____ 10. An over populated country is a progressive country.

Exercise B

Directions: Read the following statements. Encircle the letters of the correct statements that pertain to the effects of overpopulation.

A. Some people die because of disease outbreaks.
B. Health problems are usually the result of over population.
C. More people mean more vehicles emitting smoke and being inhaled by people.
D. Polluted water is safe for people's consumption.
E. Air pollution causes respiratory diseases and other ailments.
F. Garbage pollutes the bodies of water.
G. Poor water supply may result in poor hygiene
H. Poor nutrition can lead to good health conditions.
I. Epidemics are usually caused by dirty surroundings and health problems.
J. Air and water pollution and health problems occur due to a rapid growing population.

Lesson 24: Infers that rapid population growth upsets the ecological balance.

Exercise A

Directions: On the space below, draw three ill effects of rapid population growth to the ecology.

Exercise B

Directions: Copy the correct title of each situation on the blanks provided. Refer your answer on the box below.

malnourished child
shortage of water supply
throwing of garbage in rivers and seas
limited space
burning of rubber tires and plastics
deforestation
smoke belching vehicles
over-sized family
disposal of chemical wastes in bodies of water
unmanaged garbage

1. _____

2. _____

3. _____

4. _____

5. _____

Lesson 25: Describes strategies for coping with rapid increase in population.

Exercise A

Directions: Put a check (√) on the statements that show ways of coping with population increase and put a (X) if it is not.

_____ 1. Encourage families to practice family planning.

_____ 2. Population education

_____ 3. Recycling

_____ 4. Practice self medication

_____ 5. Observe "two-meals-a-day" principle.

_____ 6. Facilitating housing projects.

_____ 7. Improving food supply through crop rotation.

_____ 8. Encourage out of school youth to settle down.

_____ 9. Digging deep wells to supply water.

_____ 10. Improving health services.

Exercise B

Directions: Read the following statements on good strategies for coping with rapid increase in population. Write T if the statement is true and F if it is false.

_____ 1. Recycle

_____ 2. Improve health services

_____ 3. Make the environment sanitary

_____ 4. Improve water supply

_____ 5. Educate the people about population control

_____ 6. Maintain the dirty surrounding

_____ 7. Have proper waste disposal

_____ 8. Improve food supply and production

_____ 9. Make a compost pit

_____ 10. Spread contagious disease

Lesson 26: Enumerates ways of controlling and preventing harmful effects of human activities to the environment.

Exercise A

Directions: Encircle the letters of the statements that describe ways of controlling effects of human activities to the environment.

A. proper waste disposal

B. choose large containers rather than several small ones

C. throw garbage anywhere

D. taking shower baths

E. saving electricity

F. burn non-biodegradable materials like plastic

G. protect wildlife

H. conserving fuel

I. throw garbage in canals

J. keep the water way clean

Exercise B

Directions: On the blanks, draw a star ★ if the practice/activity helps restore the balance of nature. Put an X if it doesn't.

_____ 1. Dumping waste in a nearby river

_____ 2. Planting new trees

_____ 3. Joining environmental campaigns

_____ 4. Throwing candy wrappers and fruit peelings anywhere

_____ 5. Saving electricity

_____ 6. Recycling old materials

_____ 7. Destroying coral reefs

_____ 8. Turning-off the appliances that are not in use

_____ 9. Closing leaking faucets

_____ 10. Separate biodegradable from non-biodegradable materials

Lesson 27: Participates in campaigns and activities for improving managing one's environment.

Exercise A

Direction: Match the following situations in column A with their correct titles in column B.

A

_____ 1.

_____ 2.

_____ 3.

_____ 4.

_____ 5.

B

A. Vaccination
B. Reforestation
C. Supporting environmental conservation programs of the government
D. Participating in anti-air pollution campaigns
E. Use disinfectants and antiseptics
F. Participating in habitat restoration or rehabilitation activities.
G. Organizing a solid waste disposal campaign in school and in the community
H. Proper sanitation
I. Conserving wildlife
J. Use of anti-bodies.

Lesson 27: Participates in campaigns and activities for improving managing one's environment.

Exercise B

Direction: Enumerate ten activities that people can participate in to improve the environment.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

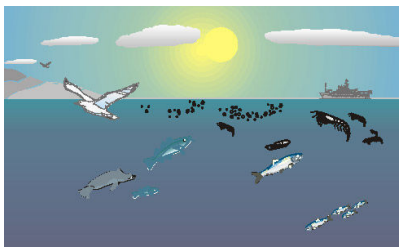
10. _____

Lesson 28: Infers that a sustained ecological balance ensures the survival of future generations.

Exercise A

Directions: Match the pictures in column A with the different factors that ensures the survival of future generations in column B. Write the letter of the correct answer on the blanks.

A

_____ 1. 

_____ 2. 

_____ 3. 

_____ 4. 

_____ 5. 

B

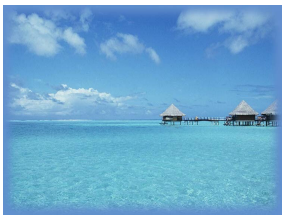
A. Healthy people
B. Clean surrounding
C. Balanced/undisturbed sea ecosystem
D. Balanced/undisturbed forest ecosystem
E. Clean bodies of water
F. Managed garbage disposal
G. Enough supply of food
H. Enough water supply
I. Responsible parenthood
J. Community health services

Lesson 28: Infers that a sustained ecological balance ensures the survival of future generations.

Exercise B

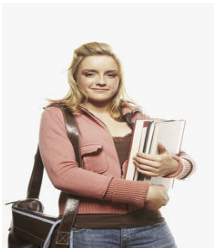
Direction: Label the different illustrations below. Choose your answer from the box.

Managed garbage disposal Educate people Enough supply of food Community services Clean bodies of water Balanced/undisturbed forest ecosystem Responsible parenthood Healthy people Enough supply of water Clean surrounding

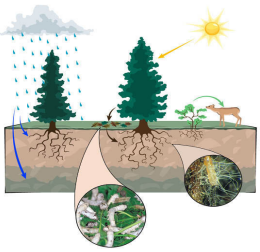


1. _____

2. _____



3. _____



4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

Lesson 29: Identifies common household materials e.g. pesticides, soap, paint, solvent, synthetic, plastic.

Exercise A

Direction: Read the words in the word bank. Find and circle each word hidden in the puzzle. The first word is done for you.

chairs	Triton	acetone	Boysen
paint	plastics	nylon	Surf
Safeguard	Tide	Baygon	bleach
jewelry	Dutchboy	Palmolive	Raid
Champion	plates	solvent	Dove

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

Lesson 29: Identifies common household materials e.g. pesticides, soap, paint, solvent, synthetic, plastic.

Exercise B

Direction: Identify the following household materials. Write them in their proper/appropriate columns.

PESTICIDES	SOAP	PAINT	SOLVENT	OTHER MATERIALS

acetone	Dove	plates	Champion
nylon	Raid	Dutchboy	jewelry
Baygon	bleach	Tide	Safeguard
Palmolive	Surf	plastics	paint
solvent	Boysen	chairs	

Lesson 30: Describes how the materials are used.

Exercise A

Direction: Describe how the following materials are used by matching column A with B. Write the letters of the correct answers in the blank.

A	B
_____ 1. cornstarch	A. for wrapping food
_____ 2. vinegar	B. as cleaning agent for bathroom tiles and fixtures
_____ 3. table sugar	C. for cleaning wounds and bleaching
_____ 4. vitamins and minerals	D. for disinfecting and massaging
_____ 5. analgesics (e.g. aspirin, biogesic)	E. for killing and repelling insects
_____ 6. insecticide	F. for cooking and baking
_____ 7. rubbing alcohol	G. for enhancing food flavor, used as a preservative
_____ 8. hydrogen peroxide	H. for preserving, sweetening food
_____ 9. muriatic acid	I. as dietary supplements
_____ 10. aluminum foil	J. for relieving fever, headache and toothache

Lesson 30: Describes how the materials are used.

Exercise B

Direction: Match the following home materials to their uses. Write the letter of your answer on the space provided for.

A	B
_____ 1. Pesticides	A. used to prevent food from decaying
_____ 2. Solvents	B. used to kill harmful organisms
_____ 3. Plastics	C. used for storing foods
_____ 4. Paint	D. used as cleaning agents in our bathroom
_____ 5. Soap and detergent	E. used to kill pests
_____ 6. Synthetic materials	F. used to enhance the flavor of food
_____ 7. Disinfectants	G. used or applied on wounds to prevent infections
_____ 8. Preservatives	H. used to dissolve
_____ 9. Additives	I. used for protection and aesthetic purposes
_____ 10. Antiseptics	J. used for cleaning and washing clothes, dishes and utensils

Lesson 31: Identifies materials improved by technology.

Exercise A

Directions: On the box below, draw materials that have been improved by technology (like the computer shown in the box)

Exercise B

Directions: Read the statements below. Write A if you agree and D if you do not agree.

_____ 1. Technology can make life easier

_____ 2. Technology improves materials.

_____ 3. Computers used to be very big.

_____ 4. Computers can help us in our daily chores.

_____ 5. We record information through the use of pen and paper.

_____ 6. It is now possible to send letters through electronic mailing system.

_____ 7. Letters can be sent in a matter of minutes through the use of fax machine.

_____ 8. Fiber optics is used in medical instruments.

_____ 9. The microchips are made of silicon, oxide and aluminum.

_____ 10. Communication has not gained much improvement even with the use of fiber optics technology.

Lesson 32: Describes the improvement done by technology on the materials.

Exercise A

Directions: Find out how technology has improved these materials. Write them in the table below.

Pomade	Swatters
Fluorescent lamp	Candle
Coffee maker	Preserving foods
Microwave oven	Styling the hair
Lighting	Refrigerators
Making coffee	Aerosol sprays
Cooler	Gel, hairspray, aerosol spray
Gas range	Heating and cooking
Boiling water	Gas range
Eliminating flies and cockroaches	

HOUSEHOLD TASKS	OLD TECHNOLOGY	NEW/IMPROVED TECHNOLOGY
1.		
2.		
3.		
4.		
5.		
6.		

Lesson 32: Describes the improvement done by technology on the materials.

Exercise B

Directions: Describe the improvement done on by these materials.

1. food _____
2. laser _____
3. microchips _____
4. cars _____
5. fiber optics _____
6. packaging _____
7. paint _____
8. insecticides _____
9. detergent _____
10. preservatives _____

Lesson 33: Identifies conditions when the effects of the materials are beneficial.

Exercise A

Directions: Draw two materials each that can help us in the following situations.

COOKING	CLEANING THE HOUSE
STUDYING	CALLING FRIENDS

WASHING CLOTHES

Exercise B

Directions: Write how the following materials can be beneficial to us.

1. shampoo _____
2. insecticides _____
3. vinegar _____
4. cellphone _____
5. paint thinner _____
6. water _____
7. gasoline _____
8. computer _____
9. washing machine _____
10. aircon _____

Lesson 34: Identifies the conditions when the effects of the materials are harmful.

Exercise A

Direction: Using a line, identify the harmful effects of materials by matching the materials with the harmful effect.

A	B
1. Insecticides	A. Can cause skin irritations, inflict serious harm when inhaled, ingested or when in contact with the eyes
2. Fertilizers	
3. Burned fossil fuels	
4. CFC's in refrigerants of air conditioners and refrigerators	B. Destroy the ozone layer
	C. Cause acid rain
	D. Can retard memory and induce liver disease
5. Aerosols	E. Can induce kidney ailment
6. Products from industrial plants	F. Global warming/Acid rain
7. Drugs	G. Rapid growth of algal blooms
8. Alcohol	H. Harmful to health when taken in great amount
9. Preservatives	
10. Additives	

Lesson 34: Identifies the conditions when the effects of the materials are harmful.

Exercise B

Direction: Underline the correct answer from the parenthesis to make each statement correct.

1. (Aerosol, Drugs, Alcohol) destroy the ozone layer.
2. (Products from Industrial Plants, Fertilizers, Additives) have caused acid rain and global warming.
3. (Drugs, Alcohol, Aerosols) can induce kidney ailment.
4. (Drugs, Alcohol, Aerosols) can retard memory and induce liver disease.
5. (Additives, Fertilizers, Pesticides) are harmful to health when taken in great amount.
6. (Fertilizers, Burned Fossil Fuels, Insecticides) have caused global warming and acid rain.
7. (Fertilizers, Burned Fossil Fuels, Insecticides) can cause skin irritants and inflict serious harm when inhaled.
8. (Pesticides, Fertilizers, Alcohol) have caused the rapid growth of algal bloom.
9. (Drugs, Alcohol, Aerosols) can retard memory and induce liver disease.
10. (Vitamin A, Citric Acid, Sodium Benzoate) is harmful to one's health when taken often.

Lesson 35: Observes healthy precautions in handling, storing and dispensing certain Materials.

Exercise A

Directions: Put a √ on the safety precautions in handling or storing materials. Put an X if it is NOT a safety precaution.

☐ 1. Leave the LPG gas tank open when not in use.

☐ 2. Read any product label carefully. Take note of safety precautions.

☐ 3. Keep materials out of children's reach.

☐ 4. Store materials in covered containers and label them properly.

☐ 5. Place pesticide and other chemical products near food.

☐ 6. Leave paints and lacquer near fire.

☐ 7. Taste unfamiliar substances.

☐ 8. Have children play with matches and flammable materials.

☐ 9. Dispose expired materials properly.

☐ 10. Store/keep expired materials.

Exercise B

Directions: Draw ☺ on the safety precautions in handling, storing materials. Put a ☹ if it is NOT a safety precaution.

_____ 1. Handle glassware with care.

_____ 2. Wash and change clothes after handling toxic and harmful substances.

_____ 3. Return poisonous and flammable materials to their proper place after use.

_____ 4. Carefully read labels of chemicals like medicines, insecticides and pesticides before using them.

_____ 5. Turn off the stove and gas tank after use.

_____ 6. Leave gasoline and kerosene near fire.

_____ 7. Taste unfamiliar substances.

_____ 8. Leave cabinets with harmful chemicals open.

_____ 9. Do not keep expired materials.

_____ 10. Any petroleum product should be stored away from the stove.

Lesson 36: Cites evidences that matter is made up of particles.

Exercise A

Directions: Draw a  if the object is solid,  if it is liquid,  if it is gas.

_____ 1. particle of sugar

_____ 2. smallest drop of water

_____ 3. grains of salt

_____ 4. a bottle of vinegar

_____ 5. a drop of say sauce

_____ 6. half a biscuit

_____ 7. a piece of bread

_____ 8. oxygen in the air

_____ 9. particle of stone

_____ 10. perfume

Exercise B

Directions: On the blank, write whether the following objects are SOLID, LIQUID or GAS.

_____ 1. particle of milk

_____ 2. particle of pepper

_____ 3. smallest grain of sugar

_____ 4. takes the shape of its container, can flow

_____ 5. molecules are arranged farthest apart

_____ 6. water

_____ 7. molecules of gas

_____ 8. molecules of salt

_____ 9. a grain of rice

_____ 10. a piece of chalk

Lesson 37: Constructs a model of solid, liquid and gas to show the structure of matter.

Exercise A

Directions: Construct your own models of solid, liquid and gas particles using materials

such as the following:

illustration board
scissors
different colored papers
white glue
a ten centavo coin
(molecules of matter)

Procedure:

1. Cut the illustration board into three pieces of the same size of 15”x15”.
2. Make a 1 cm margin all around.
3. Make circles by tracing/using the ten-centavo coin.
4. Cut the circles then paste them on the board for solid, liquid and gas.
5. Label your work at the bottom.

Exercise B

Directions: Construct your own model of a solid, liquid and gas particles using materials

such as the following:

3 boxes of the same size
marbles or ping pong balls
white glue
clean cellophane

Remember the following:

1. Molecules of solid are closely packed together. A strong force holds these materials together. This is why they keep their shapes.
2. Molecules of liquid such as water move freely. They slide past one another. They are not as close to each other like solids. The force that holds them together is weak. This enables liquids to flow. They take the shape of their containers.
3. Molecules of gases move freely. They move all over. A weak force holds the atoms together. They fill the available space of their containers. They do not have definite shapes.

Lesson 38: Identifies the forms of energy

Exercise A

Directions: Rearrange the letters of the given words to form the names of the different forms of energy.

1. SLUFE: F __ __ __ S
have energy because they can be burned

2. DASCI: A __ __ __ S
have energy to dissolve metals and other substances

3. DOFO: F __ O __
has energy to build and repair our body tissues

4. STAMEL: M __ __ __ __ S
have energy to support large masses or cut other substances

5. MACHINELAC:
M __ __ __ __ __ __ __ __ L
The energy of a moving body or a body capable of producing motion

6. GLITH: L __ __ __ T
The visible form of radiant energy

7. DUSNO: S __ __ __ D
The energy produced by vibrating objects.

8. CRITECALLE:
E __ __ __ __ __ __ __ __ L
The energy that comes from the transfer of flow of electrons from one material to another

9. HOMETAGLER:
G __ __ __ __ __ __ __ __ L
Energy formed by harnessing steam from underground.

10. CULRANE: __ __ __ __ __ __ R
Energy produced when the nucleus splits or when two nuclei combine.

Exercise B

Directions: Identify the forms of energy present in the following. Write chemical energy, electrical energy, mechanical energy, radiant energy or heat energy on the blanks.

