

Types of foreign substance:

- 1. **Antigens:** substance that your body does not recognize; may cause disease
- 2. **Pathogens:** substance that causes disease

Ways of transmitting disease:

- 1. **Direct Contact**
- 2. **Indirect Contact**
- 3. **Food and Water**
- 4. **Animal Bites**

Name: **KEY**

Date:

Block:

Many pathogens can be stopped by...

First Line of Defense: Protective barrier

- **Skin:** a physical barrier that prevents pathogens from entering the body
- **Eyelashes:** directs moisture (like rain and sweat) away from eyes to prevent irritation and infection
- **Stomach Acid:** acidic substance that can break down pathogens that are swallowed
- **Saliva:** contains enzymes that can break down the cell wall of bacteria
- **Nose Hairs:** helps to filter out dust, pollutants, and microbes

This is part of the **innate** immune response.

If a pathogen enters into the body...

Second Line of Defense

- Response is **non-specific**, quick, and general
- **Inflammation** is a response where the tissues are damaged and respond to the stimuli. White blood cells go to the site of the pathogen. Swelling, redness, heat, and pain results
- **Fever** helps to increase rate of tissue repair and prevents bacterial growth.

This is part of the **innate** immune response.

Third Line of Defense

- Response is **specific** and **direct**

This is part of the **acquired** immune response.

1. **Helper T Cells**

Sends signals to B Cells to produce antibodies

2. **B Cells**

Recognizes the antigen and produces **antibodies**

3. **Killer T Cells**

Attacks and destroys the pathogens that are marked by **antibodies**

White Blood Cells (Phagocytes)

Ingest and destroy all pathogens it encounters

Antigens are destroyed and the body is protected.