

New Amazing Science
8
Worksheet Answer Key

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Worksheet # 1 Answer key

Name: _____

Date: _____

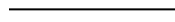
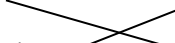
Q1. Define the following:

- Individual
Its one organism.
- Population
The total number of organisms in each community.
- Community
All of the populations of organisms in a an ecosystem.
- Ecosystem
All of the organisms and physical conditions.

Q2. Name the following using the hints giving:

- Plant needs these to survive
Sunlight
Water
Nutrients
- Animal need these to survive
Food
Water
Suitable territory—For food and shelter

Q3. Match the following

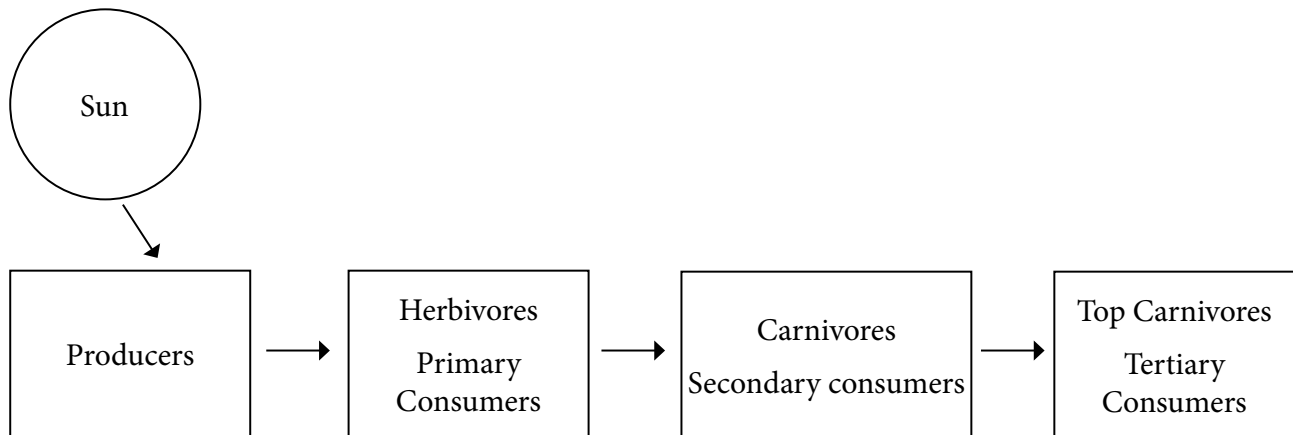
Tiger		Prey
Deer		Predator
Grass		Producer
Frog		Living together
Symbiosis		Consumer

Worksheet # 2 Answer key

Name: _____

Date: _____

Q1. Complete the flow charts.



Q2. Write a short note on pollution.

Pollution can be defined as change in the environment by introduction of or presence of a substance which has harmful or poisonous effects. Land, air and water on Earth are showing effects of pollution due to pollutants. For example, land has effects of excess fertilizers, landfills or waste dumps which has effects on life.

Similarly, air pollution is caused by burning of fossil fuels and over use of aerosols and cooling agents, etc. Thus, air quality is poor with serious health hazards.

Water pollution is caused by pouring of untreated industrial waste and sewage in water bodies.

Measures need to continue to reduce pollution thus improving quality of life.

Unit 2

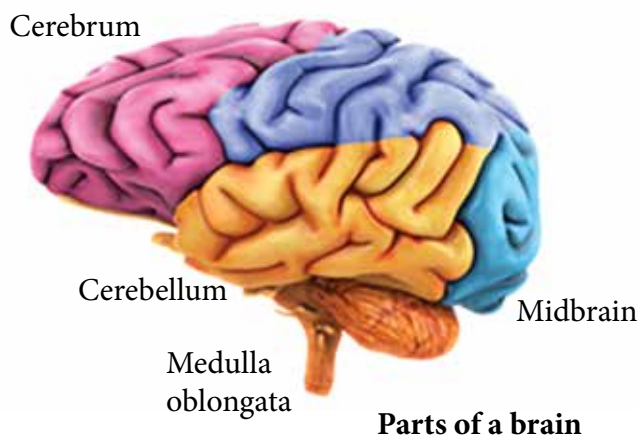
HUMAN NERVOUS SYSTEM

Worksheet # 1 Answer key

Name: _____

Date: _____

Q1. Label the parts of the human brain on the given diagram:



Q2. Draw the table below and write the differences between voluntary actions and Involuntary actions.

