

## The Immune system



### تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ⇨ المناهج الإماراتية ⇨ الصف الحادي عشر المتقدم ⇨ علوم ⇨ الفصل الثالث ⇨ ملفات متنوعة ⇨ الملف

تاريخ إضافة الملف على موقع المناهج: 2026-07-02 13:15:26

ملفات اكتب للمعلم اكتب للطالب ا اختبارات الكترونية ا اختبارات ا حلول ا عروض بوربوينت ا أوراق عمل  
منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك ا الامتحان النهائي للمدرس

المزيد من مادة  
علوم:

إعداد: Alreyami Fatheya

### التواصل الاجتماعي بحسب الصف الحادي عشر المتقدم



صفحة المناهج  
الإماراتية على  
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

### المزيد من الملفات بحسب الصف الحادي عشر المتقدم والمادة علوم في الفصل الثالث

أسئلة مراجعة

1

Infectious Diseases

2

Noninfectious disorders

3

Infectious Diseases and Koch's Postulates

4

مراجعة ميكل الامتحان

5



## The Immune system



Name: \_\_\_\_\_ class: \_\_\_\_\_ date: \_\_\_\_\_

| Vocabulary                                                                                                                        | Objectives                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Complement protein- interferon-<br>Lymphocyte- antibody- B Cell-<br>helper T Cell- Cytotoxic T Cell-<br>memory cell- immunization | 1-Explain the structure and function of the lymphatic system.<br>2-Identify the importance of B cells and T cell.<br>3-Describe the similarities and difference between nonspecific and specific immunity.<br>4-Camper between passive and active immunity. |

### ● Nonspecific Immunity:

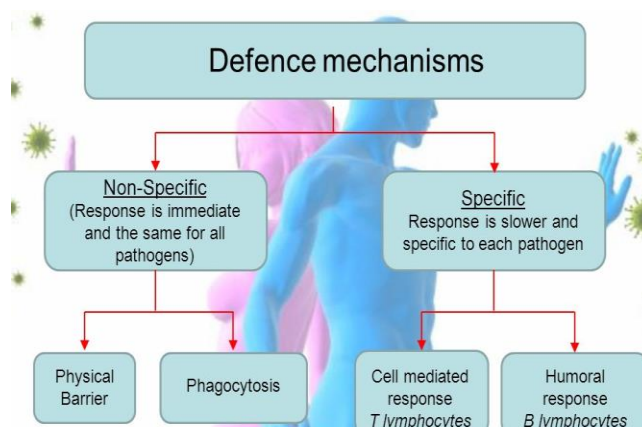
◆ **Compare** what the different between Nonspecific Immunity and Specific Immunity:

#### \* Nonspecific Immunity:

- 1 .....at a specific pathogen.
- 2 Helps to ..... the progression of the disease.
- 3 The ..... of defense.

#### \* Specific Immunity:

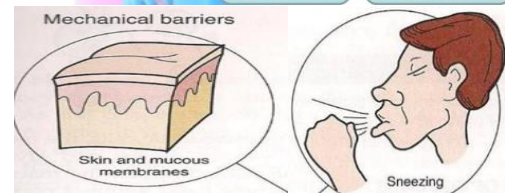
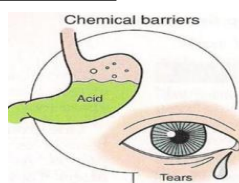
- 1 ..... at a specific pathogen.
- 2 ..... immunity system defenses.
- 3 ..... immune response.



### 1- Barriers:

① **Give** what the types of barriers:

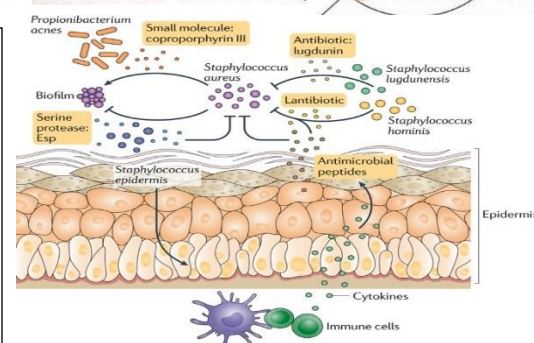
- ① Skin barrier (.....)
- ② ..... barriers.



