Knowledge

1. Any microbe capable of causing illness
2. Damaging healthy cells and releasing toxins
3. Inside host cells
4. Releasing antitoxins, engulfing microbes and releasing antibodies
5. A weakened form of the pathogen
6. When white blood cells engulf microbes and digest them (literally means ‘cell eating’)
7. Large scale outbreak of a disease across a large region – e.g across several continents
8. A vector is any agent that carries and transmits a pathogen into another living organism
9. Antibiotics are medicines that kill bacteria inside the body

Application

1. A virus injects its DNA into a healthy host cell and then reproduces inside there. It then causes the cell to burst, releasing toxins and the newly made viruses into the body
2. White blood cells can engulf and digest pathogens directly, release antitoxins that neutralise the toxins the pathogen released, and can also release antibodies
3. Antibiotics cannot be used against viruses because viruses are inside our cells.
4. When injected with the vaccine, the white blood cells make antibodies that are specific for the polio causing pathogen. Some of the white blood cells (memory cells) remember how to make these antibodies, and therefore if the pathogen gets into the body in the future, are able to make the correct antibodies much more quickly and in larger quantities, destroying the pathogen before it can cause illness

5. Washing hands – can kill bacteria/fungus on skin. Spraying insecticides can kill vectors. Vaccination prevents those vaccinated from getting the disease and therefore stops them passing it on (herd immunity)

6.

Infection	Type	How it's passed on & symptoms	Reduction of spread/ Treatment
HIV	virus	Unprotected sex Flu-like symptoms	wear barrier protection –e.g condoms – during sex
Measles	Virus	droplets from coughs and sneezes Fever, skin rash, can cause pneumonia	vaccination
Tobacco Mosaic Virus	virus	Mosaic pattern on leaves means reduced photosynthesis.	
Gonorrhoea	Bacteria	Unprotected sex Pain while urinating Yellow/green discharge from the genitals	wear barrier protection –e.g condoms – during sex
Salmonella	Bacteria	Improperly cooked food Fever, stomach cramps, vomiting and diarrhoea	Cook food thoroughly (especially chicken) Vaccinate chickens
Malaria	protist	Mosquitoes (they are a vector) Repeated episodes of fever	Mosquito nets, spraying insecticides
Rose black spot	fungus	Spread by water & wind Purple/black spots on leaves	Spraying fungicides, stripping infected leaves off and destroying them

7.

Mechanism	How it prevents infection
The trachea is lined with cells that produce mucus and have cilia on the surface	The mucus traps dirt and pathogens breathed in and the cilia moves the mucus and dirt up towards the mouth – away from the lungs
The stomach contains hydrochloric acid	The stomach acid kills bacteria that get into the body via food and water
The skin can form scabs when cut	The skin is a physical barrier to microbes and scabs help seal that barrier when it is damaged.