_____ 1. gasoline

_____ 2. washing machine

_____ 3. running boy

_____ 4. sunlight

_____ 5. vibrating object

_____ 6. burning pinewood

_____ 7. windmill

_____ 8. boiling water

_____ 9. water flowing in a river

_____ 10. flat iron

Lesson 39: Cites examples of the different forms of energy.

Exercise A

Directions: Give three examples of the different forms of energy.

Mechanical Energy	→	1. 2. 3.
Chemical Energy	→	1. 2. 3.
Radiant Energy	→	1. 2. 3.
Sound Energy	→	1. 2. 3.
Nuclear Energy	→	1. 2. 3.
Electrical Energy	→	1. 2. 3.

Lesson 39: Cites examples of the different forms of energy.

Exercise B

Directions: Give three examples of the different forms of energy.

Mechanical Energy	→	1. 2. 3.
Chemical Energy	→	1. 2. 3.
Radiant Energy	→	1. 2. 3.
Sound Energy	→	1. 2. 3.
Nuclear Energy	→	1. 2. 3.
Electrical Energy	→	1. 2. 3.

Lesson 40: Describes the different forms of energy and their uses.

Exercise A

Directions: Encircle the type of energy being described in each item.

1. It is a kind of energy produced by moving electrons.
   (nuclear energy, chemical energy, electrical energy)
2. It is produced by/from the fission or fusion of atomic particles.
   (radiant energy, chemical energy, nuclear energy)
3. It is produced by waves moving through space.
   (radiant energy, electrical energy, sound energy)
4. It is produced by vibrating bodies or objects.
   (radiant energy, mechanical energy, sound energy)
5. It is a kind of energy that is stored in substances.
   (mechanical energy, mechanical energy, chemical energy)
6. It is a kind of energy that formed by moving bodies/objects such as blades and turbines.
   (electrical energy, mechanical energy, chemical energy)

Exercise B

Directions: Encircle the type of energy being described in each item.

1. It is a kind of energy that is stored in substances.
   (nuclear energy, chemical energy, radiant energy)
2. It is a kind of energy produced by moving electrons.
   (chemical energy, electrical energy, nuclear energy)
3. It is produced by/from the fission or fusion of atomic particles.
   (nuclear energy, radiant energy, chemical energy)
4. It is formed by waves moving through space.
   (sound energy, radiant energy, chemical energy)
5. It is produced by vibrating bodies or objects.
   (mechanical energy, sound energy, radiant energy)
6. It is a kind of energy that formed by moving bodies/objects such as blades and turbines.
   (chemical energy, mechanical energy, electrical energy)

Lesson 41: Describes chemical energy and its uses.

Exercise A

Directions: Encircle the letters of the activities that show the use of chemical energy.

A. lighted candle

B. waving of flag

C. burning charcoal

D. digest food

E. clapping hands

F. using x-ray

G. burning of paper

H. ringing of bells

I. moving of chair

J. dry cell to turn on radio

Exercise B

Directions: Encircle the activities that show uses of chemical energy in the box below.

waving of curtain
swinging of pendulum
strings of a guitar
clapping of stick
running motor
lighted stick
burning of paper
using dry cell in a flashlight
rubbing of stone
drying of leaves
digest bread
running motor
movement of pistons in a car

Lesson 42: Describes how mechanical energy is formed and used.

Exercise A

Directions: In the boxes below, draw three activities that show mechanical energy is used. Label your drawing and write a two-sentence explanation for each.

Exercise B

Directions: In the boxes below, draw three activities that show mechanical energy is used. Label your drawing and write a two-sentence explanation for each.

Lesson 43: Describes how electrical energy is formed and used.

Exercise A

Directions: Arrange the five phrases below to form a statement that describes how electrical energy is formed. Use letters A-E.

_____ 1. moving through conductors

_____ 2. by the energy of electrons

_____ 3. is produced

_____ 4. like copper wires and aluminum wires

_____ 5. Electricity

Directions: Check on the space for every statement that describes the uses of electrical energy.

_____ 6. used to cool food

_____ 7. allows radio, TV, computers, washing machine etc. to function

_____ 8. used to bake cakes and bread

_____ 9. used to manufacture different products

_____ 10. used to light our homes and offices

Lesson 43: Describes how electrical energy is formed and used.

Exercise B

Directions: Fill in the blanks to complete the statement that describes how electrical energy is formed. Choose the answers from the box.

electrons	copper wires	produced
conductor	aluminum wires	material

Electricity is 1. _____ when the 2. _____of a 3. _____flows in a

4. _____like 5. _____ and 6. _____.

Directions: Encircle the letter of the activities that show electrical energy being used.

A. It is used to run the LRT and MRT.

B. It is used in hospitals to diagnose diseases.

C. It is used in the manufacture of different products.

D. It is used to run machines.

E. It is used to light houses, offices, schools.

Lesson 44: Describes radiant energy and how it is used.

Exercise A

Directions: Encircle the letters of the statements that describe radiant energy.

A. Radiant energy is formed by waves moving through space.
B. Radiant energy comes from a glowing heat source and radiate in all directions.
C. The sun is a chief source of radiant energy.
D. Radiant energy can be transferred to another body.
E. Radiant energy travels in the form of waves.
F. The air is not warmed when radiant energy strikes it.

Directions: Draw a  on the blank before each statement that describes the uses of radiant energy.

_____ Radiant energy is used for drying clothes.

_____ It used to cook food in a very short time.

_____ It is used in medical science.

_____ It is used for illumination.

_____ It is used by plants to perform photosynthesis.

_____ It is used to run vehicles.

_____ It is used to produce sound.

Exercise B

Directions: Write T if the statement is true. If it is false, change the underlined word/s to make the statement true.

_____ 1. The sun is the main source of radiant energy.

_____ 2. Any object that absorbs radiant energy becomes cooler.

_____ 3. Radiant energy travels in only one direction.

_____ 4. Without radiant energy from the sun, life is not possible on Earth.

_____ 5. Too much radiant energy is harmful.

_____ 6. Radiant energy travels through space in the form of waves.

_____ 7. Plants use radiant energy from the sun during photosynthesis.

_____ 8. Radiant energy is used in medical science.

_____ 9. Radiant energy is formed by waves moving through space.

_____ 10. It is used to dry clothes, disinfect our beddings, diagnose diseases, etc.

Lesson 45: Describes nuclear energy and its uses.

Exercise A

Directions: In the boxes below, draw three activities that show nuclear energy is used. Label your drawing and write a two-sentence explanation for each.

Exercise B

Directions: In the boxes below, draw three activities that show nuclear energy is used. Label your drawing and write a two-sentence explanation for each.

Lesson 46: Compares how the different forms of energy are formed and used.

Exercise A

Direction: Compare each form of energy according to how it is formed and used. Answer the following questions.

Forms of Energy	How it is Formed	How it is Used
1. Heat	- by rubbing two surfaces together	- for cooking food, pressing clothes
2. Mechanical	- by using machines, moving objects	- for running motor vehicles and machines
3. Chemical	- by releasing stored energy in substances	- for making processed foods and medicines
4. Electrical	- by the flow of electrons	- for supplying power to electric bulbs and appliances
5. Sound	- by vibrating objects/bodies	- for providing music and communication
6. Radiant	- by waves moving through space	- for drying clothes and illumination
7. Nuclear	- by separating or combining atomic particles	- for generating electricity
8. Geothermal	- by harnessing steam from the underground	- for generating electricity

1. Which forms of energy are similar in how they are used? _____

   _____

2. Which forms of energy are commonly used at home? _____

   _____

3. Which forms of energy are commonly used in factories? _____

   _____

Lesson 46: Compares how the different forms of energy are formed and used.

Exercise B

Directions: Compare each form of energy in the table below. Answer the following questions.

Forms of Energy	How it is Formed	How it is Used
1. Electrical	- by the flow of electrons	- for supplying power to electric bulbs and appliances
2. Sound	- by vibrating objects/bodies	- for providing music and communication
3. Radiant	- by waves moving through space	- for drying clothes and illumination
4. Nuclear	- by separating or combining atomic particles	- for generating electricity
5. Geothermal	- by harnessing steam from the underground	- for generating electricity
6. Chemical	- by releasing stored energy in substances	- for making processed foods and medicines
7. Mechanical	- by using machines, moving objects	- for running motor vehicles and machines
8. Heat	- by rubbing two surfaces together	- for cooking food, pressing clothes

1. Which forms of energy are commonly used in homes, schools and factories? _____

_____

2. Which form of energy is the most harmful if not used carefully? _____

_____

3. Which forms of energy can generate electricity? _____

_____

Lesson 47: Observes how energy can be transferred from one body to another.

Exercise A

Directions: Write whether the energy transfer is through conduction, convection or radiation on the space provided.

_____ 1. frying fish on a pan over a fire

_____ 2. roasting meat over a barbecue grill

_____ 3. exposing the skin under a reading lamp

_____ 4. boys around a campfire

_____ 5. inflated hot air balloon

_____ 6. cooking by steaming

_____ 7. lighted cigarette

_____ 8. ironing clothes

_____ 9. sunbathing

_____ 10. boiling bottle in a kettle

Exercise B

Directions: Write **CD** if the energy transfer is by conduction, **CV** if it is by convection and **RD** if it is by radiation the space provided for.

☐ 1. sunbathing

☐ 2. ironing clothes

☐ 3. lighted cigarette

☐ 4. cooking by steaming

☐ 5. inflated hot air balloon

☐ 6. boys around a campfire

☐ 7. exposing the skin under a reading lamp

☐ 8. roasting meat over glowing charcoal

☐ 9. boiling water in a kettle

☐ 10. frying fish on a pan over a fire

Lesson 48: Observes that heat is always produced when energy transformation occurs.

Exercise A

Direction: Read the statements. Write either hot or heat on the blanks to make each statement correct.

1. Mechanical energy is present when a carpenter cuts a piece of wood with a saw. After cutting the wood, the blade of the saw feels _____.

2. In the case of the light bulb, while connecting electrical energy to light _____ is also generated.

3. In the process of changing electrical energy to radiant and sound energy, the television produces _____ _____ .

4. You felt hot or warm after jogging for five minutes. The chemical energy in your body was changed to mechanical energy as you jogged in place. The warmth you felt is evidence that _____ was generated.

5. Energy transformation releases _____ to the surroundings. This heat is absorbed by the surrounding materials causing it to raise its temperature.

Lesson 48: Observes that heat is always produced when energy transformation occurs.

Exercise B

Directions: In the boxes below, draw three situations wherein heat is produced when energy transformation occurs. Label your drawing and write a two-sentence explanation for each.

Lesson 49: Differentiate speed from velocity

Exercise A

Directions: Study the table below then answer the questions.

PUPIL	DISTANCE	TIME
A	50m	20 sec
B	50m	30 sec
C	50m	35 sec
D	50m	25 sec
E	50m	15 sec

1. Did all the pupils reach the finish line?
   _____
2. Who finished first? _____ Why? _____
3. Who finished last? _____ Why? _____

Directions: Analyze the table below then answer the questions.

CAR	DISTANCE	DIRECTION	TIME
A	6 km	North	40 min
B	6 km	South	30 min
C	6 km	East	20 min
D	6 km	West	15 min
E	6 km	South	20 min

4. Which car traveled the fastest? _____
   In what direction was it heading? _____
5. Which car traveled the slowest? _____
   In what direction was it heading? _____
6. Which cars have the same speed? _____
   Did they have the same direction? _____
7. Which cars were heading the same direction? _____

Lesson 49: Differentiate speed from velocity

Exercise B

Directions: Study the table below then answer the questions.

RUNNER	DISTANCE	TIME
A	100 m	1 min and 20 sec
B	100 m	1 min and 10 sec
C	100 m	1 min and 40 sec
D	100 m	1 min and 25 sec
E	100 m	1 min and 30 sec

1. Did all the runners reach the finish line? _____

2. Who finished first? _____ Why? _____

3. Who finished last? _____ Why? _____

Directions: Study the table below then answer the questions.

BUS	DISTANCE	DIRECTION	TIME
A	150 km	North	1 hr and 30 min
B	150 km	South	1 hr and 20 min
C	150 km	West	1 hr and 40 min
D	150 km	East	1 hr and 25 min
E	150 km	West	1 hr and 40 min

4. Which bus traveled the slowest? _____

   In what direction was it heading? _____

5. Which bus traveled the fastest? _____

   In what direction was it heading? _____

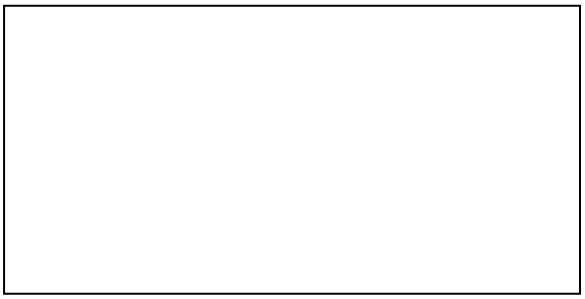
6. Which buses have the same speed? _____

   Did they have the same direction? _____

Lesson 50: Measures the speed of an object in motion

Exercise A

Directions: Give the formula of speed. Write it inside the box.



Directions: Find the speed of the following moving bodies.

1. A car runs at a speed in 2 hours to cover a 150 km distance. What is its speed?

   A. 65 km/hr C. 75 km/hr
   B. 70 km/hr D. 80 km/hr

2. A boy runs at a speed in 5 hours to cover a 300 km distance. What is its speed?

   A. 40 km/hr C. 55 km/hr
   B. 45 km/hr D. 60 km/hr

3. Ronnie runs at a speed in 40 seconds to cover a 200 meter distance. What is his speed?

   A. 5 m/sec C. 15 m/sec
   B. 10 m/sec D. 20 m/sec

4. Suppose the speed of a cyclist in the last Palaro was 120 km/hr. Calculate the distance he covered after two hours. Use the formula: distance= speed x time

   A. 230 km C. 240 km
   B. 250 km D. 300 km

5. The distance covered by both a pangolin and an ostrich was 10 km. The speed of the pangolin was 15 km/hr, while that of the ostrich was 50 km/hr. Tell which of the two reach the destination first by using the following formula:
   Time=Distance/Speed

   A. The ostrich for it took him 0.20 hr.
   B. The pangolin for it took him 0.66 hr.
   C. The ostrich for it took him 0.15 hr.
   D. The pangolin for it took him 0.70 hr.

Lesson 50: Measures the speed of an object in motion

Exercise B

Directions: Find the speed of the following moving bodies.

1. A jeepney runs for 3 hours to cover a 300 km distance. What is its speed?

   A. 90 km/hr C. 110 km/hr
   B. 100 km/hr D. 120 km/hr

2. Marcial runs at a speed of 2 hours to cover a 400 km distance. What is its speed?

   A. 200 km/hr C. 400 km/hr
   B. 300 km/hr D. 500 km/hr

3. Tony runs at a speed in 55 seconds to cover a 200 meter distance. What is its speed?

   A. 3.63 m/sec C. 3.65 m/sec
   B. 3.64 m/sec D. 3.66 m/sec

4. Suppose the speed of a runner Mario in the last Division Palaro was 200 km/hr. Calculate the distance he covered after 2 hours. (Formula: distance = speed X time)

   A. 300 km C. 500 km
   B. 400 km D. 600 km

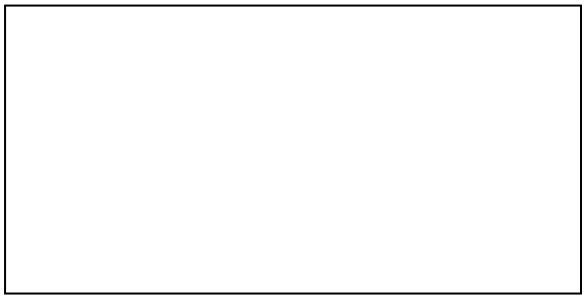
5. The distance covered by both a car and a jeepney was 20 km. The speed of the car was 10 km/hr, while that of the jeepney was 40 km/hr. Which of the two reached the destination first? (Formula: Time= distance/speed)

   A. The car for it took him 2 hrs.
   B. Thee jeepney for it took him 0.50 hr.
   C. The car for it took him 1 hr.
   D. The jeepney for it took him 3 hours.

Lesson 51: Measures the velocity of a moving object

Exercise A

Directions: Give the formula of velocity.



Directions: Compute for the velocities of the following problems.

1. A horse-drawn cart of goods travels 45 kilometers in 2.5 hours going north without rest. What is its velocity?

   Distance = 45 km
   Time = 2.5 hr
   Velocity = ☐

   A. 18 km/hr, north
   B. 20 km/hr, south
   C. 22 km/hr, east
   D. 24 km/hr, west

2. If it takes Carlos 1.5 hours to cover the 5 kilometer walk to his school, what is his velocity?

   Distance = 5 km
   Time = 1.5 hr
   Velocity = ☐

   A. 2.2 km/hr to school
   B. 3.3 km/hr to school
   C. 4.4 km/hr to school
   D. 5.5 km/hr to school

3. Sisters Susie and Tessa went to the market to buy fresh vegetables for school. It took them half an hour to cover the 2 km distance. If they spent the same time going home, what was their velocity?