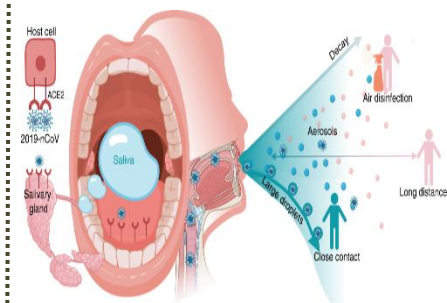
#### ☞ Skin barrier:

◆ **Fill in space:** The first major line of defense is the unbroken skin and its secretions:

- ① The layers of ..... cells help protect .....invasion by microorganisms.
- ② Bacteria that live symbiotically on the skin digest skin oils to .....that inhibit many pathogens (acid surface resists microbial growth).



#### ☞ Chemical barrier:



Prepared & arranged by biology  
teacher: Fatheua Alreumi-2025

Saliva, tears,  
and nasal  
secretions  
contain the  
enzyme  
.....

Mucus acts as a  
protective barrier,  
.....  
from sticking to the  
inner epithelial  
cells.

.....  
.....secreted  
in stomach kills most  
microbes.

## 2- Nonspecific Immunity to invasion:

### Cellular Defense:

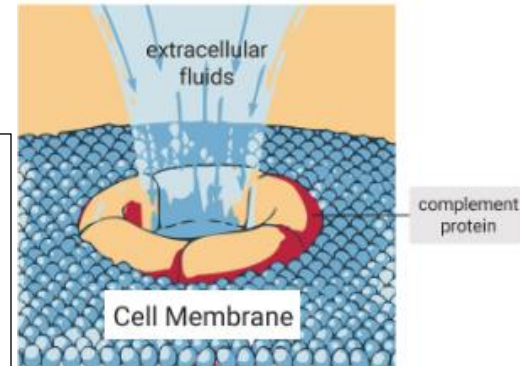
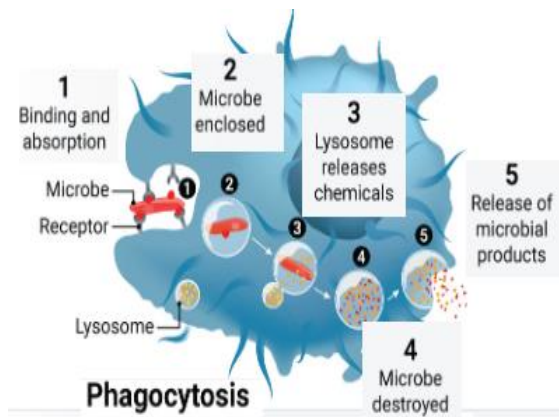
① **Illustrate:** What happen if foreign microorganisms enter the body?  
The cells of the immune system ..... the body.

② **Give** an example of phagocytic cells? .....

③ **Explain** How of elimination of foreign microorganisms by phagocytosis process:

✱ Phagocytosis is the process by which phagocytic cells ..... and ..... the foreign microorganisms.

✱ The phagocytes release digestive ..... and other harmful chemicals from their ....., destroying the microorganism.



### Complement Proteins:

① **Give** What the properties of complement Proteins?

✱ A series of about ..... proteins.

✱ Present in the ..... plasma but inactive.

✱ Activated by .....

② **Demonstrate** How complement proteins work?

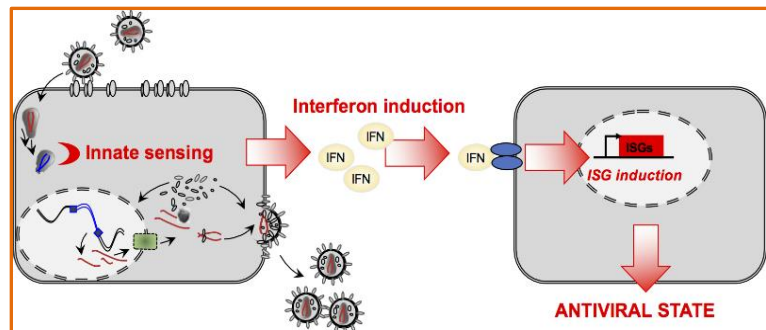
✱ Helping the phagocytic cell..... better to pathogens and activating the phagocytes.

✱ Forms a complex in the plasma membrane of pathogen→→produce a ..... in membrane→→fluid ..... into the cell→→destruction of the .....

### Interferon:

① **Define** the Interferon: The protein secrete to helps prevent the ..... from spreading.

② **Demonstrate** How Interferons proteins work?  
Interferons.....to neighboring cells and stimulates these cells to produce ..... which prevent viral .....in these cells.



