

# بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

السَّلَامَةُ عَلَيْكُمْ وَرَحْمَةُ اللَّهِ وَبَرَكَاتُهُ



**Pakistan School**  
Kingdom of Bahrain

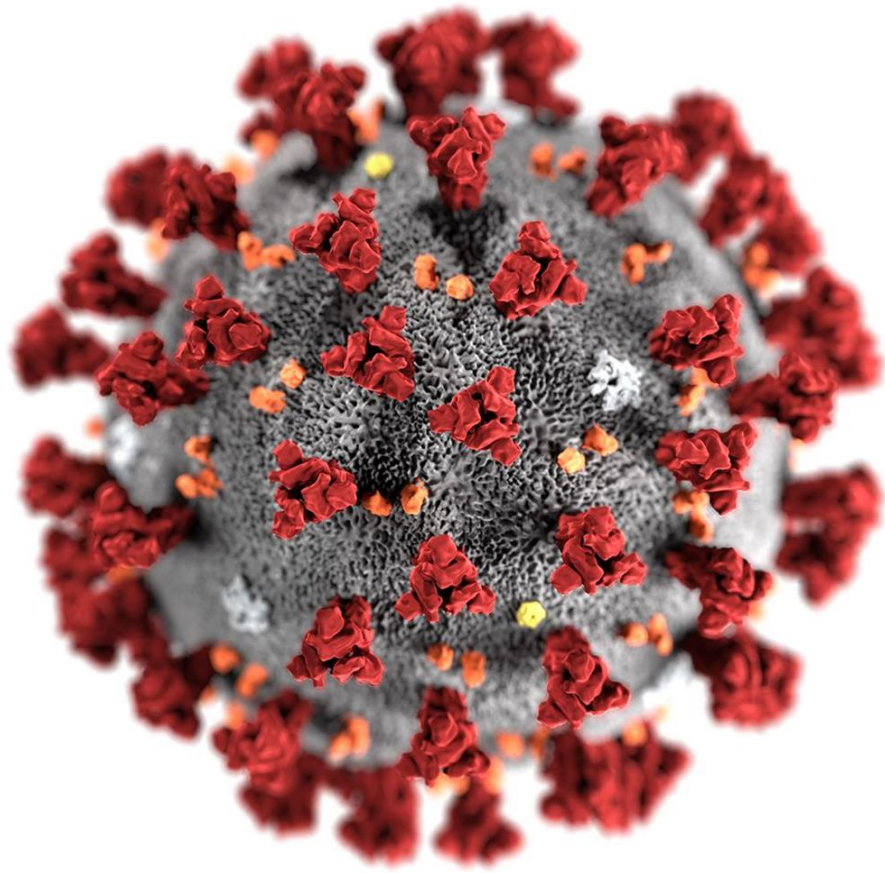


## **Bacterial & Viral Diseases**

Grade: 9th

# RULES OF THE CLASS!!

- ❖ Be on **time**
- ❖ Enter the class with your **name** and **CPR number**
- ❖ **Respect** all participants
- ❖ Do **not** create any disturbance
- ❖ **Raise your hands** for questions (the teacher will respond when the time is suitable)
- ❖ Pay **attention** to the teacher
- ❖ Follow the **time table**
- ❖ **BE READY TO SCREENSHOT**
- ❖ **NO BACKGROUND NOISES**



**Covid-19 is caused by Coronavirus**

# Objectives:



By the end of the lesson, the students will be able to describe:

1. Describe various viruses
2. Name some of the bacterial and viral diseases
3. Description of causes, symptoms and treatment of some viral diseases
4. Invention of vaccines



# Tuberculosis

**Cause:** [Mycobacterium](#). It is a widespread and long-lasting disease.

**Symptoms:** a) chest pain b) constant fever c) blood in sputum d) prolonged coughing e) loss of body weight

**Treatment:** a) proper food, fresh air and proper rest

b) patients must be kept in [isolation](#) or sanatoria to control spreading of the disease

c) disease is curable but prolonged and persistent treatment is necessary

d) Infants must be immunized with [BCG](#) against T.B.

# Whooping cough (aka pertussis)

It is a disease of the infants.

**Symptoms:** a) the infant cough for a minute after which air rushes into the lungs producing a whistling sound called “whoop”

b) Due to acute coughing, delicate linings of the lungs and capillaries are damaged

c) the infant gradually gets weaker and reduced to skeleton

**Treatment:** a) disease can be controlled by immunizing the infants by DPT injections

# Diphtheria

It is also a disease of the infants.