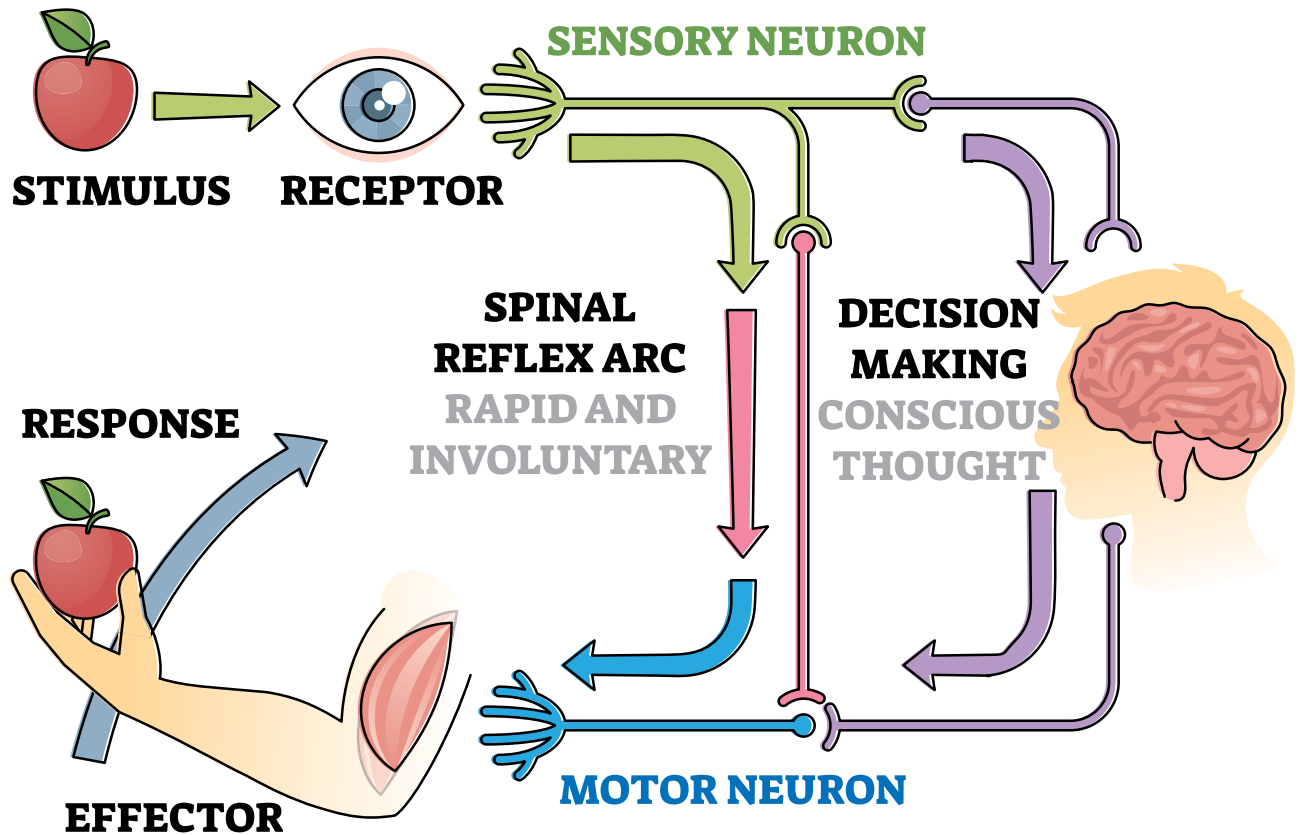
	Voluntary actions	Involuntary actions
Types of response	Not automatic - with awareness	Automatic - without awareness
Part of the brain that controls the action	Cerebrum	Medulla oblongata
Nervous pathway	Receptor → Spinal cord → Cerebrum → Spinal cord → Effectors	Receptor → Spinal cord → medulla oblongata → Spinal cord → Effectors
Speed	Slow	Fast
Examples	Speaking, hearing, writing, walking and etc.	Heartbeat, peristalsis, respiration and etc.