### Inflammatory Response:

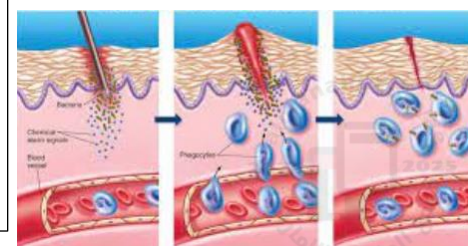
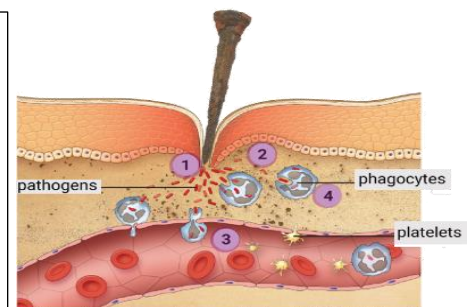
① **Define** the inflammatory response: A ..... defense reaction to tissue damage caused by ..... or infection by pathogens.

② **List** What are the stages of the inflammatory response:

✱ Pathogen infects tissues, cause ..... released by pathogen and cell of the body.

✱ Increase blood flow to the ..... area and make blood vessels more permeable. Allow white blood cells (WBC) to ..... (go to) infected areas.

✱ WBC are phagocytes: engulf (to eat) and .....bacteria.



## • Specific Immunity:

① **Explain** What happen if pathogens get past the nonspecific defense?

The body has a ..... line of defense that ..... these pathogens.

② **List** What are the properties of specific immunity:

- ① Aimed at a ..... pathogen.
- ② More .....
- ③ Takes ..... to develop.
- ④ Involves tissues and organs found in the ..... system.

### 📖 Lymphatic System:

① **Illustrate:** What is the function of the lymphatic system?

- ① ..... lymph and blood.
- ② ..... foreign microorganisms.

② **Give** What are the components of the lymphatic system?

.....

### ☑ Lymph:

① **Define** the Lymph? Is the fluid that leaks out of ..... to bathe body cells.

② **Demonstrate** How is lymph collected in the body?

Is collected by ..... vessels then returned to the ..... near the heart.

### ☑ Lymphocytes:

① **Define** the Lymphocytes? Are a type of ..... blood cell that is produced in..... bone marrow.

### ☑ Lymphatic organs:

② **Give** What are the organs of the lymphatic system?

.....

### ☑ Lymphatic tissue:

③ **Demonstrate** Where are diffused lymphatic tissue?

Found in ..... membranes of the intestinal, respiratory, ....., and ..... tracts.

### ☑ Lymphatic organs:

#### ① Lymph nodes:

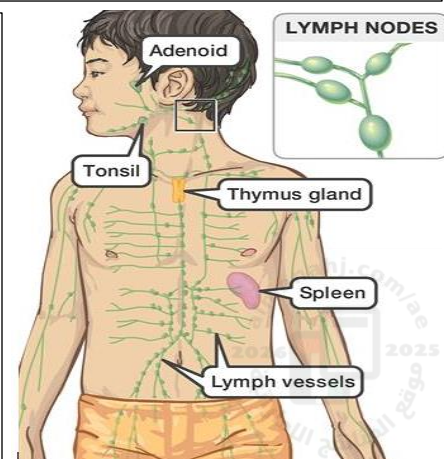
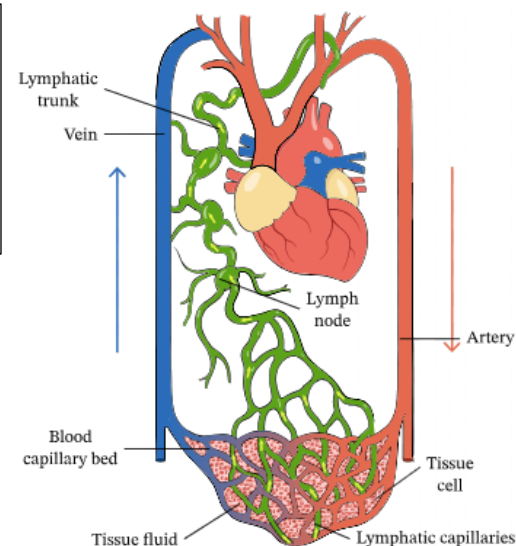
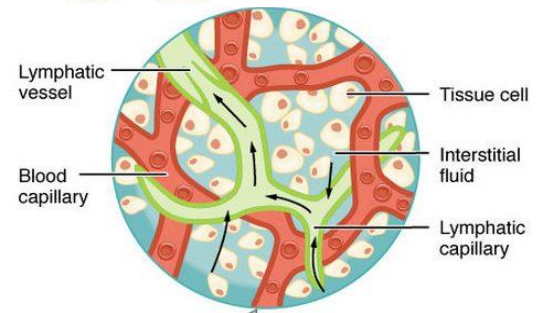
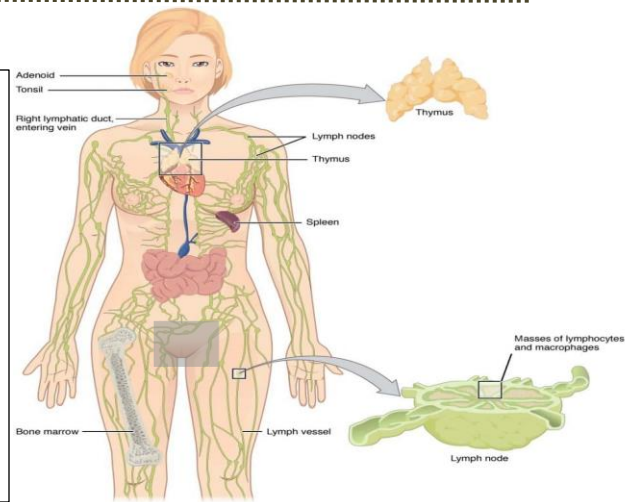
☼ **Give** What is the function of lymph nodes?