The bacterium attacks the epithelial cells of the nose, throat and larynx.

They produce boils.

These bacteria produce toxic substances which kill the neighbouring cells.

The trachea and larynx of the patient become non-functional.

**Symptoms:** a) heart muscles get weak > which may lead to death

**Treatment:** a) infants should be immunized by vaccination

# Tetanus

**Cause:** toxin made by spores of bacteria, *Clostridium tetani*, found in soil, dust and animal feces.

When the spores enter a deep flesh wound, they grow into bacteria that can produce a powerful toxin, tetanospasmin.

The toxin impairs the nerves that control your muscles (motor neurons).

**Treatment:** a) anti-tetanus serum is given at time of injury

b) all children should be immunized by receiving a series of 5 DTaP (Diphtheria, Tetanus, Pertussis) vaccinations

c) booster vaccination at age 11 with Tdap

# Typhoid

Cause: Salmonella typhi

Treatment: a) antibiotics

b) vaccine is also available which gives artificial immunity against this disease

# Cholera

Cause: Vibrio cholerae. It is an infectious disease of digestive tract. The bacterium is transmitted through the contaminated food and water.

Transmission: Houseflies play a big role in spreading this disease

Symptoms: a) vomiting b) diarrhea c) dehydration (loss of salts from body)

Treatment: a) anti-diarrheal drugs

# Smallpox

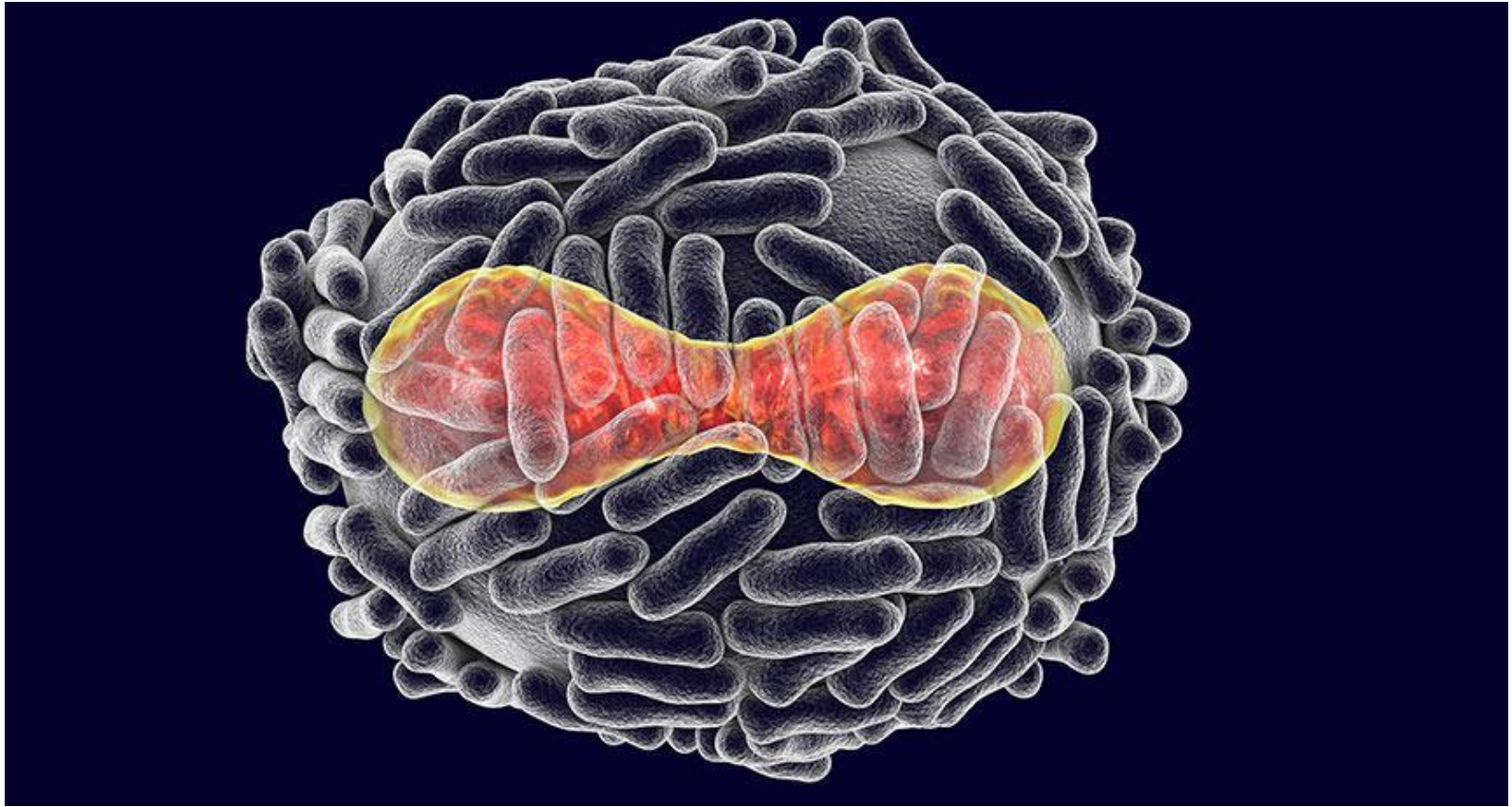
**Cause:** [Variola Virus](#). It is an [airborne disease](#) which spreads fast. It has been [eradicated](#) from the world.