Worksheet # 2 Answer key

Name: _____

Date: _____

Q1. Draw and label a reflex arc.



Q2. Give one-word answers:

a.	Spinal cord
b.	Helmet
c.	PNS
d.	Receptor
e.	Synapse

Unit 3

VARIATION, HEREDITY AND CELL DIVISION

Answer key Worksheet #1

Name: _____

Date: _____

Q1. Identify the animal. Give one distinct feature that either shows adaptation, variation or camouflage.



Camel

Hump

It has fatty tissues which are stored fats that are consumed when food is scarce



Moth

Colour and design

The colour, design and shape matches with the environment



Shark

Streamlined body and fins

Aquatic animal with streamlined body

To help in maneuvering



Polar Bear

Thick fur, colour change

In winter the colour of fur changes from brown to white and thick fur protects from extreme weather conditions

Q2. Draw a cactus plant and write a short note on it.

Cactus like many other plants found in deserts and semi deserts are adapted to live in an environment with scarcity of water. Hence, they have evolved features that ensure minimum loss of water. The leaves have transformed into thorns. The process of photosynthesis takes place in green, fleshy stems. Cacti mostly have extensive, fleshy roots in order to collect water quickly, when it is available. The flowers are only produced when conditions are better.



Answer key Worksheet # 2

Name: _____

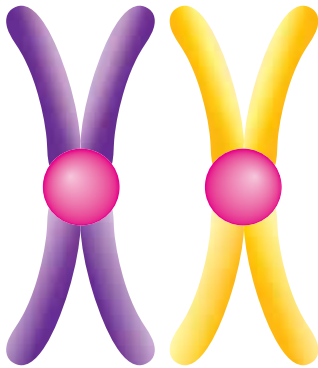
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Q1.

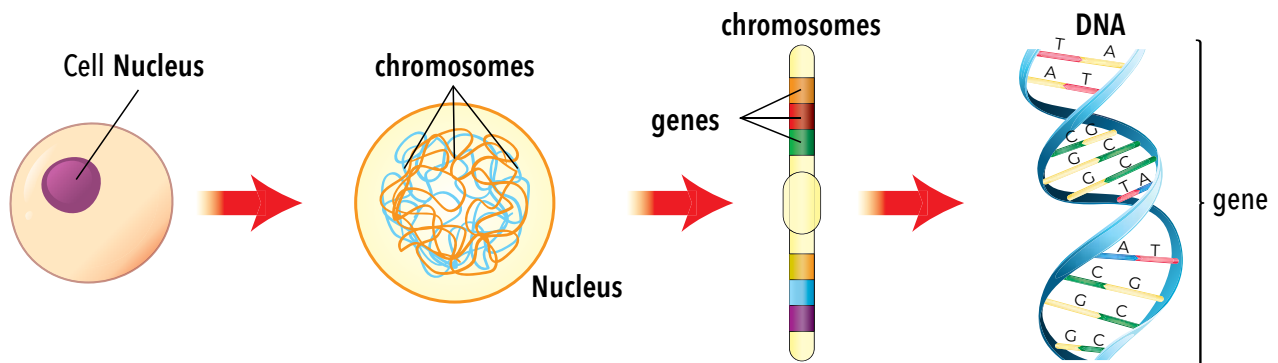
i. Define Genetics.

genetics is defined as the study of inheritance.

ii. Draw a diagram to show the structure of chromosomes.



iii. Label the given diagram.



Q2. Mark whether True or False and if false write the correct statement:

a. DNA is found in cell membrane of a cell. (False)

DNA is found in cell nucleus.

b. The number of chromosomes in a butterfly cell is 46. (False)

The number of chromosomes in a butterfly cell is 380.

c. Human cell has 380 chromosomes in the nucleus. (False)

Human cell has 46 chromosomes.

d. The life of a moth begins as multicellular body. (False)

The life of a moth begins as unicellular body.

e. The new nuclear membrane forms before the cell divides out. (True)

Answer key Worksheet # 1

Name: _____

Date: _____

Q1. Write a comprehensive note on 'Biotechnology'.