..... the lymph and ..... foreign materials from the lymph.

#### ② Tonsils:

① **Give** What is the location of the tonsils? Form a protective ring of lymphatic tissue between the ..... and .....cavities.

③ **Demonstrate** What is the function of tonsils? Helps protect against ..... and other ..... materials in the nose and mouth.



☑ **Lymphatic organs:**

③ **Spleen:**

☼ **Give** What is the function of spleen?

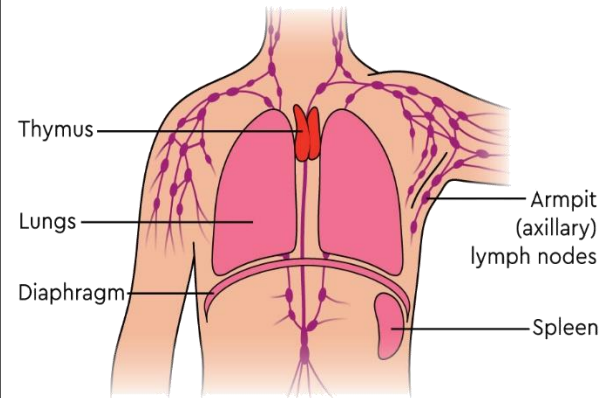
📄 Store's blood and ..... damaged red blood cell.

📄 It contains lymphatic tissue that responds to ..... substance in the .....

④ **Thymus:**

① **Give** What is the location of the thymus gland?

located above the .....



② **Demonstrate** What is the function of thymus gland? ..... a special kind of Lymphocyte called ..... cells.

③ **List** Where T cells produce and mature? T cells produced in the ..... but the mature in the ..... gland.

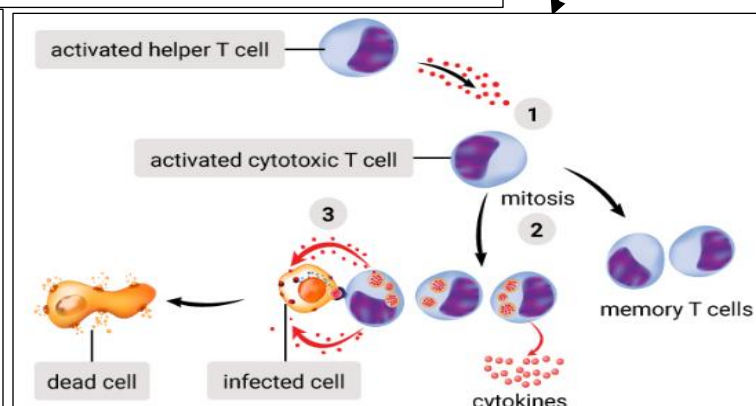
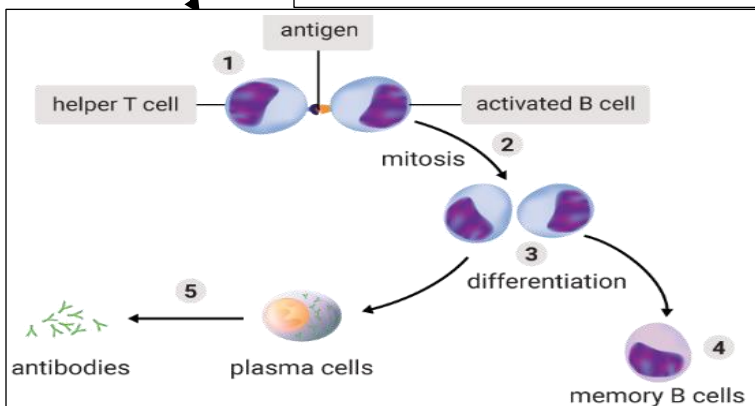
☼ **Specific Response:**

