



BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI - 110034

**SUBJECT:- BIOLOGY**

**CLASS IX : CHAPTER:- Why do we fall ill?**

**Week : 11<sup>TH</sup> January-15<sup>th</sup> January**

**No. of Blocks: 1**

**Guidelines:-**

**Dear Students,**

- Refer to the following content of the chapter.
- These notes will help you to understand the concept of the lesson.
- Do the assignment questions in the Biology notebook.

**Link for Textbook :-**

[http://ncertbooks.prashanthellina.com/class\\_9.Science.Science/CHAP%205.pdf](http://ncertbooks.prashanthellina.com/class_9.Science.Science/CHAP%205.pdf)

**Sub- Topics:**

- Principle of Treatment of Diseases
- Principle of Prevention of Diseases

**Instructional Aids :-**

Watch these video before we start with the topic.

- <https://youtu.be/6AR-LuMs1VM>
- <https://youtu.be/eSIVAuvtkMA>

**Activity** - Rabies virus is spread by the bite of infected dogs and other animals. There are anti-rabies vaccines for both humans and animals. Find out the plan of your local authority for the control of rabies in your neighbourhood. Are these measures adequate? If not, what improvements would you suggest?

**Learning Outcome:**

Learners will be able to:-

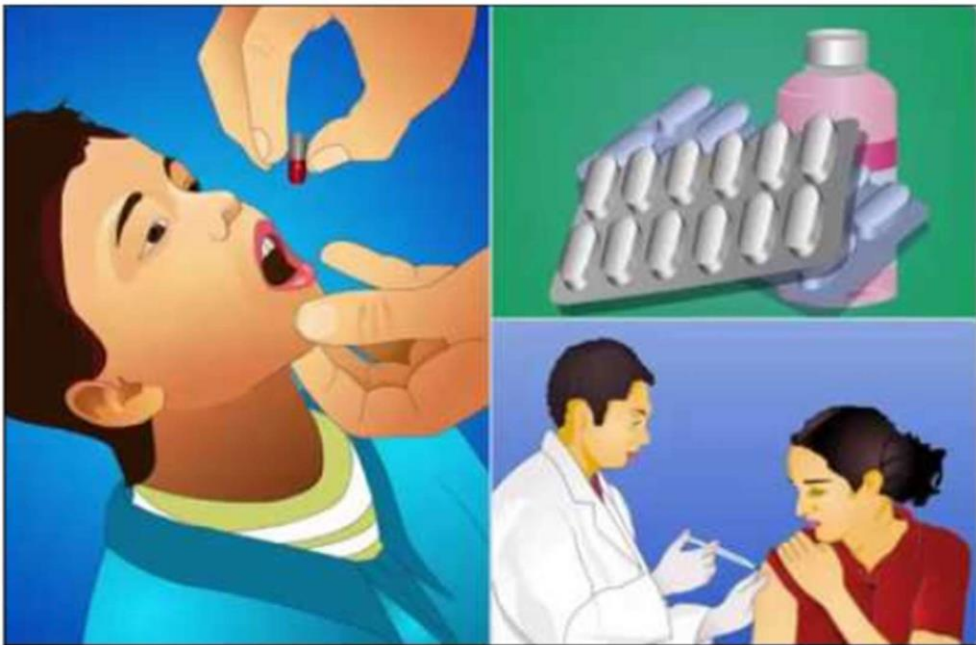
1. Explain the Principle of Treatment of Disease.
2. Evaluate the importance of taking precautions in preventing the infectious diseases rather than going in for its cure.

### **LESSON DEVELOPMENT-**

**Students will be asked the following question to introduce the topic.**

Q. If someone is suffering from a cold and cough in the class, it is likely that the children sitting around will be exposed to the infection. But all of them do not actually suffer from the disease. Why?

### **Principles of treatment**



### **We may treat an infectious disease in two ways:**

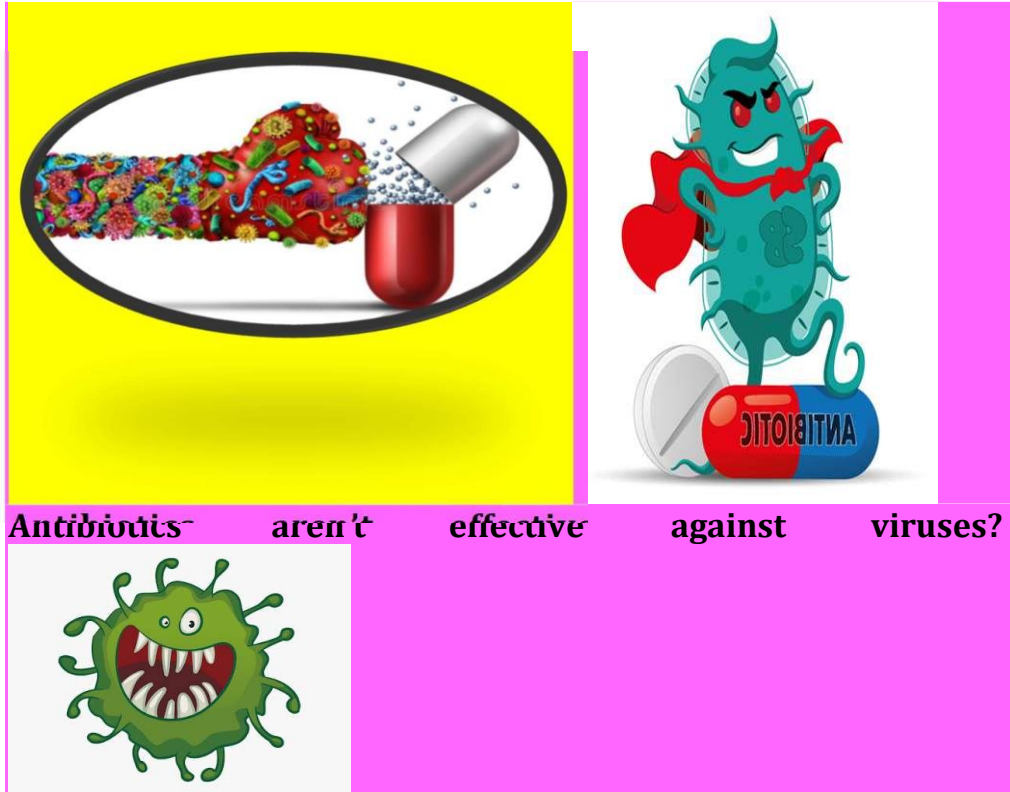
- By killing the infectious agents
- By reducing the effects of the disease or reducing the symptoms.