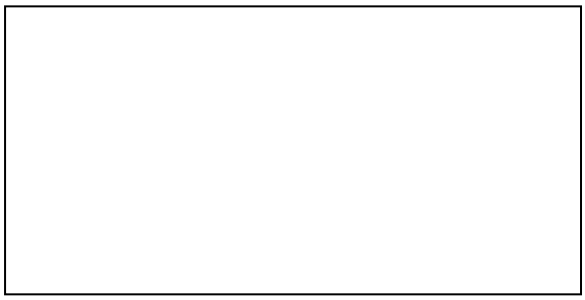
   Distance = 2 km
   Time = 0.5 hr
   Velocity = ☐

   A. 3 km/hr going to market/home
   B. 4 km/hr going to market/home
   C. 5 km/hr going to market/home
   D. 6 km/hr going to market/home

Lesson 51: Measures the velocity of a moving object

Exercise B

Directions: Give the formula of velocity.



Directions: Give for the velocities of the following.

1. A car travels at 200 kilometers in 2 hours going to Cagayan de Oro city. What is its velocity?

   A. 100 km/hr, Cagayan de Oro City
   B. 110 km/hr, Cagayan de Oro City
   C. 120 km/hr, Cagayan de Oro City
   D. 130 km/hr, Cagayan de Oro City

2. Mr. Cruz went to his relative in the province. It took him 4 hours to cover the 800 kilometer distance. What is his velocity?

   A. 200 km/hr, province
   B. 300 km/hr, province
   C. 400 km/hr, province
   D. 500 km/hr, province

3. If it takes a tricycle 30 minutes to cover a 6 kilometer drive to the city, what is its velocity?

   A. 3 kilometers/min., towards the city
   B. 4 kilometers/min., towards the city
   C. 5 kilometers/min., towards the city
   D. 6 kilometers/min., towards the city

Lesson 52: Infers that acceleration is caused by an applied force

Exercise A

Directions: Write **T** if the statement is true and **F** if it is not.

_____ 1. When force is applied to an object, the object accelerates in the direction of the applied force.
_____ 2. The acceleration is lesser when the force is greater.
_____ 3. The acceleration is greater when the force of the object is greater.
_____ 4. The acceleration is less when the mass of the object is greater.
_____ 5. Acceleration cannot take place without a force.

Directions: Read the problem. Encircle the letter of the correct answer.

Anna pushed a shopping cart along the aisles in a grocery store. When she pushed the cart, it began to move. What happens if she pushes the cart harder?

a. the slower the cart accelerates
b. the faster the cart accelerates
c. the greater the force, the more the acceleration
d. the lesser the force, the more the acceleration

Exercise B

Directions: Put a  for statements that are true and a  for those that are not.

_____ 1. Acceleration can't take place without a force.
_____ 2. The acceleration is less when the mass of the object is greater.
_____ 3. The acceleration is greater when the force is greater.
_____ 4. The acceleration is lesser when the force is greater.
_____ 5. When the force is applied to an object, the object accelerates in the applied force.

Directions: Read the problem. Encircle the letter of the correct answer.

Anna pushed a shopping cart along the aisles in a grocery store. When she pushed the cart, it began to move. What happens if she pushes the cart harder?

a. the slower the cart accelerates
b. the faster the cart accelerates
c. the greater the force, the more the acceleration
d. the lesser the force, the more the acceleration

Lesson 53: Infers that acceleration is affected by the mass of a body

Exercise A

Direction: Study the illustrations below to be able to answer the questions. Write the letter of the correct answer before each number.

Cart A

Cart B

Both carts are applied with the same force.

_____ 1. In which illustration is the cart accelerating faster? A or B?
_____ 2. Why is it accelerating faster?

A. Because the mass of the cart in A is less than the mass of the cart in B
B. Because the mass of the cart in A is greater than the mass of the cart in B

_____ 3. If the cart is filled with groceries, what amount of force should be applied?

A. lesser amount of force
B. greater amount of force

_____ 4. Why should you push harder cart B than cart A?

A. Because the cart filled with groceries has more mass
B. Because the cart filled with groceries has less mass

_____ 5. What force is required to accelerate an object with greater mass?

A. lesser force is required
B. greater force is required
C. no force is required at all
D. none of the above

Lesson 53: Infers that acceleration is affected by the mass of a body

Exercise B

Direction: Study the illustrations then answer the questions by copying the letter of the correct answer.

Cart A **Cart B**

Both carts are applied with the same force.

_____ 1. In which illustration is the cart accelerating slower? A or B?
_____ 2. Why is it accelerating slower?

A. Because the mass of the cart in A is less than the mass of the cart in B
B. Because the mass of the cart in A is greater than the mass of the cart in B

_____ 3. If the cart has lesser mass, what amount of force is required?

A. lesser amount of force
B. greater amount of force

_____ 4. Why should you push harder cart A than cart B?

A. Because the cart filled with groceries has more mass
B. Because the cart filled with groceries has lesser mass

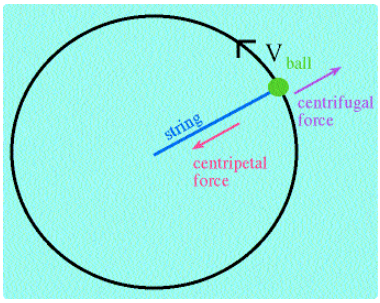
_____ 5. What force is required to accelerate an object with greater mass?

A. lesser force is required
B. greater force is required
C. no force is required at all
D. none of the above

Lesson 54: Identifies the force that pulls an object towards the circle.

Exercise A

Directions: Study the illustration below then underline the correct answer inside the parenthesis.



1. How does the ball move?
(in a straight path, in a circular path)
2. What force acts rapidly inwards or towards the center?
(Centrifugal force, centripetal force)
3. What is the function of this kind of force?
(to maintain a circular path, to maintain a semi-circular force)

Directions: Write A if the applied force is in a circular motion and B if in linear motion.

_____ 4. top
_____ 5. baseball
_____ 6. tornado
_____ 7. seesaw
_____ 8. washing machine
_____ 9. rotor blade of a helicopter
_____ 10. Ferris wheel

Exercise B

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

_____ 1. Centripetal force keeps the car along the curve.

_____ 2. Centripetal force is the force that acts inward or towards the center.

_____ 3. Centripetal force causes objects to maintain a circular force.

Directions: Write **A** if the applied force is in circular motion and **B** if in linear motion.

_____ 4. blades of the blender

_____ 5. merry go round

_____ 6. swing

_____ 7. egg beater

_____ 8. slide

_____ 9. blades of electric fan

_____ 10. electric mixer

Lesson 55: Demonstrates how objects move in circular motion.

Exercise A

Directions: Perform the activity then answer the questions by encircle the letter of the correct answer.

You will need:
a pail with a handle
a gallon of water

Procedure:

1. **Half-fill the pail with water.**
2. **Hold the pail by its handle with your two hands.**
3. **Make a circular motion by turning around slowly then gaining speed. As you move in circular motion, the pail should be held by your arms extended outward.**
4. **Observe the water as you turn around in a circular motion.**

1. What did you observe with the water inside the pail?

   A. the water in the pail moved inward
   B. the water in the pail moved outward
   C. the water in the pail moved outward but did not spill
   D. the water in the pail moved inward and spilled

2. Why did the water did not spill? Because…

   A. it moved in a straight line motion
   B. it moved in a circular motion
   C. it moved in a semi-circular motion
   D. all of the above

3. How do objects moving in a circular motion, acted upon by forces?

   A. the inward and outward forces that keep the object in circular motion are equal
   B. the inward and outward forces that keep the object in circular motion are unequal
   C. both A and B
   D. none of the above

Lesson 55: Demonstrates how objects move in circular motion.

Exercise B

Direction: Perform the activity then answer the questions by encircle the letter of the correct answer.

You will need:

a thin cardboard sheet
one meter string

Procedure:

1. **Make a paper airplane out of the thin cardboard.**
2. **Tie the string to the belly of the plane.**
3. **Whirl the paper plane around your head several times, making it move in a circular motion.**

1. What had caused the paper plane to move in a circular motion?

   A. The force exerted on the paper plane.
   B. The force exerted on the string
   C. The force exerted by the wind.
   D. The force exerted by the boy in front.

2. What force pulled the string inward or towards the center?

   A. the force acting on the string
   B. the force acting on the paper plane
   C. the force acting on the wind
   D. the force acting on the object

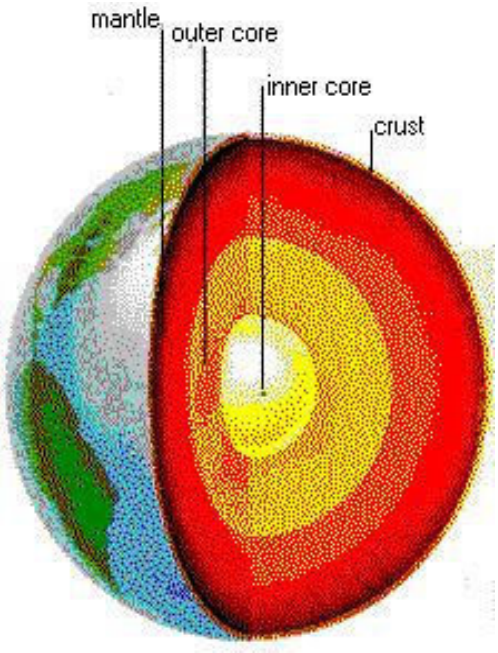
3. What do you call this force that keeps an object moving in a circular path?

   A. Centrifugal force
   B. Centripetal force
   C. Gravitational force
   D. Circular force

Lesson 56: Identifies the layers of the earth

Exercise A

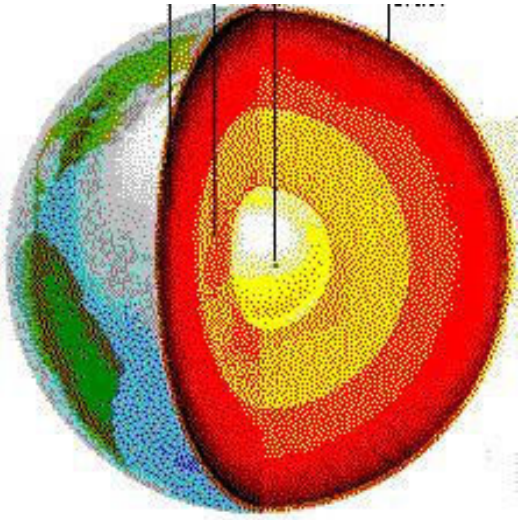
Direction: Identify the layers of the earth as shown in the illustration below. Write your answers on the blanks.



1. It is the top most layer of the earth _____
2. It is the center of the earth _____
3. It is part of the core made up of liquid _____
4. It is part of the core made up of solid _____
5. It is the innermost part of the earth _____
6. Its part consists of mountains, hills, valleys, plateaus and plains _____
7. It is the layer composed mostly of silicon and magnesium. _____

Exercise B

Direction: Label the layers of the earth. Answer the questions that follow.



How many layers does the earth have?

4. _____

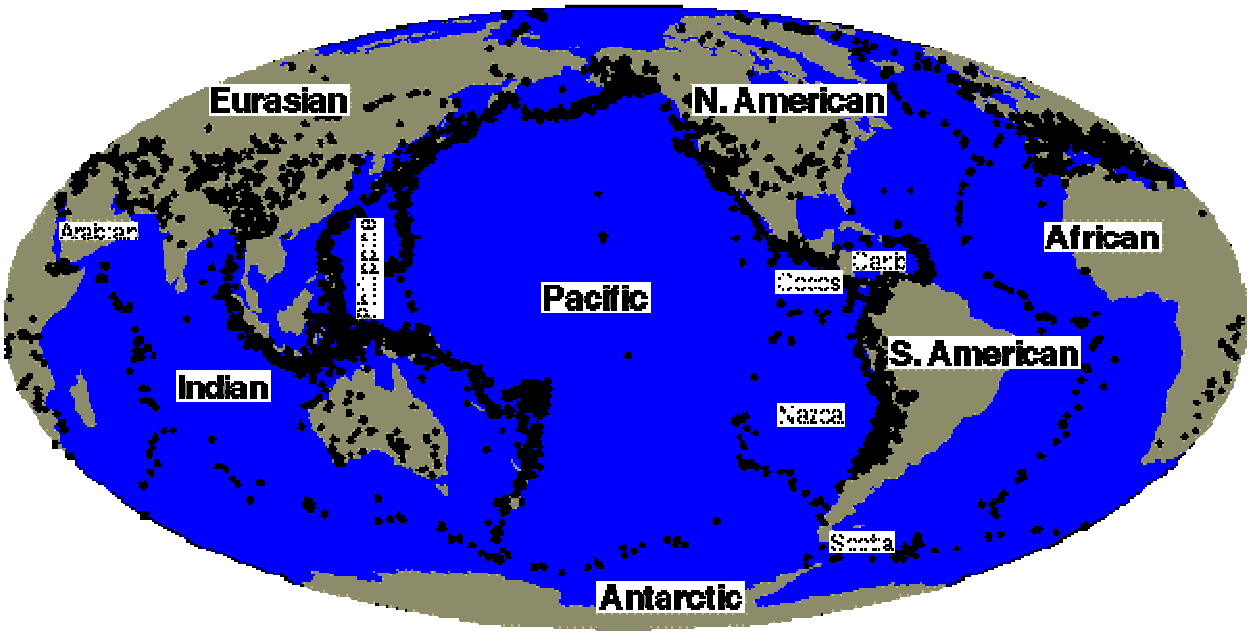
What are they?

5. _____
6. _____
7. _____
8. _____

Lesson 57: Identifies the different crustal plates.

Exercise A

Direction: Study the world map below. Identify the seven largest plates on the earth's crust. Write your answers on the blank.



1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

Lesson 57: Identifies the different crustal plates.

Exercise B

Directions: Look for the seven crustal plates below and encircle them.

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

Lesson 58: Describes oceanic and continental crusts.

Exercise A

Directions: Write **CC** if the statement describes a continental crust and **OC** if it describes a oceanic crust.

_____ 1. It is about 8 km thick.

_____ 2. It is made up of about 0.5 km of dark igneous basement rock sediment.

_____ 3. It is made up of loose solid rocks.

_____ 4. About 65% of the crust is under the ocean water.

_____ 5. It is thinnest at the ocean floor about ¼ thick compared to the continents.

_____ 6. It has plains, mountains and volcanoes.

_____ 7. It has trenches, mid-ocean ridge, volcanic islands and continental slopes.

Exercise B

Directions: Write **CC** if the statement describes a continental crust and **OC** if it describes a oceanic crust.

_____ 1. It is made up of loose solid rocks.

_____ 2. It is made up of about 0.5 km of dark igneous basement rock sediment.

_____ 3. It is about 8 km thick.

_____ 4. About 65% of the crust is under the ocean water.

_____ 5. It is thinnest at the ocean floor about ¼ thick compared to the continents.

_____ 6. It has trenches, mid-ocean ridge, volcanic islands and continental slopes.

_____ 7. It has plains, mountains and volcanoes.

Lesson 59: Explains how the earth's crust moves.

Exercise A

Directions: Draw a ☺ the blank before each statement if it explains how the Earth's crust moves and an X if it doesn't.

_____ 1. Different forces make crustal plates move.

_____ 2. There was only one super continent, Pangaea, but it broke into pieces (crustal plates) and slowly moved until they reached their current position.

_____ 3. The movement may be described as moving forward, away from one another or slide past one another.

_____ 4. A trench is a very deep place in the ocean floor.

_____ 5. These crustal plates float over a liquid rock called asthenosphere.

_____ 6. When collision occurs, energy is released.

Exercise B

Directions: Draw a ☺ mark on the blank before each statement if it explains how the Earth's crust moves and an X if it doesn't.

_____ 1. When collision occurs, energy is released.

_____ 2. These crustal plates float over a liquid rock called asthenosphere.

_____ 3. A trench is a very deep place in the ocean floor.

_____ 4. These movement may be described as moving forward, away from one another

_____ 5. Different forces make crustal plates move.

_____ 6. There was only one super continent, Pangaea, but it broke into pieces (crustal plates) and slowly moved until they reached their current position.

Lesson 60: Describes how an earthquake occurs.

Exercise A

Directions: Describe how an earthquake occurs by writing **T** if the situation is true and if **F** it is not true.

_____ 1. Pressure from above and beneath the crust causes the plates to move.

_____ 2. When energy is released from the moving crustal plates, the surrounding rocks layer trembles and shifts.

_____ 3. Records reveal that earthquakes have destroyed valuable properties.

_____ 4. The shifting or moving of crustal plates have given rise to tectonic Earthquakes.

_____ 5. When magma moves along a fissure, they cause the Earth's crust to tremble or shake, too.

_____ 6. It occurs when there is a sudden displacement of rocks or rock materials below the crust.

_____ 7. The earthquake death toll was about one million in the Syria earthquake in 1201.

_____ 8. Volcanic earthquakes are induced by rising lava or magma beneath active volcanoes.

_____ 9. Intense heat from the earth's interior affects the crustal plates.

_____ 10. Felt by small number of persons at rest.

Lesson 60: Describes how an earthquake occurs.