Biotechnology is the use of plants, animals, microorganisms to produce useful products including food, drinks, medicine, fuel, etc.

It is interesting to note that food and drinks we consumed daily are made available due to advancement in genetic technology. Milk is used to make yoghurt and cheese on commercial scale. This has increase the production as well as nutritional value and shelf life of these and other products.

Q2. Complete the following:

- a. Pasteurized milk is heated at a very high temperature that kills the bacteria and makes the milk safe for human consumption.
- b. Pharmacist advise consumption of yoghurt as it is a probiotic thus good for health.
- c. Probiotics help to restore bacteria which are good for health in the gut which are killed by antibiotics.
- d. Cow's milk is commonly used to make yoghurt.

Answer key Worksheet # 2

Name: _____

Date: _____

Q1. Name three crops, which have more nutritional value and better yield due to genetic engineering.

- Rice
- corn
- tomato

Q2. How did the health sector benefit from genetic engineering using an example explain your answer?

The health sector greatly benefited over the past century due to tireless efforts of scientists in the field of Biotechnology. One of the major advancements in the field of biotechnology in health sector is the production of vaccines to protect against disease ranging from polio, TB, and cholera to COVID-19 and influenza.

Q.3. How did Pakistan progress in the textile sector, due to biotechnology? Briefly highlight.

Pakistan is well known for vivid colours and quality of its textiles, which not only has local demand but are exported worldwide. The colours were from natural sources but now artificial dyes are used which are cheaper. The genetically engineered microorganisms and plants break down synthetic dyes in the environment cleaning our water and soil, thus making it useful for growing crops again.

Answer key Worksheet # 1

Name: _____

Date: _____

Q1. Fill in the blanks with the correct option:

- i. Different substances occur on Earth in millions.
- ii. Periodic means repeated at regular intervals.
- iii. A scientist named Mendeleev arranged the elements in groups.
- iv. The number of elements that exist naturally in nature is 92.
- v. The vertical columns in periodic table are known as groups.

Q2. Define:

Periodic table. The elements are arranged in order of increasing atomic masses. This arrangement is called the periodic table. In modern periodic table the elements are arranged in order of their atomic numbers.

Groups. The vertical columns in the periodic table are called as groups. All the elements in the periodic table have similar properties.

Periods. They are the rows across the periodic table.

Answer key Worksheet # 2

Name: _____

Date: _____

Q1. Name the three parts periodic table is divided into, based on some properties.

- Metals
- Semi-metals
- Non-metals

Q2. Complete.

- Group I-III are metals (except Boron). Their atoms form positive ions by losing electrons.
- Group IV and V have non-metals.
- Group VI and VII are mainly non-metals. The atoms of group VI and VII form negative ions by gaining electrons.

ii. Following is group IV. Label them based on their metallic and non-metallic properties.

C Carbon

Si Silicon

Ge Germanium

Sn Tin

Pb Lead

- Carbon is non-metal
- Si and Ge are called non-metals. They are on the border line between metals and non-metals.
- Sn and Pb are metals

Answer key Worksheet # 1

Name: _____

Date: _____

Q1. Complete the following statements.

- i. Chemical reactions transfer energy.
- ii. The bread mold is an example of food rotting.
- iii. Rusting of iron is a chemical reaction.
- iv. Sodium is a reactive metal that explodes on contact with water.
- v. Some chemical reactions are reversible.

Q2. Define law of 'Conservation of mass'.

The law of conservation of mass states that mass of a substance in closed system will remain constant though matter may change its form, it can neither be created nor destroyed. The mass of the reactants must be equal to the mass of products.

Answer key Worksheet # 2

Name: _____

Date: _____

Q1 a. When does a chemical reaction take place?

The chemical reaction takes place when chemical bonds between atoms are formed or broken.

b. What are the two types of reactions due to changes in energy?

The two types of chemical reactions are:

- Exothermal Reactions
- Endothermal Reactions.

Exothermal Reactions: More energy is released in an exothermal reaction in the products than is needed to break the bonds between the reactants.

