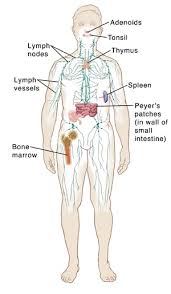
**3.1 The Immune System**

**(refer to pg. 100 – 114)**

*\*Complete Activity 3-1: Pass it on*

1) Explain how this activity demonstrates how an infection disease is transmitted

****

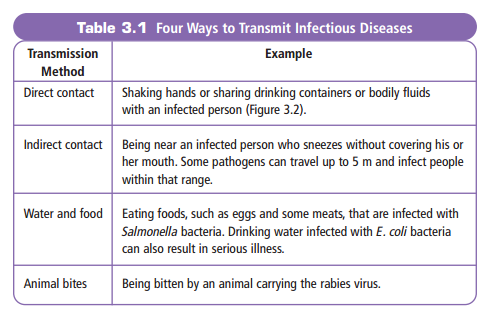
* **Immune system:** the system that defends the body against infection and

disease - causing substances such as bacteria, viruses and cancer cells.

* Pathogens **(**disease causing invaders) can infect people with a range of infectious diseases

**Parts of the Immune System**

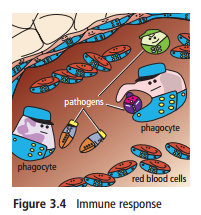
|  |  |
| --- | --- |
| **Structure** | **Function** |
| Lymph Nodes | Small bean shaped structures that produce and store cells that fight infection |
| Lymph vessels | Vessels that connect the different parts of the immune system |
| Spleen | Stores white blood cells that fight disease and infection |
| Bone Marrow | Tissue in the center of the bone that produces white blood cells |

**How can infectious diseases be passed on?**

**Our immune system has two lines of defense:**

**First Line of Defence**

* Skin : a physical barrier that stops pathogens from entering the body
* Sweat and oil: slightly acidic which prevents pathogens from growing on the surface of your body
* Gastric juice: acid secreted by the stomach which kills bacteria that enter
* Mucus and cilia: line nose and prevent pathogens from entering your respiratory system

**Second Line of Defence**

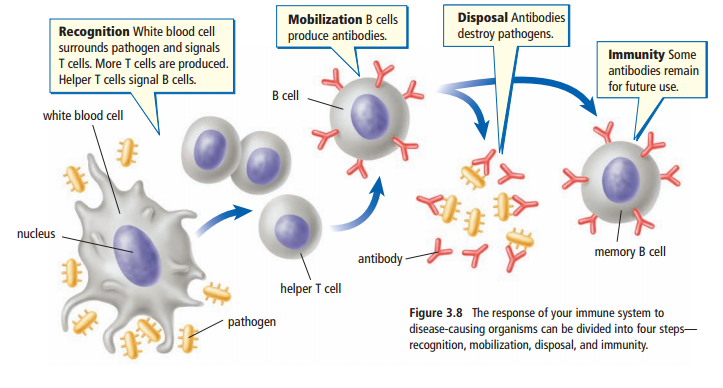
* If a pathogen makes it past the first line of defence your body will attack and destroy the invader
  + Imagine each of your cells wears a uniform
  + Your immune system recognizes the uniforms of unknown cells and attacks them
* **There are two types of immune responses:**

**1) Innate immune response:** the response you are born with

* + - Quick, general and non-specific
    - Used against bacteria and some viruses
    - First step is inflammation which is the flow of fluid and cells to the site of infection. This causes a fever, swelling and redness.
    - Increase in white blood cells called phagocytes which eat up the invaders.

**2) Acquired immune response:** highly specific attack on a particular pathogen or antigen

* + - **Antigen**: an non-living particle the body cannot recognize, from a virus to a splinter
    - Uses two special types of white blood cells: B Cells and T Cells
    - **B Cells:** recognize the antigens and produce antibodies to fight them
    - **Helper T Cells:** recognizes an antigen and activates B Cells
    - **Killer T Cell:**  Directly destroy antigens
  + Once the attack is over some antibodies stay in the body to protect against future infections, we call this immunity



**Watch this video on the immune system** [**https://goo.gl/6uNxtp**](https://goo.gl/6uNxtp)

**3.2 Factors Affecting the Immune System**

**Vaccine:** special version of an antigen that gives you immunity against a disease.

* Stimulate the immune system to create the antibodies against that disease

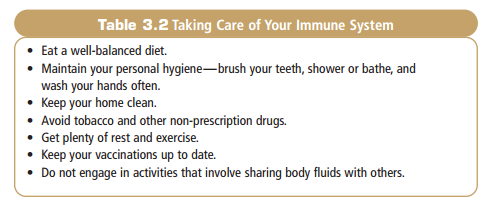
**Immune System Disorders**

**Allergy:** an unusually high sensitivity to a substance, which causes an immune reaction.

* Allergy symptoms are caused by the release of histamine which is a chemical that your body release when it is fighting invaders.

**Acquired Immunodeficiency Syndrome (AIDS)**

* Caused by Human Immunodeficiency Virus (HIV), a pathogen that attack the immune system and infects helper T cells.
* The body can no longer activate B or killer T cells to destroy the antigen or pathogen



*\*Complete pages 40, 42 – 43 of section 3.1 and page 46, 47 and 49 of section 3.2 in your workbook*