Exercise B

Direction: Describe how an earthquake occurs by drawing ☺ on the situations that are true and an X for those that are untrue.

_____ 1. Records reveal that earthquakes have destroyed valuable properties

_____ 2. When energy is released from the moving crustal plates, the surrounding rocks layer trembles and shifts.

_____ 3. Pressure from above and beneath the crust causes the plates to move.

_____ 4. It occurs when there is a sudden displacement of rocks or rock materials below the crust.

_____ 5. When magma moves along a fissure, they cause the Earth's crust to tremble or shake, too.

_____ 6. The shifting or moving of crustal plates have given rise to tectonic earthquakes

_____ 7. Felt by small number of persons at rest.

_____ 8. Intense heat from the earth's interior affects the crustal plates.

_____ 9. Volcanic earthquakes are induced by rising lava or magma beneath active volcanoes.

_____ 10. The earthquake death toll was about one million in the Syria earthquake in 1201.

Lesson 61: Differentiates intensity from magnitude of an earthquake.

Exercise A

Direction: Write **I** if it tells about intensity and **M** if it tells about magnitude before each item.

_____ 1. The extent of damage caused by an earthquake.

_____ 2. The energy released/radiated by an earthquake from its focus.

_____ 3. It is measured in the Rossi-Forrel scale.

_____ 4. Uses the Richter Magnitude Scale to indicate the magnitude of an earthquake.

_____ 5. It uses the scale of 1 to 10.

_____ 6. The scale is from I to IX.

_____ 7. Hardly perceptible shock. Felt only by an experienced observer under favorable conditions.

_____ 8. Only detectable when ultra sensitive seismograph is opened under favorable conditions.

_____ 9. Felt by several persons at rest; duration and direction may be perceptible; sometimes dizziness or nausea is experienced.

_____ 10. Only felt near the epicenter.

Lesson 61: Differentiates intensity from magnitude of an earthquake.

Exercise B

Directions: Write **O** if it tells about intensity and draw a☆ if tells about magnitude.

_____ 1. Only detectable when ultra sensitive seismograph is opened under favorable conditions.

_____ 2. Felt by several persons at rest; duration and direction may be perceptible, sometimes dizziness or nausea is experienced.

_____ 3. Only felt near epicenter.

_____ 4. The extent of damage caused by an earthquake.

_____ 5. The energy released/radiated by an earthquake from its focus.

_____ 6. It is measured in the Rossi-Forrel Scale.

_____ 7. Uses the Richter Magnitude Scale to indicate the magnitude of an earthquake.

_____ 8. It uses the scale of 1 to 10.

_____ 9. The scale is from I to IX.

_____ 10. Hardly perceptible shock. Felt only by an experienced observer under favorable conditions.

Lesson 62: Describes how earthquakes affect the environment. E.g. tsunami, change in land features.

Exercise A

Direction: In the boxes, draw four situations that describe how earthquakes affect the environment. The first picture has been done for you. Label your drawing properly.

TSUNAMI

Directions: Draw a star on the items that show effects of earthquakes.

_____ 6. Tall buildings may collapse.

_____ 7. dislocation of water pipes

_____ 8. volcanic eruptions may occur.

_____ 9. “El Niño” might occur.

_____ 10. Dams may break.

Lesson 62: Describes how earthquakes affect the environment. E.g. tsunami, change in land features.

Exercise B

Directions: In the boxes, draw four situations that describe how earthquakes affect the environment. The first picture has been done for you. Label your drawing properly.

VOLCANIC ERRUPTION

Directions: Draw a star on the items that show effects of earthquakes.

_____ 6. fertilize the soil

_____ 7. tsunamis may occur.

_____ 8. damage houses

_____ 9. “el niño” may occur.

_____ 10. may cause fire

Lesson 63: Practices precautionary measures before, during and after an earthquake.

Exercise A

Directions: Study the illustrations below to find out what precautions you need to remember. Match the pictures in column A with the descriptions in column B.

A

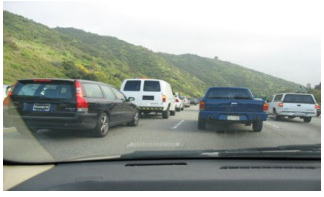
_____ 1.

_____ 2.

_____ 3.

_____ 4.

_____ 5.



_____ 6.

B

A. Prepare food, water, flashlight, first aid kit

B. If you are inside a moving vehicle, ask the driver to pull over the road and stop.

C. Don't panic. Take cover under a table or desk.

D. Use the portable radio for information.

E. Don't stand under hanging objects such as chandeliers.

F. In crowded places, like theatres and malls, do not rush to the exit.

G. One or more family member should have a working knowledge of first aid measures.

H. Crouch against an interior wall and cover your head and the back of your neck with your hand.

I. Stay away from glass windows, mirror, electric fixtures or anything that can hurt you.

J. If you are outdoors get away from buildings, electric poles, trees and other objects that may fall.

_____ 7. 

_____ 8. 

_____ 9. 
Ron Mueck - *Crouching Boy in Mirror*, 1999-2000, Mixed Media - Figure: 17 x 18 x 11 inches - Mirror : 18 x 22 x 1/4 inches - The Broad Art Foundation, Santa Monica

_____ 10. 

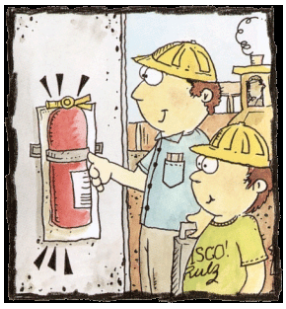
Lesson 63: Practices precautionary measures before, during and after an earthquake.

Exercise B

Directions: Study the illustrations below to find out what precautions you need to remember. Match the pictures in column A with the descriptions in column B

A

_____ 1. 

_____ 2. 

_____ 3. 

_____ 4. 

_____ 5. 

_____ 6. 

B

A. Put shoes on to protect you feet from broken glass.

B. Avoid using elevators.

C. Check your home for any defects and have them repaired

D. Protect yourself from falling objects by staying under strong furniture like tables.

E. Don't panic. Instead look for other places for evacuation.

F. Use the portable radio for information.

G. Check your fires. Avoid using the telephone.

H. Heavy furniture and objects should be placed on lower shelves.

I. Supplies of flashlight, first aid kit, should be set aside for use in emergencies.

J. Move pictures and other hanging objects away

_____ 7. 

_____ 8. 

_____ 9. 

_____ 10. 

Lesson 64: Describes how a volcano is formed.

Exercise A

Direction: Describe how a volcano is formed by arranging the pictures below in sequence.

1. _____
2. _____
3. _____

A

B

C

Directions: Arrange the following situations in sequence to describe how a volcano is formed.

_____ 1. Hot molten materials spew out of the vent. The phenomena is usually accompanied by ground shaking. The moving molten rocks, called magma, reach the Earth's surface and flow out as lava. The lava cools, becomes solid and accumulates in the surrounding area. A low elevated landform called core develops.

_____ 2. A mounting structure forms around the core. The accumulating molten rocks may rise to hundreds of meters above the ground. When this happens a volcano is born.

_____ 3. A crack beneath the Earth's crust extends to the surface and widens. A billowing cloud of smoke escapes out of the small hole called vent.

Lesson 64: Describes how a volcano is formed.

Exercise B

Directions: Describe how a volcano is formed by arranging the pictures below in sequence.

1. _____
2. _____
3. _____

A

B

C

Directions: Arrange the following situations in sequence to describe how a volcano is formed.

_____ 1. A mounting structure forms around the core. The accumulating molten rocks may rise to hundreds of meters above the ground. When this happens a volcano is born.

_____ 2. A crack beneath the Earth's crust extends to the surface and widens. A billowing cloud of smoke escapes out of the small hole called vent.

_____ 3. A mounting structure forms around the core. The accumulating molten rocks may rise to hundreds of meters above the ground. When this happens a volcano is born.

Lesson 65: Differentiates between active and inactive volcano.

Exercise A

Directions: Differentiate an active volcano with an inactive volcano by writing the letters of the correct answers under each illustration.

ACTIVE

_____

INACTIVE/DORMANT

_____

A. Have erupted within a given period of time, usually during the past 500-600 years.
B. Have not erupted in recent times for about 600 years or more.
C. Mt. Mayon, Mt. Taal, Mt. Pinatubo
D. Mt. Apo, Mt. Banahaw. Mt. Kalatungan

Exercise B

Directions: Differentiate an active volcano and an inactive volcano by writing the letters of the correct answers in the appropriate columns.

ACTIVE

_____

INACTIVE/DORMANT

_____

A. Mt. Taal, Mt. Mayon, Mt. Pinatubo
B. Have not erupted in recent times for about 600 years or more.
C. Mt. Banahaw, Mt. Kalatungan, Mt. Apo
D. Have erupted within a given period of time, usually during the past 500-600 years.

Lesson 66: Describes how magma comes out from of a volcano.

Exercise A

Directions: Sequence the following statements to describe how magma comes out from a volcano. Write your answer on the blanks with 1 as the first sequence.

_____ A. Magma, the hot, molten rock under the earth, rises and collects to fill a chamber.

_____ B. Other volcanic materials, such as lava and pyroclastic materials are ejected from this opening.

_____ C. The Earth's interior is so hot that it exerts great pressure on the molten rocks to move up.

_____ D. The magma builds up pressure and rises.

_____ E. These materials are released together with water and gases, many of which are poisonous.

_____ F. During an eruption, the magma is forced out through a crack opening on the Earth's surface.

Exercise B

Directions: Sequence the following statements to describe how magma comes out from a volcano. Write your answer on the blanks with 1 as the first sequence.

_____ A. During an eruption, the magma is forced out through a crack opening on the Earth's surface.

_____ B. Magma, the hot, molten rock under the earth, rises and collects to fill a chamber.

_____ C. The magma builds up pressure and rises.

_____ D. These materials are released together with water and gases, many of which are poisonous.

_____ E. Other volcanic materials, such as lava and pyroclastic materials are ejected from this opening.

_____ F. The Earth's interior is so hot that it exerts great pressure on the molten rocks to move up.

Lesson 67: Names the beneficial and harmful effects of volcanic eruptions.

Exercise A

Directions: On the blanks, write **BE** if the statement shows beneficial effect of volcanic eruptions and **HE** if it shows harmful effects.

_____ 1. Can affect places as far as two kilometers away from its place.

_____ 2. Coconut, abaca and sugarcane are grown in soils rich in volcanic materials.

_____ 3. Death of people who refused to evacuate.

_____ 4. Rocks from lava flows are used as construction materials.

_____ 5. Houses, animals and crops are covered by lava.

_____6. Hot springs in volcanic areas are used for medicinal and recreational purposes.

_____ 7. Hot gases can be used to provide geothermal steam to generate electricity.

_____ 8. Air and water pollution.

Directions: Answer the question below.

Are you afraid of volcanoes? Explain your answer briefly.

_____

_____

_____

_____

_____

Lesson 67: Names the beneficial and harmful effects of volcanic eruptions.

Exercise B

Directions: On the blanks, write **BE** if the statement shows beneficial effect of volcanic eruptions and **HE** if it shows harmful effects.

_____ 1. Houses, animals and crops are covered by lava.

_____ 2. Hot springs in volcanic areas are used for medicinal and recreational purposes.

_____ 3. Rocks from lava flows are used as construction materials.

_____ 4. Death of people who refused to evacuate.

_____ 5. Can affect places as far as two kilometers away from its place.

_____ 6. Hot gases can be used to provide geothermal steam to generate electricity.

_____ 7. Air and water pollution

_____ 8. Coconut, abaca and sugarcane are grown in soils rich in volcanic materials.

Directions: Answer the question below.

Are you afraid of volcanoes? Explain your answer briefly.

_____

_____

_____

_____

_____

Lesson 68: Practices precautionary measures before and after volcanic eruptions.

Exercise A

Directions: Identify whether the statement shows measures done before and after a volcanic eruption. Write **BEFORE** or **AFTER** on the blanks before each item.

_____ 1. It is best to heed warnings and instructions issued by the authorities.

_____ 2. Do not cross a bridge while *lahar* flows beneath it. Do not stay near a river channel.

_____ 3. Stock up on enough food and medicine. Canned goods are recommended.

_____ 4. Wait for further notice or instructions from authorized government agencies as to when it is safe to return home.

_____ 5. Save enough water in safe, covered containers.

_____ 6. Follow orders of evacuation from danger areas. Evacuation must be done calmly, orderly and smoothly.

_____ 7. Keep tuned in to the radio. Wait for instructions to return home.

_____ 8. Have flashlights, batteries and first aid kits ready.

_____ 9. Make the necessary repairs and cleanup of houses hit by ash fall.

_____ 10. Go to your designated evacuation center.

Lesson 68: Practices precautionary measures before and after volcanic eruptions.

Exercise B

Directions: Identify whether the statement shows measures done before and after a volcanic eruption. Write **BEFORE** or **AFTER** on the blanks before each item.

_____ 1. In the event of an impending eruption, keep tuned in to the radio for warnings and instructions.

_____ 2. Wait for further notice or instructions from authorized government agencies as to when it is safe to return home.

_____ 3. Make the necessary repairs and cleanup of houses hit by ash fall.

_____ 4. Listen to the radio for an update on volcanic activity in your area.

_____ 5. Store enough food and safe drinking water to sustain you in case of great destruction.

_____ 6. Evacuate quickly to safer areas or designated evacuation centers.

_____ 7. Follow the warnings and instructions issued by concerned government agencies.

_____ 8. Save enough water in safe, clean and covered containers

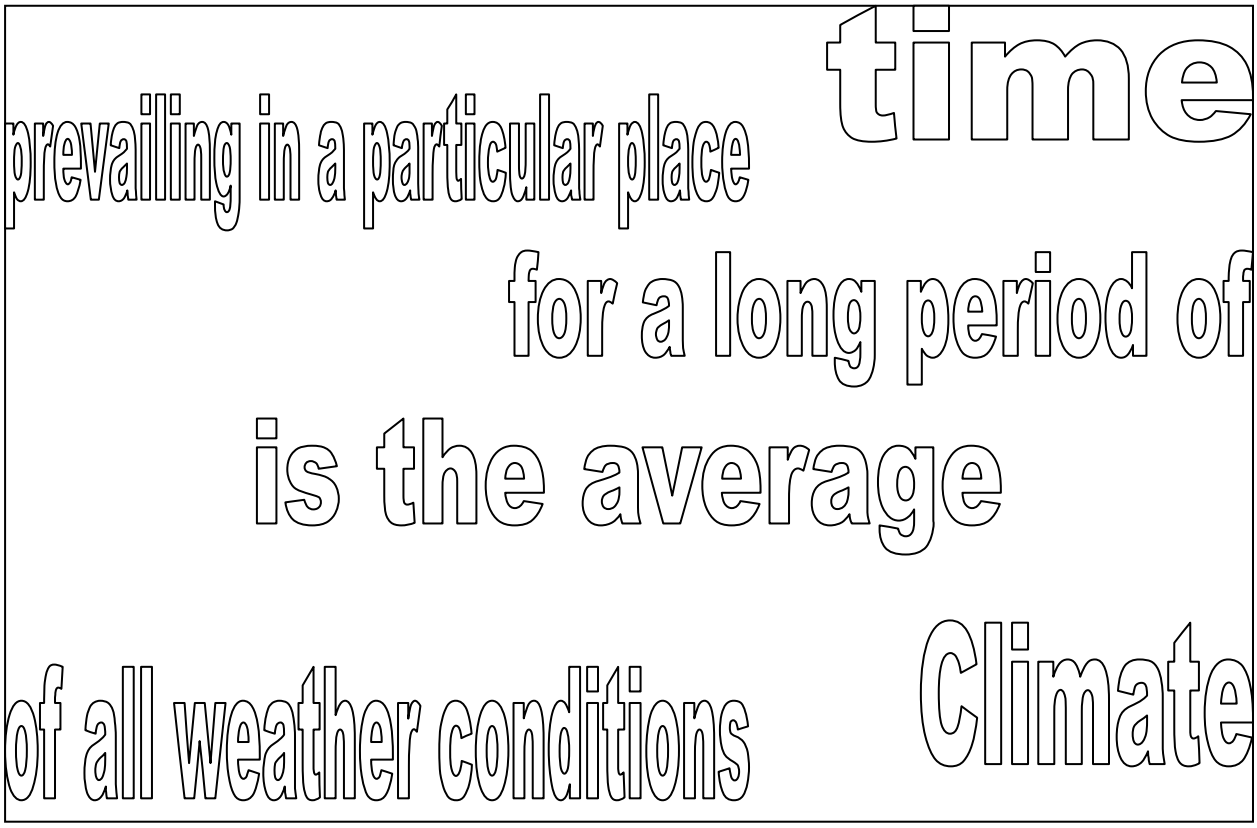
_____ 9. Follow orders of evacuation from danger areas. Evacuation must be done calmly.