Endothermal Reactions: In an endothermal reaction, more energy is required to break the bonds of the reactants than is released by the formation of the products.

Q2. Make a list to show classification of chemical reactions into different types.

- Combination or synthesis reaction
- Decomposition Reaction
- Combustion Reaction
- Single Displacement Reaction
- Double Displacement Reaction

Q3. Name the two types of bonds between the atoms that form between atoms in chemical reactions.

The two types of bonds that form between atoms in chemical reactions are:

- Ionic Bond
- Covalent Bond

Answer key Worksheet # 1

Name: _____

Date: _____

Q1. i. Write properties of acids.

- They have a sour taste.
- They turn blue paper red.
- Acids can conduct electricity.
- Strong acids are corrosive to skin and clothes.
- All acids contain at least one Hydrogen atom.
- They are soluble in water and they produce H^+ ions in a solution.
- Acids can be weak or strong.
- The more H^+ ions are produced in a solution the stronger it is.

ii. Give an example for each, acid, base and salt.

- a. HCl
- b. $NaOH$
- c. $NaCl$

Q2. Mark whether True or False.

1. Acid turns blue litmus paper red. (True/False)
2. Alkalis turn blue litmus paper red. (True/False)
3. When an acid reacts with a base in a chemical reaction, the products are salt and water. (True/False).

Q3. Identify the given symbols.



Toxic



Harmful

Answer key Worksheet # 2

Name: _____

Date: _____

Q1. Define:

a. Indicators

They are substances that change colour of solutions of acid and base.

b. Dyes

They are good indicators which are extracted from plants.

c. pH scale

The pH scale is a measure of how acidic or alkaline a solution is on a pH scale.

Q2. What is universal indicator? Briefly explain.

Universal indicators can tell us how strongly acidic or alkaline solutions are by changing colour. It shows a different colour at each pH level.

It can even show whether a solution is acidic or basic.

Q3. Describe neutralisation reaction.

When acids and alkalis are mixed in right amount, they will form a neutral solution. This reaction is known as neutralisation reaction.

Unit 8

FORCES AND MOTION

Answer key Worksheet # 1

Name: _____

Date: _____

Q1. Give one word answer:

- i. They stretch and squash, pull and push, twist and bend, speed things up and slow things down.

Forces

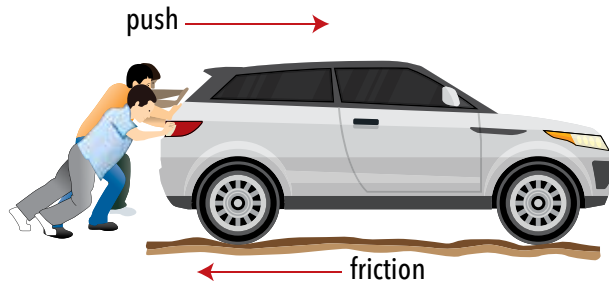
- ii. A paper clip can be moved by a force exerted by it.

Magnet

- iii. When a car is pushed its opposite force is produced.

Friction

Q2. Label the two forces in the car which balance each other.



Look at the image and elaborate what keeps the object afloat.



Some super tankers weigh over five billion Newtons. The upthrust from the water keeps them afloat.

Answer key Worksheet # 2

Name: _____

Date: _____

Q1. Give definition of pressure and air pressure.

Pressure is the force per unit area. The unit of pressure is pascal (Pa), which is equal to one Newton per square metre.

Air Pressure: When we pump air into a tyre, we push in molecules of air. These molecules are constantly moving. They bump into each other and into the walls of the tyre. This movements creates a force on the walls. This force is air pressure. The tyre inflates evenly because air exerts pressure evenly in all directions.

Q2. Define fluids and give some examples:

Fluids are any materials that can flow. The fluids take the shape of the container it is kept in. They include gases, liquids. Honey, milk, petrol, Nitrogen, steam are some examples.

Q3. Name the pressure that you think exists under water. What do driver must wear under water as shown in the image below:



It is called as water pressure. The picture shows a diver wearing special suit to survive there.