**Transmission:** Virus spreads through the [droplets](#) of infected person when they a) coughing b) sneezing and through c) direct contact with body fluids of infected person

**Symptoms:** Around 500 small [boils](#) (pus-filled spots) appear on entire body of the person.

**Treatment:** [Isolation](#) and [vaccination](#). The patient *must* be isolated from everybody.

[Edward Jenner](#) in [1796](#) is well-known for his contribution to immunization and eradication of smallpox.



**Smallpox was caused by Variola Virus**

# Poliomyelitis (or Polio)

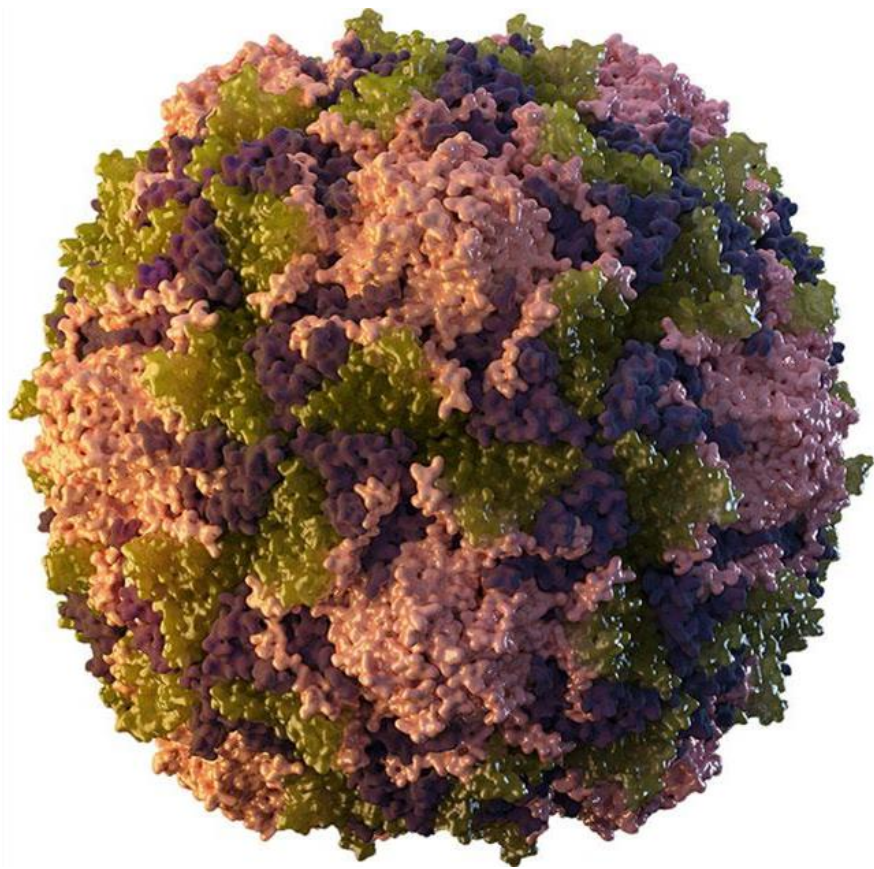
**Cause:** Poliovirus. It is a disease of infants below age of five. In it, lower limbs become damaged and children become disabled due to paralysis. It is not fully eradicated from the world.

