

1. Key Words

Key word	Definition
Communicable disease	Disease than can be passed spread by a pathogen
Pathogen	Microbe that causes a disease
Protist	Group of microbes that have features of plants, animals and fungi.
Transmission	The method by which a pathogen is spread
Vector	Type of transmission where an organism that carries a pathogen but is not affected by it. e.g. rats

2. Communicable diseases

Pathogen	Disease	Symptoms	Treatment	Prevention
Bacteria	Salmonella (food poisoning)	Vomiting, diarrhoea, fever	Antibiotics	Good hygiene, cook food thoroughly
	Gonorrhoea	Yellow mucus from penis or vagina, pain when urinating	Antibiotics	Use a condom when having sex
Virus	HIV	Flue like symptoms, decreased immunity, lesions	Anti-retroviral drugs	Use a condom when having sex, do not share needles
	Measles	Fever, red rash on chest and face	Painkillers	Vaccination
	Tobacco Mosaic Virus (TMV) - Plants	Yellowing leaves stunted growth	Remove infected leaves and burn	Keep away from infected plants
Fungi	Rose Black Spot - Plants	Black spots on leaves and stunted growth	Fungicides	Keep away from infected plants

3. Malaria

- Malaria is a disease caused by the protist *Plasmodium*
- It is transmitted by female mosquitos when they bite a human
- It causes a fever and flu like symptoms that can be fatal.
- It can be treated using drugs that kill the parasite.

Method of prevention	How it works
Mosquito Nets	Meshing is too small for mosquitoes to pass through
Draining swamp land	Reduces breeding grounds for mosquitoes and therefore reduces the mosquito population
Anti-malarial drugs	Kills the parasite during its developmental stage in the liver and red blood cells
Insect repellent	Discourages mosquitoes from biting the person

4. External body defences (non-specific)

1	Skin	Layers of dead skill cells provide a barrier. Antiseptic oils are secreted on to the skin that kill pathogens
2	Nose	Cilia cells line the nose, throat and lungs. Mucus covering these cells traps the pathogens and the hairs on the upper surface of the cells sway back and forth to sweep the mucus to the nose or to the throat to be swallowed
3	Mouth	The stomach contains strong hydrochloric acid, this kills pathogens that are swallowed.
4	Cuts	Platelets in the blood clump together at the site of a cut, these for a carrier at the cut called a scab.

5. Internal body defences (specific)

Lymphocyte	White blood cell that makes and releases antibodies
Phagocyte	White blood cell that engulf and digests pathogens
Antigen	Unique protein marker on the pathogen
Antibody	Protein that attaches to an antigen to prevent growth and the release of toxins
Toxin	Poison released by a pathogen that induces symptoms
Antitoxin	Protein that binds to toxins to prevent them from being absorbed in to the body tissues

6. Vaccines

Vaccines are used to provide immunity against viral infections

Stage	Description
1	Small amount of WEAKENED or DEAD pathogen is injected in to the blood
2	White blood cells respond and start to make antibodies to kill the pathogen
3	Antibodies remain in the blood
4	If re-infected the levels of antibodies drop and the white blood cells make the antibodies QUICKLY to fight of the pathogen

7. Antibiotics and Painkillers

Antibiotics	ONLY used to treat bacterial infections. Interferes with the bacterial production or attacks the cell walls of the cell
Painkillers	ONLY treats the symptoms of a disease, it does not kill the pathogen
Antibiotic resistance	Where a bacteria evolves to no longer be killed by an antibiotic

8. Drug development

Drug	Chemical that has a physiological effect on the body
Toxicity	How poisonous or deadly the drug is
Efficacy	How well a drug works
Dose	The volume or mass of a drug that is needed to cause an effect
Placebo	A pill or liquid that does not contain the drug, e.g. a sugar pill
Double blind trials	A method of testing a drug where neither the doctors nor the patients know who has taken the drug or placebo. (Prevents bias)

Why are drug trials conducted?

1. To ensure the drug is not toxic
2. To check for the side effects of the drug
3. To establish an effective dose
4. To assess the effectiveness of a drug compared to those currently on the market.

Stages of a drug trial

Pre-clinical	Drugs are tested on tissues and animals to check for toxicity
Clinical trials stage 1	Small group of healthy volunteers (<10) with a small dose compared to the placebo. Check for toxicity and side effects
Clinical trials stage 2	Group of 100 – 300 healthy volunteers taking a range of doses compared to a placebo. Check for side effects and possible dose
Clinical trials stage 3	Group of 1000-3000 patients. Compared against drugs already available. Check the efficacy of the drug for its intended purpose.