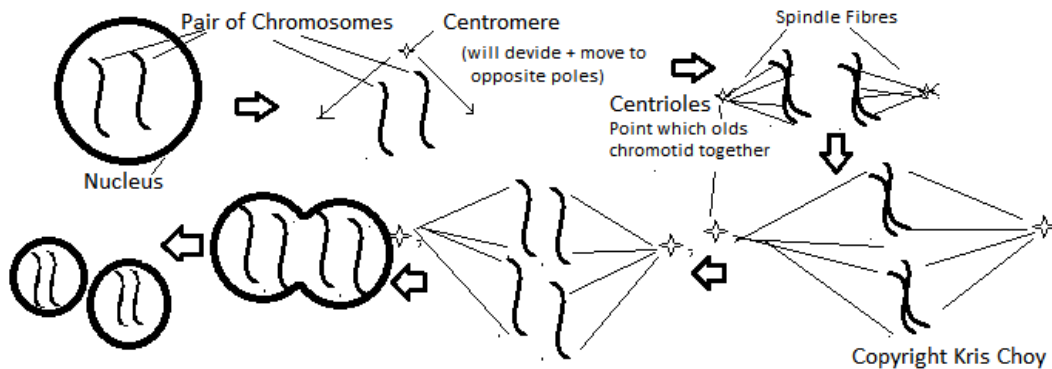


Science Diseases Notes

Important Terms

- Mitosis – a type of cell division where daughter cells are genetically identical to the parent cell (unless there is a mutation)

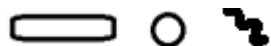


- Gene – a section or unit of genetic information
- DNA – deoxyribonucleic acid – contains genetic information, has many genes
- Chromosomes – contains genetic information, made up of DNA
 - o Comes in pairs and each species have a unique number of chromosomes (human – 23)
- Chromatids – replicated chromosomes
- Carcinogen – organism that causes mutations, leads to tumours and cancer

General Diseases Information

- A disease is any condition that impairs the state of a person's health. Two types of diseases:
 - o Infectious
 - Spreadable from person to person
 - Either through a vector or by direct contact
 - Caused by a pathogen
 - o Non-infectious
 - Not caused by pathogens
 - Cannot be transmitted from a person
 - Can be classified as congenital, environmental, dietary or lifestyle

Infectious Diseases

- A pathogen is an organism that causes a disease, and can be micro/macroscopic
- Viruses
 - o Live on living objects
 - o No antibodies available – must be prevented using vaccinations
 - o Cannot be seen in a normal light microscope, must be seen using electron microscope
- Bacteria
 - o Single-celled organism
 - o Classified by its shape and characterisation
 - Shape can either be Bacilli, Cocci or Spirillum -  (respectively)
 - o Visible by light microscope, have no nuclear membrane

- Cured by antibodies
- Fungi
 - They have cell walls, but have no chlorophyll so are not animals or plants
 - Some are beneficial (mushrooms) some are not (food poisoning, pneumonia)
- Protozoan
 - Single-celled, such as malaria
- Macro-parasites
 - Multi-cellular organisms feeding on or on an organism
 - Endoparasites – internally in the body
 - Ectoparasites – externally on the person
 - Flatworms and roundworms
- Prion
 - Broken down protein particles

Body's defence systems

- First Line of Defence – **nonspecific** (does not target a specific thing)
 - Physical Barriers – Skin, hairs and mucus, clotting of blood cells
 - Chemical Barriers – saliva, tears and acid
- Second Line of Defence – **nonspecific**
 - Inflammation – body swells up
 - White blood cells also destroy foreign particles
 - Phagocytes which consume anything without the same genetic information (DNA)
- Third Line of Defence – **specific** (it targets one type of pathogen)
 - Antibodies binds itself with the antigen (foreign body) – antibodies are specific
 - Lymphocytes are a type of white blood cell that emits antibodies to attack antigens
 - Antigens get engulfed by phagocytes

Vaccinations/Immunisation

- Person can be immunised from a disease by injecting a vaccine with toxins produced by pathogens
 - Toxins are weakened, and body cells attack it and make their own antibodies
 - Memory cells remember how to make the antibodies and will remember the next time