Answer key Worksheet # 1

Name: _____

Date: _____

Q1. Fill in the blanks:

- The speed of light in a vacuum is 300,000km/sec.
- Sunlight reaches the Earth in 8 minutes.
- Sun is the most vital source of life on Earth, due to sunlight.
- The luminous objects give out light.

Q2. Write four characteristics of image formed by a mirror.

The four characteristics are:

- The image is at the same distance from the mirror as we are from the mirror.
- Our image is upright.
- Our image is same size as us.
- Our image is laterally inverted, left becomes right and right becomes left.

Answer key Worksheet # 2

Name: _____

Date: _____

Q1. Write the use of the following instruments:

- Periscope

An instrument used in submarines to see objects on the surface.

- Kaleidoscope

It uses reflection of light to generate very interesting patterns which are used to create toys.

Q2. Answer the following:

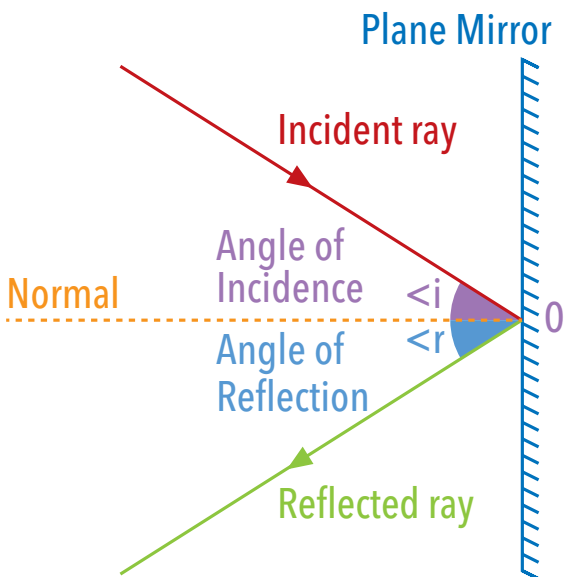
- a. What are light rays?

A beam of light is made up of rays light which travel in one straight line.

- b. What happens when a ray of light falls on a surface?

The ray of light is absorbed, transmitted, or reflected depending on the properties of material it is falling on.

Q3. Draw a diagram to show reflection of light.



Answer key Worksheet # 1

Name: _____

Date: _____

Q1. Describe electricity circuits.

An electrical current results from the movement of negatively charged particles, around an electrical circuit. The electrons move or are conducted from the negative terminal of the energy source to the positive terminal.

Q2. Define:

- Current

Electrical current is the flow of charge.

- Ammeter

It is a device that measures the current passing a particular point in an electric circuit.

- Voltage

The difference of energy per unit charge is known as voltage or potential difference.

Q3. Join the power ratings of electrical appliances:

Iron	_____	400 W
Drill	_____	1100 W
Lamp	_____	11 W
LED Tv	_____	2.4 KW
Blender	_____	80 W

Answer key Worksheet # 2

Name: _____

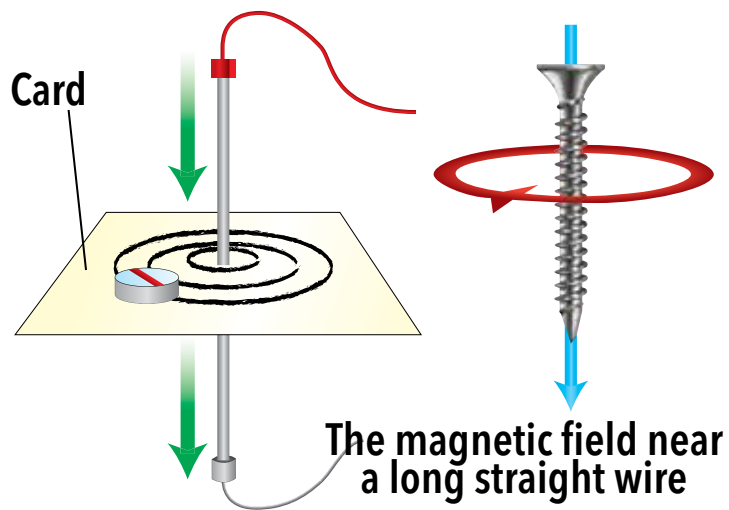
Date: _____

Q1. Make a list of five hazards:

The five hazards are:

- High voltage circuits
- Low voltage circuits
- Old, frayed wiring
- Long, extension leads
- Water in sockets or plugs

Q2. Draw and label a diagram to show magnetic effect of current:



Answer key Worksheet # 1

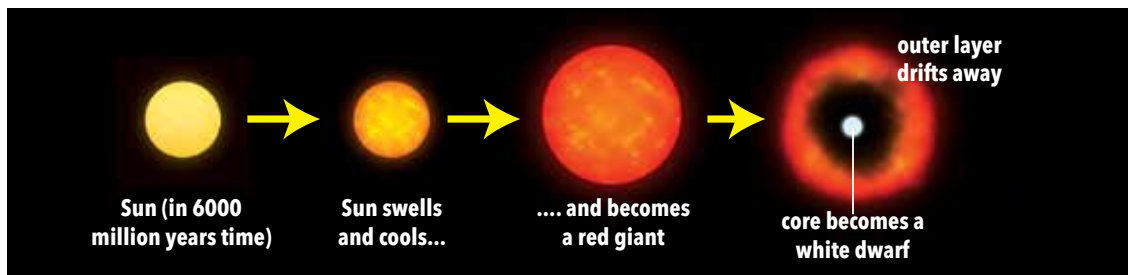
Name: _____

Date: _____

Q1. Complete the following statements:

- a. A ball of burning gas in space visible as point of light in the sky is called as star.
- b. Black holes are areas in space that even light cannot escape from because gravity is strong there.
- c. A giant star called pulsar has shrunk so much that it looks smaller than the Earth.
- d. The pattern of stars that we see in the sky are known as constellations.
- e. After four billion years our sun will become a red giant.

Q2. Draw a diagram and label it to show death of our sun.



Answer key Worksheet # 2

Name: _____

Date: _____

Q1. Name the three types of galaxies.

The three types of galaxies are:

- Spiral
- Elliptical
- Irregular

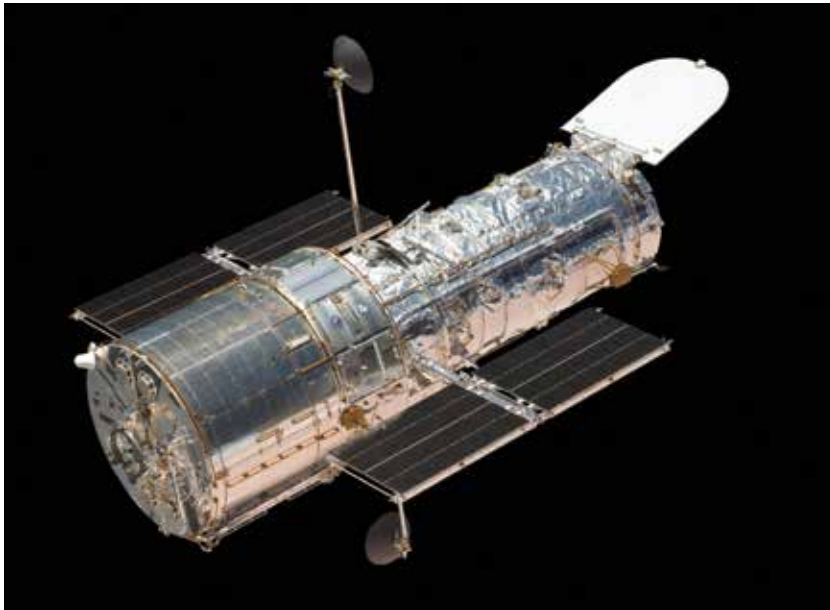
Q2. Why is space exploration by scientists important?

The scientists explore new frontiers in space which provides with tremendous knowledge of space and beyond. This benefits life on Earth.

Q3. How can we see the constellations which are very far from Earth?

Instruments like telescope help us to see the constellations. The telescopes are providing data which is collated and made useful.

Q4. Look at the image below and answer



- What is this object?
This is Hubble telescope.
- What is a telescope?
It helps us to see things very far in the universe.
- When was this telescope launched?
It was launched in 1990.