**Immune Response:**

**B cell Response:**

📄 A macrophage engulfs an antigen and portion of the antigen outside the cell, then T cell binding with antigen, this binding helps the T cell divide.

**T cell Response:**



① An activated helper T cell activates a B cell that has a receptor for the same antigen.

② The activated B cell divides by mitosis to make many copies of itself.

③ Daughter B cells differentiate into memory B cells plasma cells.

④ **Memory B cells** are stored in lymphatic tissue.

Memory B cells can quickly recognize and attack any **returning pathogen**.

⑤ **Plasma cells** release antibodies into the bloodstream. These antibodies recognize and bind to the antigen.

① The activation of cytotoxic T cells often involves cytokines released by helper T cells.

The activated cytotoxic T cells divide.

☼ Activated cytotoxic T cells defend the body by:

② Binding and killing infected cells by releasing chemicals into them.

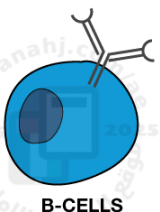
③ Releasing cytokines that attract immune cells to the infected area.

☑ **B Cell Response:**

① **Define** the Antibodies? Are ..... produced by B lymphocytes that specifically react with a foreign antigen.

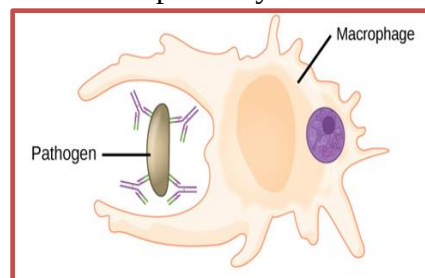
② **Give** What is the Antigen? Is a substance foreign to the body that cause an ..... response.

③ **Demonstrate** What is the function of B cells? are in all lymphatic tissues and can be thought of as ..... factories.



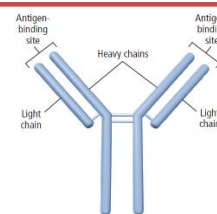
④ **Give** What is the role of antibodies? The antibodies can enhance (increase) the immune response by binding to microorganisms,

- 1-..... them more susceptible to phagocytosis.
- 2-..... the inflammatory response.
- 3-..... promote the nonspecific response.



⑤ **Fill in space:**(heavy chain – specific – light chain –one - combine – Antigen binding - DNA codes -Y)

1. Antibodies are.....shaped.
2. At the ends of the heavy chains, there are .....site, that are .....to only .....antigen.
3. B cell make many combination of antibodies by using .....
4. Antibodies made up of 2 types of chains:.....&.....
5. Any heavy chain can ..... with any light chain.



## ● Passive and Active Immunity:

☑ **Passive Immunity:**

① **Define** the passive immunity?

Is immunity gained by receiving antibodies not developed in your ..... body.

② **Give** How can you gain passive immunity?

Passive immunity can be gained:

- ✿..... through transfer from mother to child.
- ✿..... through transfusion or injection.

③ **Demonstrate** What are the characteristics of passive immunity?

Passive immunity: is .....-acting-does not last .....-does not produce ..... cells.

④ **Give** What are examples of passive immunity?

.....

.....

☑ **Active Immunity:**

① **Define** the active immunity?

Is gained when exposure to a pathogen triggers your immune system to produce ..... and ..... cells.

② **Give** How can you gain active immunity?

Active immunity can be gained:

- ✿..... through infection.
- ✿..... through vaccination.

③ **Demonstrate** What are the characteristics of active immunity?

Active immunity: is ..... acting-is .....lasting-produces ..... cells.

