3.2 Factors Affecting the Immune System

Traditional First Peoples Medicines

- **Use of nature**
  - For many generation plants, animals and earth substances have been used as healing agents.
  - Examples:
    - Indian Hellebore-skin and scalp conditions
    - Devils club-breathing and digestive disorders, arthritis and diabetes.
    - Pacific yew-treat pain and internal injuries
  - Why might it be important to identify and preserve plants for medicinal purposes?

- http://lfs-indigenous.sites.olt.ubc.ca/plants/indian-hellebore/
- http://lfs-indigenous.sites.olt.ubc.ca/plants/devils-club/
- http://blogs.ubc.ca/conifersubc/?page_id=72

3.2 Factors Affecting the Immune System

- Vaccines are weakened versions of a disease pathogen that are given to people to protect them from getting the disease later.
- Vaccines allow your body to create antibodies against the disease.
- Boosters are needed for some vaccines to extend the immune system's memory.
- https://www.youtube.com/watch?v=rb7TVW77ZCs

Types of Vaccines

Type of vaccine	How it works	Example
Live attenuated vaccine	The vaccine contains living microbes that have been weakened in a lab so that they cannot cause disease. Immune system responds with often lifelong immunity.	Measles, mumps, chicken pox
Inactivated vaccines	The vaccine contains microbes that have been killed with heat, chemicals or radiation. Weaker immune response, often requires periodic booster shots.	Hep A, rabies and whooping cough
Subunit vaccines	Only specific pieces of microbes are used to make the vaccine. Immunity is given through several doses.	Hep B and flu vaccine called Hib
Toxoid vaccines	The vaccine is made using toxins that some types of bacteria produce. Toxins are inactivated in a lab so they no longer cause disease. Booster shots needed to keep immunity.	Diptheria and tetanus

Importance of vaccines

- Why is it important to be vaccinated against certain diseases?
- Herd immunity
  - Thoughts?

- Explain in your own words what a vaccine is

Antibiotics

- Only effective against living organisms
  - What kind of living organisms?
  - Bacteria!
- Are they effective against viruses?
  - No!
- Antibiotics are substances that interfere with the life processes of bacteria.
  - Kill it
  - Stop reproduction
- Discovery of penicillin was an accident!
  - https://www.youtube.com/watch?v=0t_hrtju4eA
  - https://www.youtube.com/watch?v=0ZWjzcsTd5M

Antibiotic issues today

- https://www.youtube.com/watch?v=znnp-Ivj2ek
- http://www.cdc.gov/getsmart/community/about/index.html

- **What is an issue with antibiotics we are facing today?**
  - **Over use of antibiotics creating "superbugs" which are growing resistant to antibiotics.**
  - **Should you use antibacterial soaps and cleaners in your house all the time?**
- **Eyes of nye**
- **https://www.youtube.com/watch?v=ifMEa4tpSDA**

Disorders of the Immune System

Allergies

- An allergy is an unusually high sensitivity to some substance.
- Any substance that causes an allergic reaction is called an allergen.
  - Common allergens are: milk, pollen, and dust.
- Body releases chemical called histamine to fight allergen.
  - Common symptoms include a runny nose and watery eyes.
- Severe allergies can cause an anaphylactic shock.

Dust Mite

Disorders of the Immune System

AIDS – Acquired Immunodeficiency Syndrome

- AIDS is caused by a virus called HIV
- HIV attacks the immune system by infecting Helper T Cells.
  - When other pathogens or antigens enter the body the immune system can't activiate Killer T cells or B cells.
- AIDS is transmitted by blood and semen.

Taking Care of Your Immune System

Important steps you can take to help your immune system stay healthy.

- Eat a well-balanced diet.
- Maintain your personal hygiene—brush your teeth, shower or bathe, and wash your hands often.
- Keep your home clean.
- Avoid tobacco and other non-prescription drugs.
- Get plenty of rest and exercise.
- Keep your vaccinations up to date.
- Do not engage in activities that involve sharing body fluids with others.