_____ 10. Stock-up on enough food and medicine. Canned goods are recommended.

Lesson 69: Defines climate

Exercise A

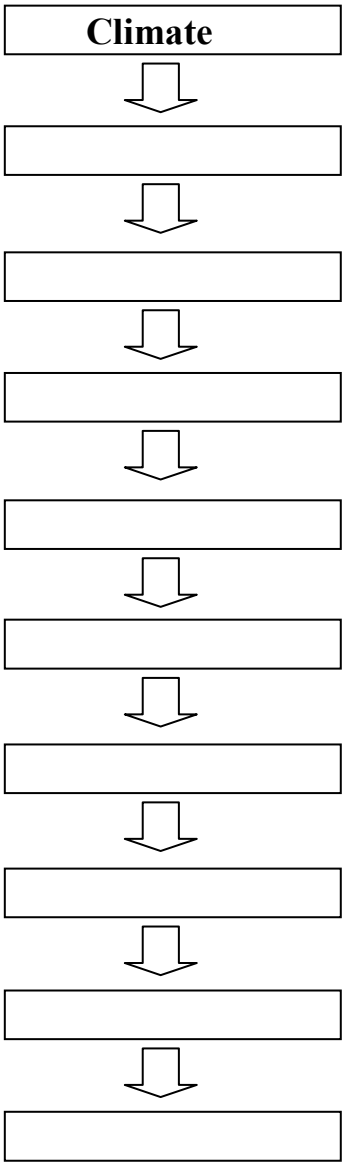
Directions: Arrange the words and phrases to come up with a statement defining what climate is. Write your answer on the space below the box.



Lesson 69: Defines climate

Exercise B

Directions: Fill in the boxes with the correct words/phrases to complete the meaning of climate. Refer to the words and phrases in the box. The first word has been done for you.



prevailing
particular
place
long period
is the average of all
climate
for a
weather condition
in a
of time

Lesson 70: Describes the different wind systems.

Exercise A

Directions: Using a line, identify the different wind systems by matching column A with their definitions in column B.

A	B
_____ 1. Doldrums	A. The winds that blow away from the poles
_____ 2. Trade winds	
_____ 3. Horse latitude	B. The wind that blows from the horse latitude towards the equator.
_____ 4. Prevailing westerlies	
_____ 5. Polar easterlies	C. The winds that make up a calm area near the equator
_____ 6. Northeast monsoon	
_____ 7. Southwest monsoon	D. The wind that blows away from the horse latitude towards the equator.
	E. are calm areas of falling air.
	F. The cold moving air which starts from Siberia that chills the Philippines from December to January, also known as "Hanging Amihan".
	G. The winds that bring much rain from the southeast direction of the Philippines from June to November. This is the start of the planting season, also known as "Hanging Habagat"

Directions: Answer the questions. Encircle the letter of the correct answer.

8. What is the effect of the earth's rotation?

A. global winds are bent
B. global winds move upward down
C. global winds blow in straight line
D. global winds seem to curve or twist

9. How does the earth rotate?

A. clockwise from west to east
B. clockwise from east to west
C. counterclockwise from west to east
D. counterclockwise from east to west

10. What are global patterns of wind called?

A. monsoon
B. sea breeze
C. land breeze
D. prevailing winds.

Lesson 70: Describes the different wind systems.

Exercise B

Directions: Using a line, identify the different wind systems by matching column A with their definitions in column B.

A	B
_____ 1. Trade winds	A. The cold moving air which starts from Siberia that chills the Philippines from December to January, also known as "Hanging Amihan".
_____ 2. Horse latitude	
_____ 3. Prevailing westerlies	
_____ 4. Polar easterlies	
_____ 5. Polar easterlies away from the poles	B. They are winds blowing from the east characterized by cold air that sinks and takes a curved path.
_____ 6. Southwest monsoon	
_____ 7. Doldrums	C. They are winds near the equator which is hot due to the direct rays of the sun giving rise to a low-pressure area.
	D. They are winds that blow from northeast or southeast in one direction towards the equator.
	E. They are winds coming from the north and south latitudes going to the poles turn east.
	F. It brings much rain from June to November starting the rice planting Season in the Philippines, also known as "Hanging Habagat"
	G. They are winds found north and south of the trade winds. They are usually calm, dry and fairly cool. They blow from any direction.

Directions: Answer the questions. Encircle the letter of the correct answer.

8. What are doldrums and horse latitudes?

A. They are typhoons
B. They are calm areas
C. They are prevailing winds
D. They are global wind belts

9. What are global patterns of wind called?

A. Monsoon
B. Sea Breeze
C. Land Breeze
D. Prevailing Winds

10. What is the effect of the earth's rotation?

A. Global winds are bent
B. Global winds move up and down
C. Global winds blow in a straight line
D. Global winds seem to curve or twist

Lesson 71: **Identifies the factors that affect the climate of a place; altitude, latitude, bodies of water, wind system and amount of rainfall.**

Exercise A

Directions: Arrange the words and phrases to come up with a statement that identifies the factors that affect the climate of a place. Write your answer on the space below the box.

are factors that affect the climate of a place Altitude, latidude, bodies of water, wind system and the amount of rainfall

Lesson 71: Identifies the factors that affect the climate of a place; altitude, latitude, bodies of water, wind system and amount of rainfall.

Exercise B

Directions: Fill in the blanks to get the correct factors that affect climate in a place. Clues are provided.

FACTORS AFFECTING CLIMATE

C

L A __ I __ U __ __

B __ __ I __ S of W __ __ E R

W __ __ D S _ S T _ E M

A __ T I __ __ __ E

A __ O __ __ T of R __ I N __ __ __ L

E

CLUES:

1. An imaginary line parallel to the equator going north or south.
2. Examples are rivers, oceans and seas
3. This results from the heating of the earth's surface. Movement of the wind like easterly winds, westerly wind and doldrums belong to this phenomenon.
4. The height of a particular place above sea level.
5. It determines the wetness or dryness of a place.

Lesson 72: Explains how each factor affects the climate of the place.

Exercise A

Directions: Explain how each factor affects the climate of the place by matching the words in column A with the definitions in column B. Write the letter of the correct answer on the blank.

A	B
_____ 1. Altitude	A. Areas near the equator usually have low latitude (hot climate) while those at the pole have high latitude (cold climate)
_____ 2. Latitude	B. It is cooler in coastal areas. Water does not absorb heat as fast as land area. This is the reason places surrounding bodies of water have a mild climate.
_____ 3. Bodies of Water	C. Different parts of the Philippines have different amount of rainfalls during the year. It used to describe the climate in the region.
_____ 4. Wind system	D. The unequal heating of the earth's surface results in the formation of the different wind systems.
_____ 5. Amount of rainfall	E. It is a fact that as a place rises above sea level, air temperature drops by a few degrees, making the place cooler than in places in low lands.

Lesson 72: Explains how each factor affects the climate of the place.

Exercise B

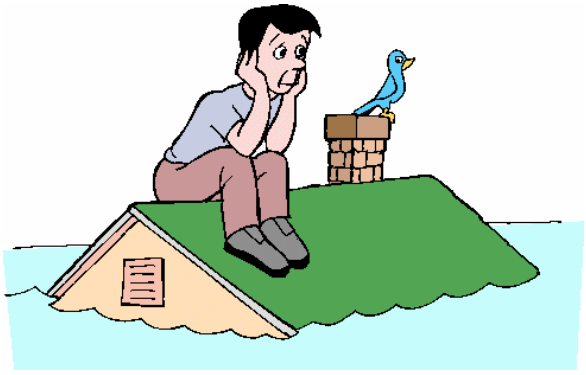
Directions: Explain how each factor affects the climate of the place by matching the words in column A with the definitions in column B. Write the letter of the correct answer on the blank.

A	B
_____ 1. Amount of Rainfall	A. The higher a particular place is, the cooler is it's temperature
_____ 2. Wind System	B. The unequal heating of the earth's surface results in the formation of the different wind systems.
_____ 3. Bodies of Water	C. Areas near the equator usually have low latitude (hot climate) while those at the pole have high latitude (cold climate)
_____ 4. Latitude	D. It is cooler in coastal areas. Water does not absorb heat as fast as land area. This is the reason places surrounding bodies of water have a mild climate.
_____ 5. Altitude	E. Different parts of the Philippines have different amount of rainfalls during the year. It used to describe the climate in the region.

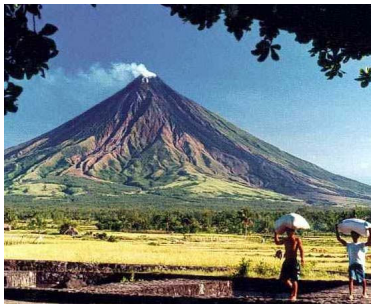
Lesson 73: Identifies the two seasons of the Philippines.

Exercise A

Directions: Identify the picture that illustrates the two seasons. Write **WET** or **DRY** on the blanks.



1. _____ 2. _____



3. _____ 4. _____ 5. _____

Directions: Fill in the blanks to make the statements correct.

1. The Philippines has two seasons: _____ and _____.

2. The _____is characterized by less rain fall. People engage in more outdoor activities.

3. The _____ is characterized by frequent rainfall.

Lesson 73: Identifies the two seasons of the Philippines.

Exercise B

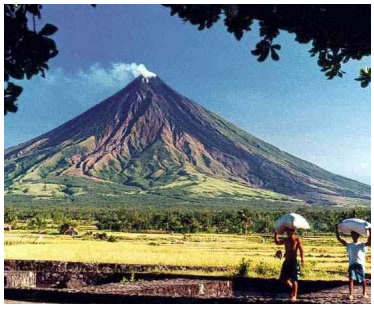
Directions: Identify the picture that illustrates the two seasons. Write **WET** or **DRY** on the blanks.

1. _____

2. _____

3. _____

4. _____



5. _____

Directions: Fill in the blanks to make the statements correct.

1. The Philippines has two seasons: _____ and _____.

2. The _____ is characterized by frequent rainfall.

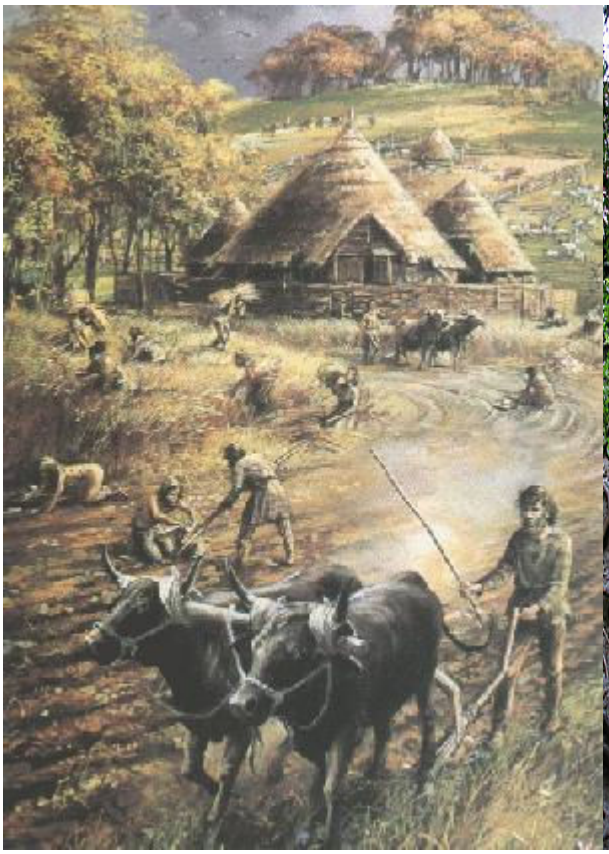
3. The _____is characterized by less rain fall. People engage in more outdoor activities.

Lesson 74: Describes the two seasons of the Philippines.

Exercise A

Directions: Study the pictures of both dry and wet seasons then read the statements that follow. On the blanks, write TRUE if the statement is correct and false if the statement is incorrect.

DRY WET



_____ 1. Earth revolves in an orbit around the sun in 364 and ¼ days.

_____ 2. Earth rotates on its axis in 24 hours.

_____ 3. The Philippines has wet and dry seasons.

_____ 4. In the Philippines, we experience heavy rainfall during the wet season.

_____ 5. In the Philippines, the dry season is from November to April.

_____ 6. The monsoon affects our normal pattern of wet and dry seasons.

_____ 7. In the Philippines, the wet season is from January to May.

_____ 8. Earth is heated by the moon.

_____ 9. The countries far from the equator receive direct sunlight.

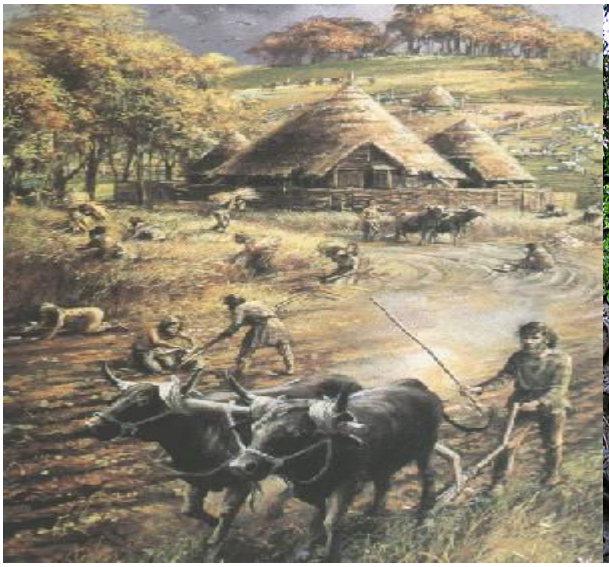
_____ 10. We experience dry and wet seasons because our country is surrounded by large bodies of land and water.

Lesson 74: Describes the two seasons of the Philippines.

Exercise A

Directions: Study the pictures of both dry and wet seasons then read the statements that follow. On the blanks, write TRUE if the statement is correct and false if the statement is incorrect.

DRY WET



_____ 1. Earth revolves around the sun.

_____ 2. Dry season have hot humid days.

_____ 3. During the rainy season, the Philippines experiences heavy rainfall.

_____ 4. Seasons affect the activities of the people.

_____ 5. Fishing and other outdoor activities are more common during the wet season.

_____ 6. Tropical fruits, flowers and vegetables grow best during the wet season.

_____ 7. Seasons are caused by 23.5 tilt of the earth as it revolves around the sun.

_____ 8. In the Philippines, The dry season is between January and May.

_____ 9. In the Philippines, heavy rainfall is experienced during the rainy seasons.

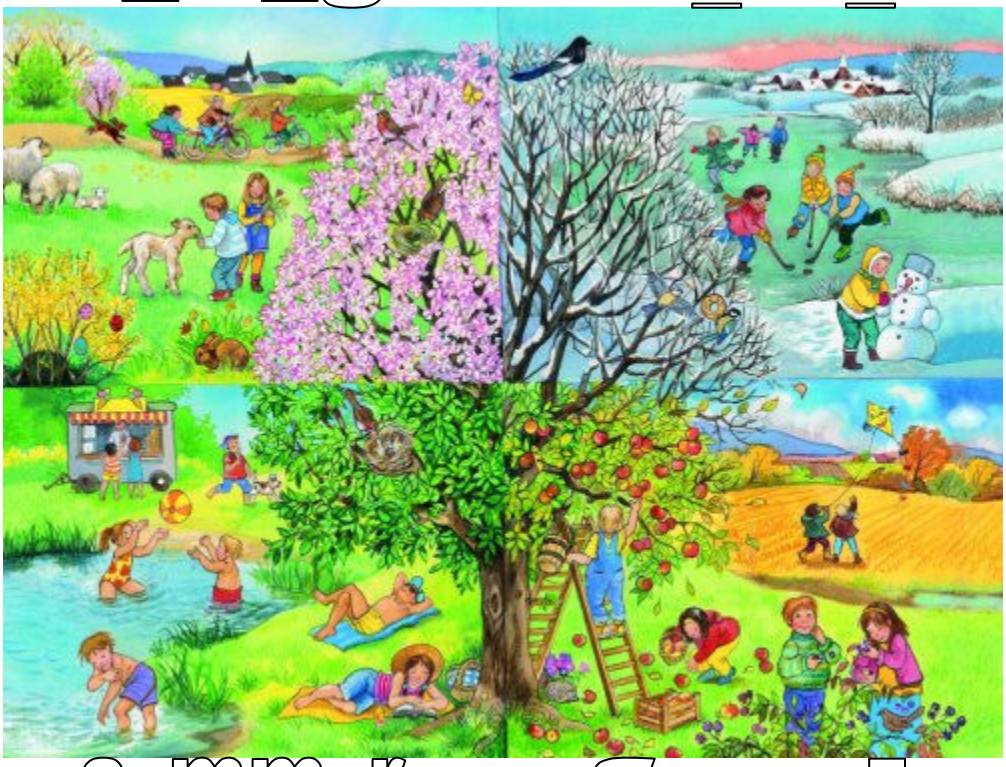
_____ 10. The changing position of the sun's rays as it strikes Earth does not cause seasonal changes.