### **We can reduce the symptoms in the following ways:**

- By taking rest to conserve our energy so that our immune system can fight against the disease.
- By taking medicine to reduce the common symptoms such as fever or pain and hence reducing the disease.

### **We can kill the infectious agents in our body in the following way:**

- By taking medicines that can kill them, such as antibiotics or antiviral medicines.
- **Antibiotics** are the chemicals (medicine, drugs) that block biochemical pathways important for bacteria. They are used for diseases caused by bacteria.



Antibiotics commonly work by blocking the biochemical pathways that are important for bacteria. Thus, these inhibit the growth of bacteria, hamper the metabolism and kill them. Antibiotics do not work on viruses because viruses do not use the biochemical path and use host cell machinery for making proteins.

However, the most effective way to treat viral infections and disease is vaccination as it can prevent a person from getting the disease in the first place.

### Principles of Prevention

**Are there any limitations of treating infectious agents via medicines?**

Yes, there are three limitations:

- Our body functions might not be able to recover easily.
- This treatment takes time. Hence, it can affect our daily activities.

- An infectious disease may transfer from a person who is suffering the disease to another during the treatment.

Therefore, we should find out ways to prevent these diseases in the first place. It is because of such reasons that prevention of diseases is better than their cure.

- **There are two ways to prevent diseases:**
- **General method:**  
They involve (a) Preventing exposure to microbes.

(b) Boosting the immune system.

#### **a) Preventing exposure to these infectious agents**

- Waterborne diseases can be prevented by always having safe and pure drinking water.
- Airborne diseases can be prevented by avoiding overcrowded places in keeping the environment clean.
- Vector-borne diseases can be prevented by keeping our surroundings clean and maintaining public hygiene

**b) Strengthening the immune system** so that if any infectious agents enter our body it can fight back. This can be made possible by having healthy food. Our immune system plays an important role in fighting against the microbes that enter our body. Strengthening the immune system can help in preventing many diseases.

- So, proper nourishment or healthy diet that includes all the necessary nutrients as well as vitamins and minerals is necessary for better functioning of our immune system.



## What is the Immune System?

- The immune system is a network of cells, tissues and organs that work together in order to protect our body from diseases. We may consider the immune system as a defence system of our body.
- The immune system looks out and destroys the disease-causing germs in our body with the help of special cells called white blood cells. These cells are present in the blood and hence circulate throughout the body and monitor it.
- The germs or any foreign substance that enter our body are called **Antigens**. As the immune system recognizes these antigens, it releases antibodies which lock the antigens and then destroy them with the help of other cells.
- The ability of a body to resist a disease with the help of antibodies is called **Immunity**.
- **2. Specific method**  
It involves the prevention method directed against a particular disease. It is done by immunisation which is the process of introducing a weakened pathogen inside the body of the host to make his/her immune system to produce antibodies against that particular disease so that the next time even if the disease strikes the host's body with full vigour, the body will be able to protect itself with the help of these antibodies.



Vaccination is available for diseases like tetanus, diphtheria, whooping cough, measles, polio, chicken pox, etc.

- **Smallpox existed for thousands of years, killed millions, and was fatal in up to 30% of cases.**
- **It was eradicated by a collaborative global vaccination programme led by the World Health Organization. It is the only infectious disease that's been successfully eradicated.**
- **The last known natural case was in Somalia in 1977.**

#### **ALTERNATE ACADEMIC CALENDAR ACTIVITY**

Water is an important resource . It is **important** because it is needed for life to exist. Many uses of **water** include agricultural, industrial, household, recreational and environmental activities. Virtually all of these human uses require fresh **water**. ... It is estimated that 70% of world-wide **water** use is for irrigation in agriculture.

Students will compile information about water on the following—

- (i) Trace the route of the source of water that you use at home.
- (ii) What is the quality? Is it safe to drink without purification?
- (iii) What are the sources of water pollution in your area? What should be done to reduce such pollutions?
- (iv) Do you use water judiciously and conserve it? What are the steps that you take for that?
- (vii) Suggest ways the government in your district/ state/ country should do to address scarcity of water for domestic, agriculture and industry.

#### **ASSIGNMENT:-**

**Try the following questions:**

**Q1.** State two principles of treatment of a disease.

**Q2.** Why making anti-viral medicines is harder than making anti-bacterial medicines?

**Q3.** What is Vaccination? How it works in human body?

**Q4.** Why are we normally advised to take bland and nourishing food when we are sick?

**Q5.** What precautions can you take in your school to reduce the incidence of infectious diseases?

**Q6.** What is immunisation? What are the immunisation programmes available at the nearest health centre in your neighbourhood?

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