**Transmission:** a) air b) water c) most commonly through feces (because children don't wash their hands properly)

**Symptoms:** a) Fever b) Headache c) neck stiffness d) legs paralyzed (can't move)

**Treatment:** Polio vaccines: Oral Polio Vaccine (OPV), which are oral polio drops, and Inactivated Polio Vaccine (IPV). They are given to infants at regular intervals upto age of 5.

Albert Sabin in 1960 invented OPV in US.



**Poliomyelitis is caused by Poliovirus**



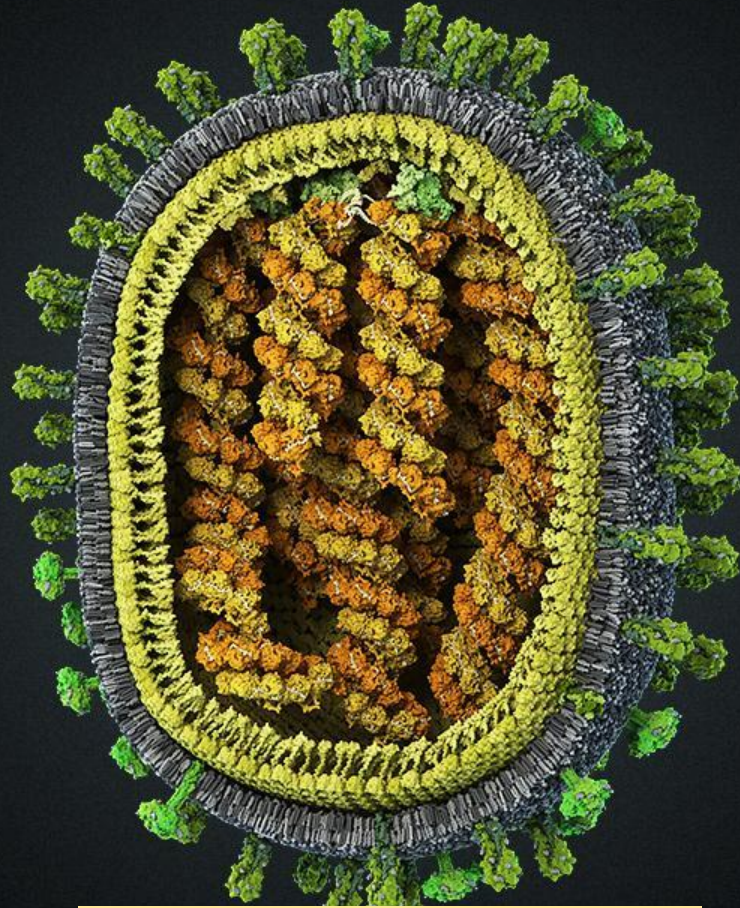
# Influenza

**Cause:** Influenza virus.

**Transmission:** Spreads through the air by a) coughing b) sneezing by the infected person

**Symptoms:** a) Fever b) redness of eyes c) Irritation & runny nose

**Treatment:** a) resting b) using drugs



**Influenza virus**

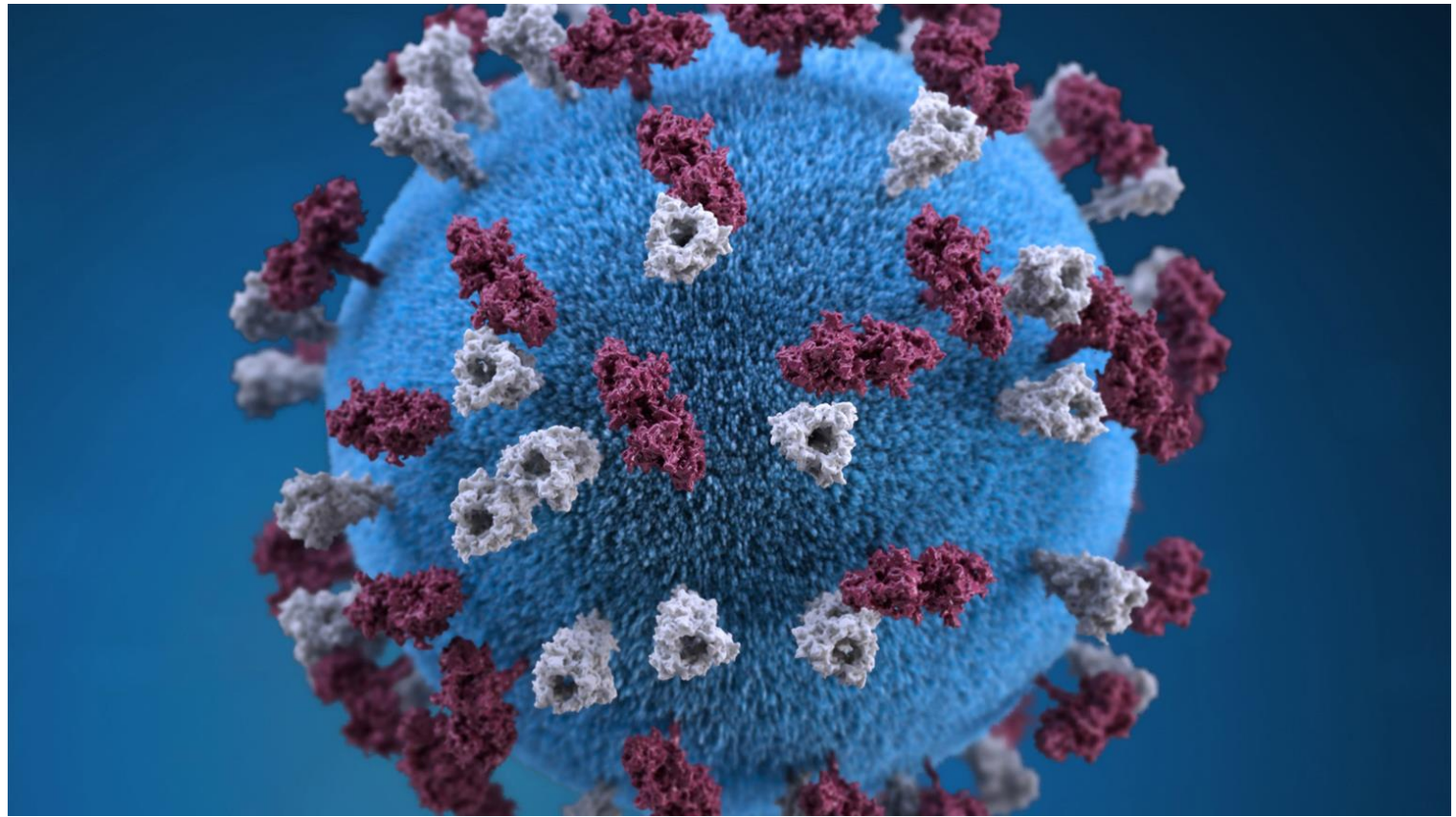
# Measles

**Cause:** [Measles virus](#). It is a highly contagious virus. It is the disease of the infants.

**Transmission:** virus transmitted in [droplets](#) of infected people through [air](#)

**Symptoms:** a) cough b) fever c) small boils appear on the body, face, chest. They are light gray in color with red circles around them.

**Treatment:** [Vaccine](#). The disease reduces in 10 days.



**Measles is caused by Measles virus**

# AIDS: Acquired Immune Deficiency Syndrome

**Cause:** HIV (Human Immunodeficiency Virus). It is a fatal viral disease which kills the white blood cells. As such, the immune system is destroyed and the patient becomes an easy victim for other diseases, like tuberculosis, pneumonia, typhoid, etc.

**Reason:** The patient becomes easily susceptible to other diseases which ultimately kills them is because loss of natural resistance and weakened, destroyed immune system of their body.

**Transmission:** a) blood transfusions b) contaminated syringes and c) through exchange of HIV positive person's body fluids (e.g. blood, breast milk, semen, etc)

**Treatment:** a) Drugs given to reduce symptoms. Currently there is no cure (vaccine in experimental stages) but it is treatable with medicines.