Lesson 75: **Shows through a model the cause of the four seasons in other countries.**

Exercise A

Direction: Study the illustration below. Fill in the blanks to get the correct names of the four seasons.

s_ri_g wi_te_



s_mm_r fa__l

Directions: Describe the four seasons.

Spring: _____

Summer: _____

Autumn/Fall: _____

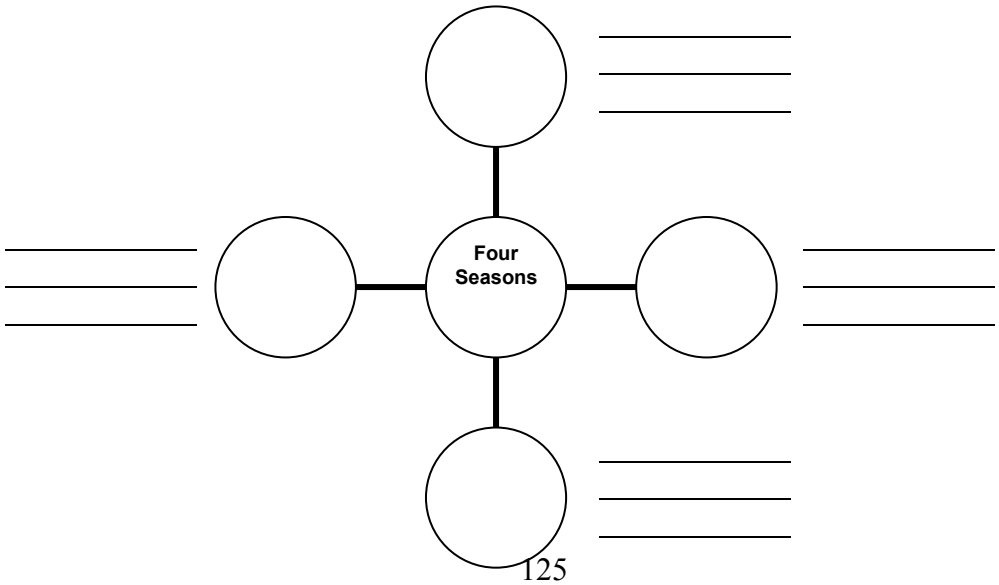
Winter: _____

Lesson 75: Shows through a model the cause of the four seasons in other countries.

Exercise B

Direction: Draw a diagram showing the four seasons in some countries.

Directions: Write the four seasons in the circles and their weather conditions/descriptions on the 3 short lines.



Lesson 76: Relates the condition of a place to the type of climate it has.

Exercise A

Directions: Fill in the blanks with the different types of climate related to its condition in a place as shown in the statement below.

_____ 1. It's pronounced wet and dry season

_____ 2. Areas where rainfall is more or less evenly distributed throughout the year

_____ 3. Pronounced dry season for 6 months and pronounced wet season for the other 6 months

_____ 4. Seasons are not very pronounced.

_____ 5. These areas are exposed to the southwest monsoon and protected by mountain ranges.

_____ 6. No dry season with maximum rainfall in December and January.

_____ 7. These areas are exposed to the southwest monsoon and are partly protected from the northeast monsoon.

_____ 8. Open to southwest monsoon and storms

_____ 9. Areas with this type are generally along or very near the eastern coast.

_____ 10. Fishing and other outdoor activities are more common during this type

Lesson 76: Relates the condition of a place to the type of climate it has.

Exercise B

Directions: Choose from the box the types of climate related to its condition as shown by the following statements. Write the correct answers in the blanks.

FIRST TYPE	THIRD TYPE
SECOND TYPE	FOURTH TYPE

_____ 1. No dry season with a very pronounced maximum rain period from November to January

_____ 2. Rainfall is more or less distributed throughout the year.

_____ 3. Dry from November to April and wet the rest of the year

_____ 4. No pronounced maximum rain period

_____ 5. Two pronounced seasons

_____ 6. Areas affected in this type of climate are western part of the island of Luzon, Mindoro, Panay, Negros and Palawan

_____ 7. Partly sheltered from the northeast monsoon but open to the southeast monsoon

_____ 8. Open to northwest monsoon and southeast monsoon

_____ 9. Areas affected in this type of climate are Batanes, northeastern Luzon and most of the central eastern and southern Mindanao.

_____ 10. Dry from November to April and wet the rest of the year

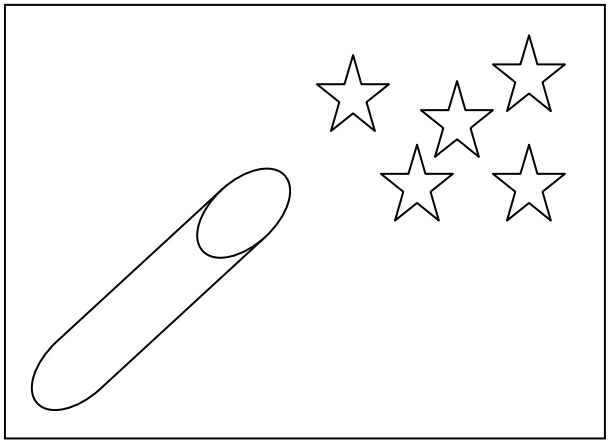
Lesson 77: Constructs improvised instruments for watching/observing stars.

Exercise A

Directions: Construct an improvised instrument for watching/observing stars. Follow the directions below.

You will need:

a thin 30-cm cardboard
a pair of scissors
scotch tape



Do the following:

1. Roll the cardboard and fasten it with clear adhesive tape.
2. Direct your viewing tube toward the sky at night. Select a particular area.
3. Count all the stars you can see through the tube.
4. Record your first count as trial no. 1 in the table provided below.
5. Perform the activity eight times.
6. Note down the average number of stars that you have seen. To obtain this, add the number of stars seen in all trials, then divide the sum by eight (for the number of trials).

a. How many stars have you counted in all trials? _____
b. Compare your calculations with those of your classmates. Are your calculations the same? Why or why not? _____
_____
_____

TRIAL NO.	NUMBER OF STARS SEEN
1	
2	
3	
4	
5	
6	
7	
8	

Total number of stars seen: _____

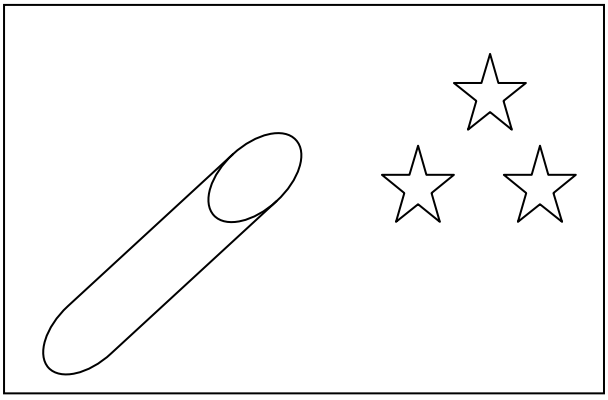
Average (Total ÷ 8): _____

Lesson 77: Constructs improvised instruments for watching/observing stars.

Exercise B

Directions: Construct an improvised instrument for watching/observing stars. Follow the directions carefully.

1. Get a piece of cardboard and roll it to make a tube about a metre long and two centimeters in diameter. Fasten the ends with tape.
2. Set the tube on a window sill or in any place where you can see the night sky clearly.
3. Look through the tube opening and focus on a bright star. Fasten the tube with masking tape to keep it in place.
4. Draw the position of the star as seen through the tube. Observe the star for two hours.



5. Use your improvised tube to observe others stars. Do your observation on different nights. Choose a bright star. Observe the star for two hours. Draw its position.

What is the position of the star as viewed through the tube's opening? Describe its position after two hours.

_____
_____
_____
_____
_____
_____

Lesson 78: Observes the stars as to color and brightness.

Directions: Compare the stars' colors and brightness. Answer the questions that follow.

NAME OF STAR	COLOR	SURFACE TEMPERATURE	COMPARISON to object
Sun	Yellow	about 6000	Sodium light
Sirius	White	about 11000	Fluorescent light
Rigel	Bluish-white	about 20000	Welding torch
Betelgeuse	Red	about 3000	Lighted matchstick
Procyon	Yellow	about 6000	Sodium light

1. List the stars from hottest to coolest. _____

   _____

2. Name the hottest star according to the table._____

3. Identify the coolest star. _____

4. What is the color of the hottest/brightest star?_____

5. What is the color of the coolest star?_____

Lesson 79: Identifies the kind of stars according to their size.

Directions: Identify and study the following stars in the box according to their size. Complete the table below.

Sun	Altair	Van Maanen
Betelgeuse	Antares	Sirius
Capella	Arcturus	Aldebaran
White Dwarf NGC 2440		Vega

Dwarf Stars	Medium-sized Stars	Giant Stars	Super Giant Stars

Lesson 80: Tells that the stars we see in the sky is actually its apparent brightness.

Exercise A

Directions: On the blanks, write **T** if the situation tells about the apparent brightness of stars and **F** if it does not.

_____ 1. Some very big and bright stars do not really appear as bright when seen from Earth because of their distance.

_____ 2. Apparent magnitude is the apparent brightness of the stars due to their size and distance from earth.

_____ 3. The distance of stars from Earth is measured in terms of the distance light travels in a year.

_____ 4. Stars with a magnitude below 1.0 are considered first magnitude stars.

_____ 5. Stars in the 24^{th} magnitude are the faintest.

_____ 6. The sun has an apparent magnitude of -26.8, which is below +1.0. Therefore, the sun is the faintest star we can see from Earth.

_____ 7. A star with an apparent magnitude of 3 is fainter than a star with 2.5 apparent magnitude.

Lesson 80: Tells that the stars we see in the sky is actually its apparent brightness.

Exercise B

Directions: On the blanks, write **T** if the situation tells about the apparent brightness of stars and **F** if it does not.

_____ 1. Stars with a magnitude below 1.0 are considered first magnitude stars.

_____ 2. A star with an apparent magnitude of 3 is fainter than a star with 2.5 apparent magnitude

_____ 3. Some very big and bright stars do not really appear as bright when seen from Earth because of their distance.

_____ 4. The distance of stars from Earth is measured in terms of the distance light travels in a year.

_____ 5. Stars in the 24^{th} magnitude are the faintest.

_____ 6. The sun has an apparent magnitude of -26.8, which is below +1.0. Therefore, the sun is the faintest star we can see from Earth.

_____ 7. Apparent magnitude is the apparent brightness of the stars due to their size and distance from earth.

Lesson 81: Describes the relationship between color and temperature of a star.

Exercise A

Directions: Describe the relationship between color and temperature of stars by underlining the correct answer inside the parenthesis.

1. All stars emit all colors, but the hottest stars emit more (red, blue, white) and less

   (red, blue, white) radiation.

2. The hottest stars have bluish-white color with a temperature of

   (11,000 C to 30,000 °C | 10,000 C to 20,000 °C).

3. The hottest stars have (red, yellow, blue) color.

4. Red stars are considered to be the coolest with surface temperature of

   (20,000 °C | 3,000 °C | 4,000 °C).

5. Yellow stars are moderately hot with a surface temperature of about

   (5,000 °C | 6,000 °C | 7,000 °C).

6. Stars emit a (little, large, tremendous) amount of heat and light.

7. The coolest stars have (red, yellow, blue) color.

8. As the stars grow older, their color gradually fades until the color becomes

   (yellow, orange, red).

Lesson 81: Describes the relationship between color and temperature of a star.

Exercise B

Direction: Describe the relationship between color and temperature of stars by underlining the correct answer inside the parenthesis.

1. The hottest stars have (red, yellow, blue) color.
2. The coolest stars have (red, yellow, blue) color.
3. All stars emit all colors, but the hottest stars emit more (red, blue, white) and less
4. (red, blue, white) radiation.
5. The hottest stars have bluish-white color with a temperature of

   (11,000 °C to 30,000 °C | 10,000 °C to 20,000 °C).
6. Red stars are considered to be the coolest with surface temperature of

   (20,000 °C, 3,000 °C, 4,000 °C).
7. Yellow stars are moderately hot with a surface temperature of about

   (5,000 C, 6,000 C, 7,000 C).
8. Stars emit a (little, large, tremendous) amount of heat and light.
9. As the stars grow older, their color gradually fades until the color becomes

   (yellow, orange, red).

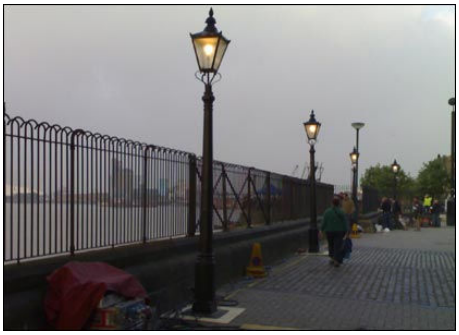
Lesson 82: Demonstrate the relationship between the brightness and the distance of stars from the Earth.

Exercise A

Directions: Perform the activity to demonstrate the relationship between the brightness and the distance of a star from the Earth. Answer the questions that follow. Write your answers in your notebook.

Do the following:

At night, observe the various lights coming from the different sources. Pay particular attention to the brightness of the bulb of the nearest lamp post and that of the farthest. Compare their brightness.



1. Which lamp appears to have the brightest light? _____
   _____
2. Which lamp appears to have a dimmer light? Why do you think so? _____
   _____
   _____
   _____

Directions: Encircle the letter of the correct answer.

3. Which of the following affects the brightness of stars when viewed from earth?

   A. size C. temperature
   B. color D. distance

4. The sun is just a medium-size star. But why is it that it seems to be the brightest?

   A. it is the hottest star C. it is the farthest star
   B. it is the nearest star D. it is the biggest star

5. How are distances of stars measured?

   A. kilometers C. light year
   B. mile D. meters

Lesson 82: Demonstrate the relationship between the brightness and the distance of stars from the Earth.

Exercise B

Directions: Perform the activity to demonstrate the relationship between the brightness and the distance of a star from the Earth. Answer the questions that follow.

1. Ask a friend to stand at the end of a long hall.
2. Tell you friend to stand on different marked positions that are one, two, three, four, five meters apart from you.
3. Ask your friend to move from one position to another while you hold a big lighted flashlight in a stationary place.

4. Tell your friend to describe the brightness of the light as he/she moves farther from the flashlight.

    1. At what distance was the light brightest? Dimmest? _____
    2. What factor determines the apparent brightness of light? _____
    3. If the flashlight were to be changed to a penlight, would you get the same result? Why or why not? _____

Directions: Encircle the letter of the correct answer.

4. Which of the following affects the brightness of stars when viewed from earth?

A. size	C. temperature
B. color	D. distance

5. The sun is just a medium-size star. Why is it that it seems to be the brightest?

A. it is the biggest star	C. it is the nearest star
B. it is the farthest star	D. it is the hottest star

Lesson 83: Explains why star distances are measured in light years.

Exercise A

Directions: Encircle the letter of the correct answer to the question.

1. Which of the following is used to measure the distances of stars?

   A. mile C. meter
   B. kilometer D. light year

2. Which of the following is the meaning of light year?

   A. The distance traveled by light in 3 years.
   B. The distance traveled by light in 2 years
   C. The distance traveled by light in 1 year
   D. The distance traveled in 9 months.

3. If Sirius is 2.7 light years away from earth, this means that …

   A. It takes 2.5 years for the light coming from Sirius to reach us.
   B. It takes 2.6 years for the light coming from Sirius to reach us.
   C. It takes 2.7 years for the light coming from Sirius to reach us.
   D. It takes less than a year for the light coming from Sirius to reach us.

4. Why did astronomers chose light year instead of kilometers to measure star distances?

   A. It is the most convenient measurement to use.
   B. It is the hardest way of measuring star distances.
   C. It is the order from their head office to use light year.
   D. It is the easiest way of measuring star distances.

Lesson 83: Explains why star distances are measured in light years.

Exercise B

Directions: Write the letter of the correct answer on the blanks provided.

_____ 1. Which of the following is the meaning of light year?

A. The distance traveled by light in 3 years.
B. The distance traveled by light in 1 years
C. The distance traveled by light in 2 year
D. The distance traveled in 9 months.

_____ 2. Why did astronomers chose light year instead of kilometers to measure star distances?

A. It is the hardest way of measuring star distances.
B. It is the most convenient measurement to use.
C. It is the easiest way of measuring star distances.
D. It is the order from their head office to use light year.

_____ 3. If Sirius is 2.7 light years away from earth, this means that …

A. It takes 2.5 years for the light coming from Sirius to reach us.
B. It takes 2.6 years for the light coming from Sirius to reach us.
C. It takes 2.7 years for the light coming from Sirius to reach us.
D. It takes less than a year for the light coming from Sirius to reach us.

_____4. Which of the following is used to measure the distances of stars?

A. mile C. meter
B. kilometer D. light year

Lesson 84: Explains why stars seem to twinkle.

Exercise A

Directions: Explain why stars seem to twinkle by writing **T** if the statement is TRUE and **F** if the statement is FALSE on the blanks.

_____ 1. The sun, the nearest star, also twinkles because of the obstruction of light rays caused by pollutants in air.

_____ 2. All stars really twinkle naturally.

_____ 3. Stars appear to twinkle because we see them through layers of air surrounding the Earth.

_____ 4. As their light passes through the air layers, the light's speed changes as it moves from one layer to another.

_____ 5. In one layer, the light moves very fast. In another layer, the light moves slowly. These changes are observed as the brightening and darkening of the stars' light or twinkling.