④ **Give** What are examples of active immunity?

.....

.....

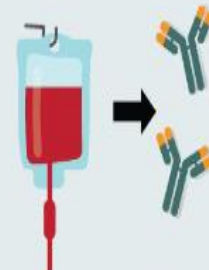
### Passive Immunity

Natural

Artificial



maternal antibodies

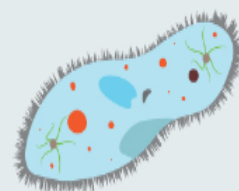


antibody transfusion

### Active Immunity

Natural

Artificial



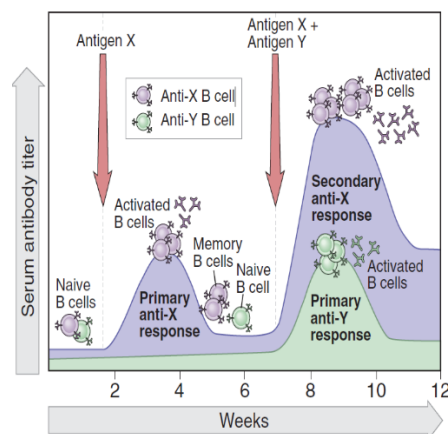
infection



vaccination

☑ **Analyze** the differences between the primary & secondary immune responses:

| Immune response              | Primary immune response | Secondary immune response |
|------------------------------|-------------------------|---------------------------|
| Exposure to specific Antigen |                         |                           |
| Memory cell                  |                         |                           |
| Response time (speed)        |                         |                           |
| B and T cells quantity       |                         |                           |
| Antibodies quantity          |                         |                           |



### ● Immune System Failure:

☑ **Virus (HIV):**

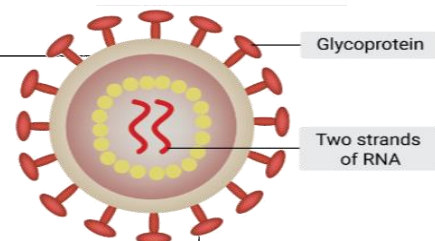
① **Define** What is HIV?

Is a virus that attacks ..... HIV is spread by contact with certain bodily fluids of an infected person.

② **Give** What is the structure of HIV? HIV is an ..... The outer surface of the virus has ..... which allow HIV to recognize and bind to its target.

③ **Demonstrate** Why does HIV target helper T cells? ☼ Helper T cells are also called CD4<sup>+</sup> cells. Helper T cells have ..... on their surface called CD4<sup>+</sup>.

☼ HIV attaches to the CD4<sup>+</sup> receptor on a helper T cell to insert its ..... inside the cell.



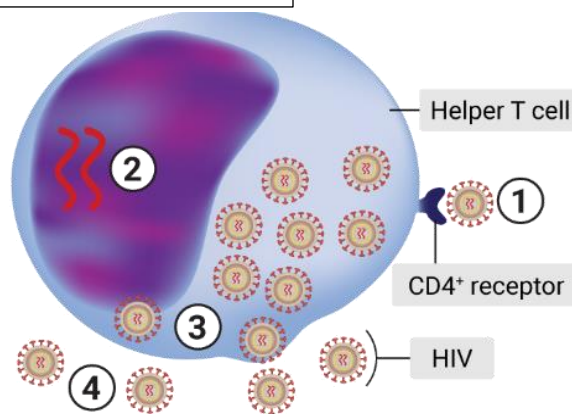
☑ **Mechanism of HIV Infection:**

☼ **Step 1:** HIV uses the ..... receptor to bind to the helper T cell and infect it.

☼ **Step 2:** The viral genetic material is ..... to the helper T cell's own DNA.

☼ **Step 3:** The helper T cell is turned into a ..... of new HIV viruses.

☼ **Step 4:** The new viruses go on to infect other helper T cells. Infected ..... die.



☑ **Stages of development of AIDS in PowerPoint.**

☑ **HIV Treatment:**

☼ There is no cure yet for HIV. The available treatments control viral replication with antiviral medication.

☼ The drugs reduce the amount of HIV in the body and prolong the lives of people living with HIV.

☼ Challenges to HIV treatment include:

✂ HIV strains that are ..... to drugs

✂ The high ..... of drugs

✂ Side ..... of drugs

**ANTIVIRAL DRUGS**



**Solution the Check my understanding + Exit ticket at Alef**

Prepared & arranged by biology teacher: Fatheya Alreyami-2025