**AIDS is caused by HIV**

# Hepatitis

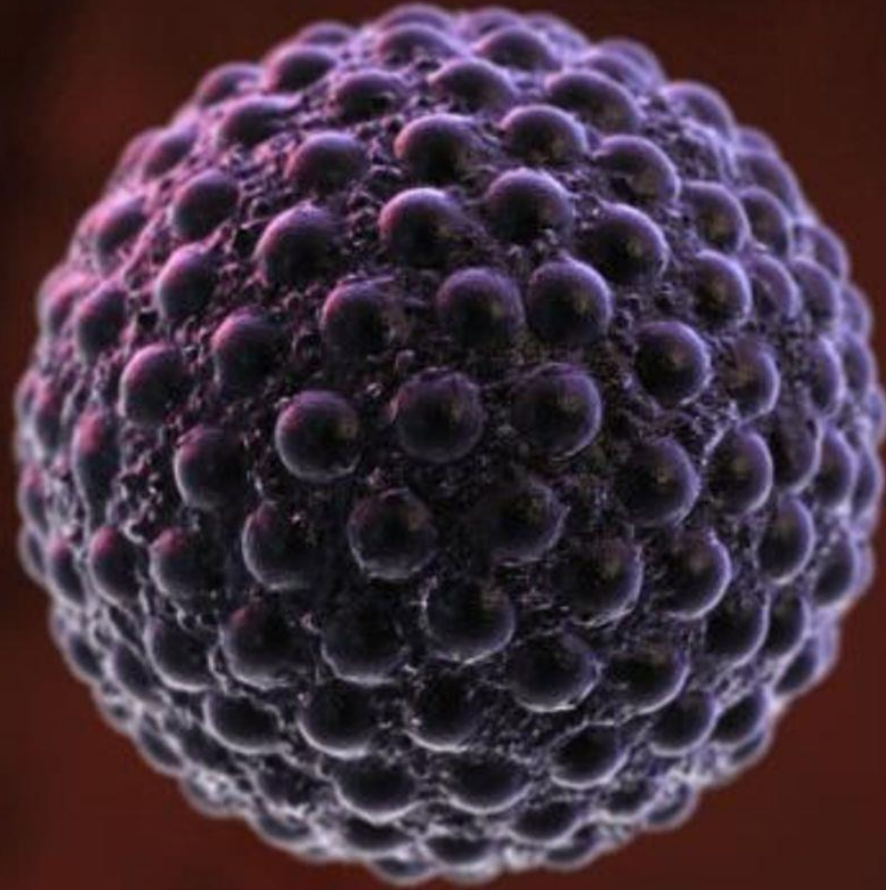
It is a **disease of the liver** caused by **viruses**, which invades and destroys the liver cells. It can result in death.

**Types:** **3 types:** Hepatitis A, B and C

**Symptoms:** a) Jaundice b) Abdominal pain c) Liver enlargement d) fatigue e) Loss of appetite f) Fever

**Transmission:** a) **blood** b) **saliva** and c) **mother's milk** d) Hepatitis A spreads through **fecal contact** of infected person

**Treatment:** Vaccine for Hepatitis A and B exists but not for Hepatitis C.



**Hepatitis A virus**

# ACTIVITY 1: FIB

- 1) One meter is equal to \_\_\_\_\_ millimeters.
- 2) The tetanus causing bacteria are found on \_\_\_\_\_.
- 3) A virus can be seen under a(n) \_\_\_\_\_ microscope.
- 4) Measles is a \_\_\_\_\_ disease.
- 5) Malaria is caused by a unicellular organism called \_\_\_\_\_.

## ACTIVITY 2: T/F

- 1) Most of the germs are killed in the boiling water. \_\_\_\_\_
- 2) Measles is common disease of old people. \_\_\_\_\_
- 3) ATS is administered against cholera. \_\_\_\_\_
- 4) Polio virus can also cause disease to adults. \_\_\_\_\_
- 5) Smoking can cause cancer of the mouth and lungs. \_\_\_\_\_

# PLENARY

**Q1)** What causes tuberculosis?

**Q2)** What is the treatment of cholera

**Q3)** What are antibiotics?

**Q4)** Name some viral diseases.

# HOMEWORK

**Q1)** Explain the useful activities of bacteria.

**A: 1)** Fermentation processes like brewing, baking, cheese and butter manufacturing,

**2)** chemical manufacturing like production of ethanol, acetone, organic acids, enzymes and perfumes.

**3)** Making drugs, like antibiotics and vaccines.

**4)** Killing plant pests.

**Q2)** Write a note on diphtheria, tetanus and measles.

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CLASS IS OVER!

**STAY FOCUSED ON YOUR STUDIES!**

SEE YOU NEXT CLASS INSHA'ALLAH!