Exercise B

Directions: Explain why stars seem to twinkle by writing **T** if the statement is TRUE and **F** if the statement is FALSE on the blanks.

_____ 1. Stars really twinkle naturally.

_____ 2. Stars appear to twinkle because we see them through layers of air surrounding the Earth.

_____ 3. As their light passes through the air layers, the light's speed changes as it moves from one layer to another..

_____ 4. In one layer, the light moves very fast. In another layer, the light moves slowly. These changes are observed as the brightening and darkening of the stars' light or twinkling.

_____ 5. Our sun, the medium-sized star, also twinkles because of the obstruction of light rays caused by pollutants in air.

Lesson 85: Concludes that stars are distant suns.

Exercise A

Directions: Identify the statements that show that stars are distant suns by drawing a  mark and an **X** for those that don't on the blanks provided.

_____ 1. Suns and stars are ball of hot gases.

_____ 2. They give off heat and light. They shine by their own light.

_____ 3. They have different sizes, colors and brightness.

_____ 4. The sun looks different from other stars because it is the closest star to the Earth. So, it looks very much bigger than the other stars.

_____ 5. Other stars look very small because they are actually very small balls of hot gases.

Exercise B

Directions: Identify the statements that show that stars are distant suns by drawing a ☺ and an ☹ for those that don't on the blanks provided.

_____ 1. Suns and stars have different characteristics.

_____ 2. Suns and stars are ball of hot gases.

_____ 3. They give off heat and light. They shine by their own light.

_____ 4. They have different sizes, colors and brightness.

_____ 5. The sun looks different from other stars because it is the closest star to the Earth. So, it looks very much bigger than the other stars.

Lesson 86: Describes how constellations are useful to people.

Exercise A

Directions: Draw a star if the statement shows that constellations can be useful to people and an **X** if they are not.

_____ 1. Finding the directions when at the desert and sea

_____ 2. Predicting the coming season

_____ 3. Studying plant behavior

_____ 4. Predicting the future of people

_____ 5. Finding locations on land

_____ 6. Studying the universe

_____ 7. Telling the time

_____ 8. To make a wish come true

_____ 9. Telling the behavior of people

_____ 10. Predicting world events

Exercise B

Directions: Encircle the items that show the use of constellations to people.

1. Guide to tell location and season
2. Guide in traveling
3. Serve as a compass
4. Guide on the coming season
5. Serves as calendar
6. Make the soil fertile
7. Warning for coming volcanic eruptions
8. Guide in daily life as clock in the sky
9. Predict what may happen in one's life
10. Start a brighter tomorrow

Lesson 87: Name the common galaxies.

Exercise A

Directions: Complete the words below by identifying the missing letters to find the common names of the galaxies. All letters were given a numerical value in the alphabet bank. Write the complete words on the line provided for.

A=1	F=6	K=11	P=16	U=21	Z=26
B=2	G=7	L=12	Q=17	V=22	
C=3	H=8	M=13	R=18	W=23	
D=4	I=9	N=14	S=19	X=24	
E=5	J=10	O=15	T=20	Y=25	

1. L A 18 7 5 13 A G E 12 L 1 14 I 3 C L 15 21 D 19

2. 13 I L 11 25 23 A Y 7 A L A 24 Y

3. G R 5 1 20 N 5 2 21 L A

4. 23 8 I R 16 15 15 L G 1 L 1 X 25

5. 14 O 18 13 A 12 S 16 9 18 A L

6. 9 R 18 E 7 21 L A 18 7 1 L A 24 Y

7. 19 M A 12 12 M A 7 5 12 L A 14 I C 3 L 15 21 D S

8. A N 4 18 O 13 E D 1 7 A 12 A X 25

9. E 12 12 I 16 20 9 C 1 12 7 1 12 24 25

10. B A 18 18 5 D S 16 I 18 A 12

Lesson 87: Name the common galaxies.

Exercise B

Direction: Find the ten (10) common names of galaxies hidden in the puzzle below. The words maybe read downward, upward, backward horizontally or diagonally. Write your answers on the lines provided for.

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

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

Lesson 88: States that our solar system is part of the Milky Way galaxy

Exercise A

Directions: Underline the correct answers to complete the information given about our galaxy.

The Milky Way is a group of about (300, 200, 100) billions of stars and the (sun, rigel, capella) is one of them.

It is believed to be (100,000, 200,000, 300,00) light years in diameter and (20,000, 30,000, 40,000) light years thick at the center.

The Milky way is (elliptical, spiral, oval) in shape as a galaxy. It has spiral arms that extend (inward, outward, downward).

Our solar system is a (big, small, medium) dot found at one of these arms, which is about (28,000, 29,000, 30,000) light years away from the galactic center. The sun takes about (520, 220, 130) million years to go around the galactic center to complete an orbit called (light year, galactic year, one year).

Lesson 88: States that our solar system is part of the Milky Way galaxy.

Exercise B

Directions: Underline the correct answers to complete the information given about our galaxy.

The Milky Way is a band of (100 billion, 200 billion, 300 billion) stars that appears as a wide, bright arc across the night sky.

It has a (small, medium, big) cluster of stars that turns around the Earth. That's why we can see it from any part of the (Earth, Mars, Jupiter).

The whole galaxy rotates (counter, counter clockwise, clockwise). Our Milky Way is (spiral, elliptical, round) Spiral galaxies are like pinwheels.

Our solar system and all the other stars we see in the sky make up a star system called (astronaut, cosmonaut, galaxy). We have millions, trillions, thousands) of galaxies that look like islands in the sea of space.

Our galaxy, named Milky Way, is a (vertical, spiral, elliptical) galaxy.

Milky Way is never stationary. It rotates (clockwise, counter clockwise, counter) on its axis.

Andromeda is 2.3 million light years away from the (Earth, Jupiter, Venus).

That means that the light that we see from the stars of Andromeda has left the stars 1 million years ago.

Lesson 89: Identifies the modern space facilities, tools and equipments used to study the universe.

Exercise A

Directions: Draw a ☆ if the statement is correct and an **X** if it is not.

_____ 1. The Hubble Space Telescope is the largest telescope in space.

_____ 2. Astronomers use spectroscopes to determine the composition of distant objects.

_____ 3. Spaceships are used to record and measure information about outer space.

_____ 4. Space probes are objects that are sent to other planets and beyond.

_____ 5. The Very Large Array are radio telescopes that can be turned to radiation in outer space.

_____ 6. Space probes are objects that orbit earth and gather information.

_____ 7.The radio telescope paints contour maps of the detected radio sources.

_____ 8. Space shuttles carry other space vehicles to outer space.

_____ 9. Space shuttles are space vehicles that plunge into the sea when landing on earth.

_____ 10. Spacesuits are airtight, pressurized with controlled temperature and heat resistant.

Lesson 89: Identifies the modern space facilities, tools and equipments used to study the universe.

Exercise B

Directions: Draw a ♡ if the statement is correct and a △ if it is not.

_____ 1. Hubble Space Telescope is the largest telescope in space.

_____ 2. Space probes are objects that are not sent to other planets.

_____ 3. Space shuttles are used to launch other space vehicles and equipments in outer space.

_____ 4. Space labs sent to outer space conduct scientific and engineering experiments.

_____ 5. Spacesuits are not flexible enough to allow movements.

_____ 6. Radio telescopes are not linked electronically and their outputs are combined and processed by a computer which prints a contour map.

_____ 7. Hubble Space Telescope can now see images that started their journeys 5 billion to 12 billion years ago.

_____ 8. A spectroscope is attached to a telescope.

_____ 9. The Schmidt Telescope has a correction lens that prevents the distortion of images.

_____ 10. A spectrohelioscope is a type of scanning spectroscope.

Lesson 90: Explains the theories about the universe.

Exercise A

Directions: Inside the box are the theories that explain the origin of the universe. Answer the questions below by identifying the theory described. Write the letter of the correct answer on the blanks.

A.	Big Bang Theory
B.	The steady State Theory
C.	The Creation Theory
D.	The Oscillating Universe Theory
E.	Pulsating Theory

_____ 1. The theory that implies that the empty space left by expansion is being filled up by new galaxies that are constantly being formed.

_____ 2. Similar idea to the Big Bang. Also believes that the universe expanded from a small compact mass that exploded.

_____ 3. Astronomers think that billions of years ago, all matter in the universe was squeezed into a small compact mass.

_____ 4. The universe and everything in it were created by our God Almighty.

_____ 5. Scientist claim that the universe had a beginning but will have no end.

_____ 6. The universe will contract and become a small mass again.

_____ 7. The universe will never come to an end because there will always be a fresh supply of Hydrogen created out of nothing.

_____ 8. According to Edwin Hubble, distant galaxies are moving away from us in every direction at great speed.

_____ 9. These theories are only guesses proposes by astronomers. They have not benn proven to be true yet.

_____ 10. According to other scientists, although our universe is expanding, it will eventually slow down and contract, They call it the Big Crunch Theory. Big bang was the result of the Big Crunch theory.

Lesson 90: Explains the theories about the universe.

Exercise B

Directions: Inside the box are the theories that explain the origin of the universe. Fill in the blanks below by identifying the theory described. Write the letters only.

A. The steady State Theory
B. The Creation Theory
C. Big Bang Theory
D. Pulsating Theory
E. The Oscillating Universe Theory

_____ 1. Scientists say that everything in the universe will be the same and will stay the same.

_____ 2. The space between galaxies is still expanding and will expand forever. This is what they call the expansion theory.

_____ 3. States that the expansion of the universe will come to a halt and the universe will contract and expand over again.

_____ 4. This theory originates from the book of Genesis in the Bible, where it says that God created the universe, the heavenly bodies and the earth on the 6^{th} day.

_____ 5. According to this theory, the matter now in the galaxies were packed in one big ball billions of years ago.

_____ 6. This theory states that the universe had no beginning and it would have no end.

_____ 7. These theories are only guesses proposed by astronomers. They have not been proven to be true yet.

_____ 8. Some people believe that there might come a time when these stars would move so far away from us that we cannot see them anymore.

_____ 9. This theory states that the universe expanded from a ball of matter

_____ 10. This theory states that the universe is constant in size and uniform throughout.

Lesson 91: Names some achievements/problems met in space explorations.

Exercise A

Directions: Rearrange the letters in the box to find out the problems met in space exploration Then write the word on the space provided.

1. GESSESSWIETHLN → _____
2. extreme URESSREP → _____
3. CALMENICHA → _____
4. extreme TURETEMPERA → _____
5. dangerous NOIRADTASI → _____

Directions: Check (√) all statements that show the function of a space probe.

☐ 6. Transmit information and specific data on earth.

☐ 7. Carries astronauts and cosmonauts in space.

☐ 8. Perform experiments on its surroundings.

☐ 9. Observes and takes pictures of objects.

☐ 10. Observes and measures temperature, pressure, radiation and objects in space.

Lesson 91: Names some achievements/problems met in space explorations.

Exercise B

Direction: Rearrange the letters to find out some achievements/problems met in space

1. NEGOXY = _____

_____

2. EIHWTG = _____

_____

3. EARSTHATYGRIV = _____

_____

4. FODO = _____

_____

5. ORNITAIAD = _____

_____

6. URIY AAGRING = _____

_____

7. LNIE GOMNSTRAR = _____

_____

8. TIVANALEN VAKOTERESH = _____

_____

9. INERAM2 = _____

_____

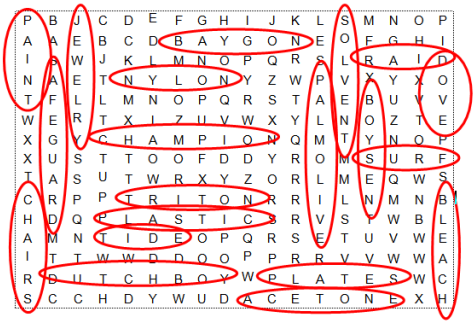
10. RREAGN7 = _____

_____

ANSWER KEY FOR GRADE 6 SCIENCE

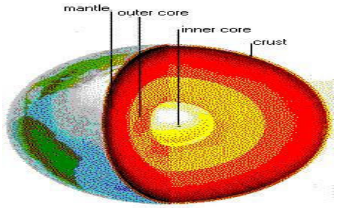
Lesson1 Exercise A: 1. heart2. blood vessels 3. blood 4.C 5. A 6.B 7.arteries 8. veins 9. leukocytes **Exercise B**: 1. heart 2. blood vessels 3. blood vessels 4. C 5. A 6. B 7. Arteries 8. Veins 9. Leukocytes10. B **Lesson 2 Exercise A**: 1. Heart 2. Blood 3. Blood Vessels 4. A 5. C 6. B 7. C 8. A 9. B 10. B **Exercise B:** 1. I 2. A 3. C 4. B 5. F 6. G 7. J 8. D 9. E **Lesson 3 Exercise A**: 1. right atrium 2. right ventricle 3. pulmonary artery 4. lungs 5. pulmonary veins 6. left atrium 7. left ventricle 8. aorta 9. B 10. A **Exercise B**: 1. right atrium 2. right ventricle 3. pulmonary artery 4. lungs 5. pulmonary veins 6. left atrium 7. left ventricle 8. aorta 9. the blood will undergo a back flow 10. blood circulation is disturbed **Lesson 4 Exercise A**: 1. A 2. B 3. C 4. hypertension 5. hemophilia 6. heart attack 7. stroke 8. arteriosclerosis 9. hypertension 10. To know the cures and eventually prevent these ailments **Exercise B**: 1. leukemia 2. congenital heart disease 3. anemia 4. hypertension 5. anemia 6. heart attack 7. arteriosclerosis 8. stroke 9. hypertension 10. A **Lesson 5 Exercise A**: Check: 1,6,8,9,10 **Exercise B**: Check: 1,2,3,5,6,7,9 **Lesson 6 Exercise A**: 1. √ 2. X 3. √ 4. √ 5. √ 6. X 7. X 8. √ 9. X **Exercise B**: star: 1,3,4 X: 2 5. G 6. G 7. B 8. G 9. G 10. D **Lesson 7 Exercise A**: 1. brain 2. spinal cord 3. nerves 4. dendrites 5. cell body 6. axon 7. cerebrum 8. cerebellum 9. brain stem 10. B **Exercise B**: 1. brain 2. spinal cord 3. nerves 4. D 5. A 6. B 7. cerebrum 8. cerebellum 9. brain stem 10. D **Lesson 8 Exercise A**: 1. B 2. E 3. A 4. C 5. D 6. 3 7. 1 8. 2 **Exercise B**: 1. 3 2. 1 3. 2 4. 4 5. 5 6. 1 7. 2 8. 3 9. 4 10. D **Lesson 9 Exercise A**: 1. √ 2. X 3. √ 4. X 5. √ 6. √ 7. √ 8. √ 9. X **Exercise B**: 1. X 2. √ 3. √ 4. X 5. B 6. B 7. G 8. G 9. G 10. G **Lesson 10 Exercise A**: P: 1, 2, 4, 5, 9, 10 M: 3 S: 6,8 E: 7 **Exercise B**: 1. IC 2. C 3.C 4.C 5.C 6. IC **Lesson 11 Exercise A**: Physical: D, E, H, J Mental: A,F Emotional: B, C, G ,I **Exercise B**: answers may vary **Lesson 12 Exercise A & Exercise B**: answers may vary **Lesson 13 Exercise A**: 1. true 2. false 3. true 4. true 5. true 6. eyes 7. operations 8. the heart 9. pregnancy **Exercise B**:1. √ 2. X 3. X 4. √ 5. √ 6. x 7. x 8. √ 9. √ 10. √ **Lesson 14 Exercise A**: 1. leaf > caterpillar > chicken > snake 2. leaf > caterpillar > bird > lion 3. carrot > rabbit > snake 4. carrot > rabbit > lion 5. leaf > frog > snake **Exercise B**: 1. rice grasshopper > bird 2. seaweed > small fish > big fish > man 3. rice > grasshopper > duck 4. seaweed > big fish > dog 5. rice > pig > man **Lesson 15 Exercise A & Exercise B**: answers may vary **Lesson 16 Exercise A**: 3, 5, 1, 6, 4, 2 **Exercise B**: 1. F 2. T 3. T 4. F 5. F 6. T 7. T 8. F 9. F 10. T **Lesson 17 Exercise A**: answers may vary; forests are important because they serve as home to many animals and plants which makes ecological balance **Exercise B**: 1, 2 , 4, 5, 7, 9, 10 **Lesson 18 Exercise A:** 1. √ 2. √ 3. √ 4. √ 5. X 6. √ 7. X 8. √ 9. √ 10. X 11. √ 12. X 13. √ 14. X 15. √ **Exercise B:** A, B, D, E, G, I, K, M, N, O **Lesson 19 Exercise A**: 2, 3, 4, 5, 6, 7, 9 **Exercise B**: 1. X 2. √ 3. X 4. √ 5. √ 6. X 7. X 8. X 9. X 10. X **Lesson 20 Exercise A**: 1. It burns plant and kills animals 2. Baby fish are killed, stopping population of new fish 3. Animals migrate due to losing their habitat 4. It heats the earth and disrupts ecosystem. 5. Pollution, garbage etc. **Exercise B**: 1. X 2. X 3. X 4. X 5. X 6. √ 7. X 8. X 9. √ 10. X **Lesson 21 Exercise A**: 1. E 2.D 3.C 4.B 5.A Food Shortage: more members to feed… Water Shortage: more water is needed, poor distribution of water supply, people throw garbage in rivers and seas Space Shortage: build houses along river banks, building houses close to each other **Exercise B**: 1. Water 2. Food 3. Food 4. Space 5. Water 6. Space 7. Space 8. Food 9.Food 10.Water **Lesson 22 Exercise A**: 1. T 2. T 3. F 4. T 5. F 6. T 7. T 8. T 9. T 10. F **Exercise B**: 1. √ 2. X 3. √ 4. X 5 X 6. X 7. √ 8. √ 9. √ 10. X **Lesson 23 Exercise A**: 1-9. Star 10. O **Exercise B**: 1. A 2. B 3. C 4. X 5. E 6. F 7. G 8. X 9. I 10. J **Lesson 24 Exercise A**: Answers may vary **Exercise B**: 1. Throwing of garbage 2. Over-sized family 3. Deforestation 4. Oil spill 5. Malnourished children **Lesson 25 Exercise A**:1. √ 2. √ 3. √

4. X 5. X 6. √ 7. √ 8. X 9. √ 10. √ **Exercise B:** 1. T 2. T 3. T 4.T 5. T 6. F 7. T 8. T 9. T 10 T **Lesson 26 Exercise A**: A, B, E, G, J **Exercise B**: X: 1, 4, 7 Star: 2, 3, 5, 6, 8, 9 10 **Lesson 27 Exercise A**: 1. B 2. A 3. D 4. I 5. G **Exercise B**: answers may vary **Lesson 28 Exercise A**: 1. C 2. F 3. I 4. A 5. H **Exercise B**: 1. clean bodies of water 2. healthy people 3. educate people 4. balanced/ undistributed forest ecosystem 5. enough supply of food 6. clean surrounding 7. enough supply of water 8. managed garbage disposal 9. community services **Lesson 29 Exercise A**:

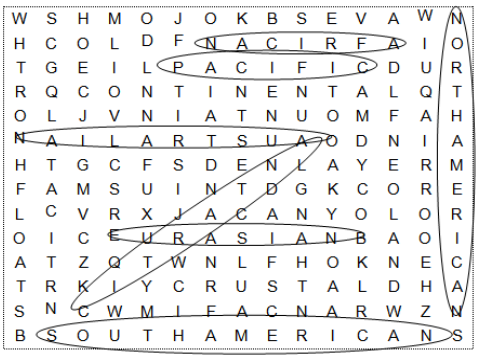


Exercise B: Pesticides: baygon, raid Soap: Palmolive, Dove, Surf, Tide Paint: Triton,Dutchboy,Boysen Solvent: acetone, solvent others: jewelry, plastics, chairs, plates, nylon **Lesson 30 Exercise A**: 1. F 2. G 3.h 4.i 5.j 6. E 7. D 8. C 9. B 10. A **Exercise B**: 1. E 2. H 3. C 4. I 5. D 6. H 7. B 8. A 9.f 10. D **Lesson 31 Exercise A**: answers may vary **Exercise B**: 1-9. A 10. D **Lesson 32 Exercise A**: Household tasks: preserving foods, styling the hair, eliminating flies and cockroaches, lighting, making coffee Old technology: cooler, pomade, swatters, candle, gas range, boiling water New/Improved Technology: refrigerators, gel, hairspray, aerosol spray, aerosol spray, fluorescent lamp, microwave oven, coffee maker **Exercise B**: answers may vary **Lesson 33 Exercise A & Exercise B**: answers may vary **Lesson 34 Exercise A**: 1. A 2. G 3. F 4. B 5. B 6. C 7. E 8. D 9. H 10. H **Exercise B**: 1. aerosol 2. products from Industrial plants. 3. drugs 4. alcohol 5. additives 6. burned fossil fuels 7. insecticides 8. fertilizers 9. alcohol 10. sodium benzoate **Lesson 35 Exercise A**: 1. X 2. √ 3. √ 4. √ 5. X 6. X 7. X 8. X 9. √ 10. X **Exercise B**:smiley: 1-5,9, 10 sad: 6-8 **Lesson 36 Exercise A**: Solid/heart: 1, 3, 6, 7, 9 Liquid/square: 2, 4, 5 Gas/triangle: 8, 10 **Exercise B**: 1. liquid 2. solid 3. solid 4. liquid 5. gas 6. liquid 7. gas 8. solid 9. solid 10. solid **Lesson 37 Exercise A & Exercise B**: outputs may vary **Lesson 38 Exercise A**: 1. fuels 2. acids 3. food 4. metals 5. mechanical 6. light 7. sound 8. electrical 9. geothermal 10. nuclear **Exercise B**: 1. Chemical Energy 2. electrical energy 3. mechanical energy 4. radiant energy 5. electrical energy 6. chemical energy 7. electrical energy 8. heat energy 9. mechanical energy 10. electrical energy **Lesson 39 Exercise A & Exercise B**: answers may vary **Lesson 40 Exercise A**: 1. electrical energy 2. nuclear energy 3. radiant energy 4. sound energy 5. chemical energy 6. mechanical energy **Exercise B**: 1. chemical energy 2. electrical energy 3. nuclear energy 4. radiant energy 5. sound energy 6. mechanical energy **Lesson 41 Exercise A**: A, C, D, G, J **Exercise B**: burning of paper, digest bread, movement of pistons in car, lighted stick, using dry cells in a flashlight **Lesson 42 Exercise A & Exercise B**: answers may vary **Lesson 43 Exercise A**: 1. D 2.C 3.B 4.E 5.A 6-10: check all **Exercise B**: 1. produced 2. electrons 3. material 4. conductor 5. copper wires 6. aluminum wires A-E: encircle all **Lesson 44 Exercise A**: A, B, C, D, E ☺: first 5 **Exercise B**: 1. T 2. warmer 3. in all direction 4. T 5. T 6. T 7. T 8. T **Lesson 45 Exercise A & Exercise B**: answers may vary **Lesson 46 Exercise A**: 1. Nuclear and geothermal 2. Electrical sound and heat 3. Electrical, chemical, mechanical **Exercise B**: 1. Electrical 2. Mechanical, heat 2. nuclear 3. Nuclear, geothermal, electrical, heat **Lesson 47 Exercise A**: 1. Conduction 2. Convection 3. Convection 4. Convection 5. Convection 6. Convection 7. Conduction 8. Conduction 9. Radiation 10 convection **Exercise B**: 1. RD 2. CD 3. CD 4. CV 5. CV 6.CV 7. CV 8.CV 9.CD 10. CD **Lesson 48 Exercise A**: 1. Hot 2. Heat 3. Heat 4. Heat 5. Heat **Exercise B**: answers may vary **Lesson 49 Exercise A**: 1. yes 2. E, least time 3. C, most time 4. D, west 5. A, north

6. C & E, not in the same direction 7. B & E **Exercise B**: 1. yes 2. B, least time 3. E most time 4. C & E, west 5. B north 6. C & E, yes **Lesson 50 Exercise A**: S= D/T 1. C 2. D 3. A 4. C 5. A **Exercise B:** 1. A 2. A 3. B 4. B 5. B **Lesson 51 Exercise A**: V= Δx/ΔT 1. A 2. B 3. B **Exercise B**: V= Δx/ΔT 1. A 2. A 3. C **Lesson 52 Exercise A**: 1. T 2. F 3. T 4. T 5. T 1. B & C 2. B, force is greater therefore acceleration is greater compared to A **Exercise B**: ☺: 1, 3, 5 ☹: 2,4 B & C **Lesson 53 Exercise A**: 1. A 2. A 3 B 4. A 5. B **Exercise B**: 1. B 2. A 3. A 4. A 5. B **Lesson 54 Exercise A**: 1. in a circular path 2. centripetal force 3. maintain a circular path 4. A 5. A 6. A 7. B 8. A 9. A 10. A **Exercise B**: 1. T 2. T 3. T 4. A 5. A 6. A 7. A 8. B 9. A 10. A **Lesson 55 Exercise A**: 1. C 2. B 3. A **Exercise B**: 1. A 2. B 3. B **Lesson 56 Exercise A**: 1. Crust 2. Core 3. Outer Core 4. Inner Core 5. Core 6. Crust 7. Mantle **Exercise B**: 4. 4 5. Crust 6. Mantle 7. Outer Core 8. Inner Core



Lesson 57 Exercise A:1. Eurasian 2. Australian 3. Pacific 4. Antartic 5. North American 6. South American 7. African **ExerciseB**:



Lesson 58 Exercise A: 1. OC 2. CC 3. OC 4. CC 5. CC 6. CC 7. CC **Exercise B**: 1. OC 2. CC 3. OC 4. CC 5. CC 6. CC 7. CC **Lesson 59 Exercise A**: 1. ☺ 2. ☺ 3. ☺ 4. X 5. ☺ 6. X Exercise B: 1. X 2. ☺ 3. X 4. ☺ 5. ☺ 6. ☺ **Lesson 60 Exercise A**: 1. T 2. T 3. F 4. T 5. T 6. T 7. F 8. T 9. T 10. F **Exercise B**: 1. X 2. ☺ 3. ☺ 4. ☺ 5. ☺ 6. ☺ 7. X 8. ☺ 9. ☺ 10 X **Lesson 61 Exercise A**: 1. I 2. M 3. I 4. M 5. M 6. I 7. I 8. M 9. I 10. M **Exercise B**: Star: 1,3,5 7, 8 Circle: 2, 4,6, 9, 10 **Lesson 62 Exercise A 2**-5: drawings Star: 6, 7, 8, 10 Square: 9 **Exercise B**: 2-5: Drawings Star: 7,8,10 **Lesson 63 Exercise A**: 1. D 2. E 3. A 4. C 5. B 6. F 7. J 8. G 9. H 10. I **Exercise B**: 1. I 2. G 3. H 4. B 5. A 6. D 7. F 8. J 9. E 10. C **Lesson 64 Exercise A**: Part I: 3,2,1 Part 2: 2,3,1 **Exercise B**: 1st part: 1,3,2 2nd Part: 3,1,2 **Lesson 65 Exercise A**: Active: A&C Dormant B& D **Exercise B**: Active: A& D Dormant: B&C **Lesson 66 Exercise A**: Order: 2, 5, 1, 3, 6, 4 **Exercise B**: Order: 4, 2, 3, 6, 5, 1 **Lesson 67 Exercise A**: 1. HE 2. BE 3. HE 4. BE 5. HE 6. BE 7. BE 8. HE **Exercise B**: 1. Foe 2. Friend 3. Friend 4. Foe 5. Foe 6. Friend 7. Foe 8. Friend **Lesson 68 Exercise A**: 1. Before 2. After 3. Before 4. After 5. Before 6. Before 7. After 8. Before 9. After 10. Before **Exercise B**: 1. Before 2. After 3. After 4. Before 5. Before 6. Before 7. Before 8. Before 9. Before 10. Before **Lesson 69 Exercise A**: Climate is the average of all weather conditions prevailing in a particular place for a ling period of time **Exercise B**: Climate > Is the Ave. of all > Weather Conditions> prevailing> Ina > Particular > Place > For a > Long Period > Of Time **Lesson 70 Exercise A**: 1. C 2. B 3. E 4. D 5. A 6. F 7. G 8. D 9. C 10. D **Exercise B**: 1. C 2. B 3. E 4. D 5. D 6. F 7. G 8. B 9. D 10. D **Lesson 71 Exercise A**: Altitude, latitude, Bodies of water, wind system and the amount of rainfall are factors that affect the climate of a place **Exercise B**: Latitude, BodIes of Water Wind SysteM, Altitude, AmounT of Rainfall **Lesson 72 Exercise A**: 1. E 2. A 3. B 4. D 5. C **Exercise B**: 1. E 2 . A 3 B 4. D 5. C **Lesson 73 Exercise A**: 1. Dry 2. Wet 3. Wet 4. Dry 5. Dry 6. Wet and dry 7. Dry Season 8. Wet Season **Exercise B:** Part 1: 1. Dry 2. Wet 3. Wet 4. Dry 5. Dry Part 2: 1. Wet and Dry 2. Wet Season 3. Dry Season **Lesson 74 Exercise A**: 1. False 2. True 3. True 4. False 5. True 6. Tru 7. False 8. False 9. False 10. True **Exercise B**: 1. True 2. True 3. True 4. True 5. False 6. False 7. True 8. True 9. True 10. False **Lesson 75 Exercise A**:

Spring, Summer, Winter Fall 1. Spring: weather is sunny, windy 2. Summer: hot to very hot 3. Fall: cool, dry, leaves turning brown and falling 4. Winter snowy, very cold **Exercise B**: Part 2: 1. Spring: weather is sunny, windy 2. Summer: hot to very hot 3. Fall: cool, dry, leaves turning brown and falling 4. Winter snowy, very cold **Lesson 76 Exercise A**: 1. 1st 2. 4th 3. 1st 4. 3rd 5. 1st 6. 2nd 7. 3rd 8. 1st & 3rd 9. 2nd 10. 2nd **Exercise B**: 1. 2nd 2. 4th 3. 1st 4. 3rd 5. 1st 6. 1st 7. 3rd 8. 2nd 9. 4th 10. 1st **Lesson 77 Exercise A & Exercise B**: Answers may vary **Lesson 78 Exercise A**: 1. Rigel, Sirius, Procyron, Sun, Betelgeuse 2. Rigel 3. Betelgeuse 4. Bluish-white 5. Red **Exercise B**: same as Exercise A **Lesson 79 Exercise A**: Dwarf: NGC 2440, Van Maanen Medium: Sun, Vega, Altair, Siruis Giant: Capella, Arcturus, Aldebaran Super Giant: Antares, Betelegeuse **Exercise B**: Same as Exercise A **Lesson 80 Exercise A**: 1-5 T 6. F 7. T **Exercise B**: 1-5. T 6. F 7. T **Lesson 81 Exercise A**: 1. blue, red 2. 10k-20k 3. blue 4. 3k 5. 6k 6. tremendous 7. red 8. red **Exercise B**: 1. blue 2. red 3. blue, red 4. 10-20k 5. 3k 6. 6k 7. tremendous 8. red **Lesson 82 Exercise A**: 1. nearest 2. farthest 3. a 4. b 5. c **Exercise B**: part 4: 1. nearest-brightest, farther- dimmest 2. no flashlight has bigger light 4. c 5. c **Lesson 83 Exercise A**: 1. D 2. C 3. C 4. A **Exercise B**: 1. B 2. B 3. C 4. D **Lesson 84 Exercise A**: 1. F 2. F 3. T 4. T 5. T **Exercise B**: 1. F 2. T 3. T 4. T 5. F **Lesson 85 Exercise A**: Stars: 1-4 X: 4 Exercise B: ☺: 2-5 ☹: 1 **Lesson 86 Exercise A**: Star: 1, 2, 5, 6, 7 X: 3, 4, 8, 9, 10 **Exercise B**: Encircle 1-5, 8 **Lesson 87 Exercise A**: 1. Large Magellanic Clouds 2. Milky Way Galaxy 3. Great Nebula 4. Whirlpool Galaxy 5. Normal Spiral 6. Irregular Galaxy 7. Small Magellanic Clouds 8. Andromeda Galaxy 9. Elliptical Galaxy 10. Barred Special **Exercise B**: 1. Large Magellanic Clouds 2. Nebula 3. Elliptical 4. Small Magellanic Clouds 5. Whirlpool 6. Spiral 7. Irregular 8. Milky Way **Lesson 88 Exercise A**: 1. 100 2. sun 3. 100,00 4. 20,00 5. Spiral 6. 7. big 8. 30,00 9. 10. light year **Exercise B**: 1. 100 Billion 2. big 3. earth 4. counterclockwise 5. spiral 6. galaxy 7. millions 8. spiral; 9. counter clockwise 10. earth **Lesson 89 Exercise A**: Star: 1, 2, 4, 5, 7, 8, 10 X: 3, 6, 9 **Exercise B**: Heart: 1,3,4,6,7,8,9,10 Triangle: 2,3 **Lesson 90 Exercise A**: 1. B 2. D 3. A 4. C 5. B 6. D 7. B 8. B 9. E 10. A **Exercise B**: 1. A 2. C 3. E 4. B 5. C 6. A 7. D 8. C 9. D 10. A **Lesson 91 Exercise A**: 1. weightlessness 2. pressure 3. Mechanical 4. Temperature 5. Radiations 6. √ 7. √ 8. √ 9. √ 10. X **Exercise B**: 1. Oxygen 2. Weight 3. Earth's Gravity 4. Food 5. Radiation 6. Yuri Gagarin 7. Neil Armstrong 8. Valenta Tereshkova 9. Mariner 2 10. Mariner7

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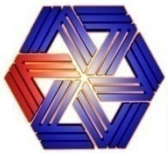

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