

3.1 - Pathogens	
<b>Pathogens</b>	<b>Micro-organisms</b> that cause <b>infectious diseases</b> . Four types: <b>bacteria</b> , <b>viruses</b> , <b>fungi</b> and <b>protists</b> .
<b>Bacteria</b>	Produce <b>toxins</b> which make us feel ill. E.g. <b>salmonella</b> , <b>gonorrhoea</b> , <b>cholera</b> .
<b>Viruses</b>	<b>Reproduce inside cells</b> -> causes them to <b>burst</b> -> <b>cell damage</b> makes us feel ill. E.g. <b>measles</b> , <b>colds</b> , <b>flu</b> , <b>HIV</b> .
<b>Fungi</b>	Come in <b>different shapes</b> . E.g. <b>athlete's foot</b> .
<b>Protists</b>	Often <b>spread</b> by <b>vectors</b> (e.g. an <b>insect</b> ). E.g. <b>malaria</b> (spread by <b>mosquitos</b> )
<b>Communicable Disease</b>	<b>Infectious</b> disease caused by <b>pathogens</b> . <b>Spread</b> from one person to another.
<b>How are pathogens spread?</b>	<b>Contaminated food</b> and <b>water</b> , <b>coughs</b> and <b>sneezes</b> , <b>vectors</b> , <b>direct contact</b> , <b>bodily fluids</b> (e.g. <b>blood</b> ) and <b>sexual intercourse</b> .
3.2 - The Body's Natural Barriers to Infection	
<b>Nose</b>	Nose <b>hairs trap</b> micro-organisms.
<b>Eyes</b>	Tears contain an <b>enzyme</b> called <b>lysozyme</b> which <b>kills</b> micro-organisms.
<b>Airways</b>	<b>Mucus traps</b> micro-organisms. Tiny <b>hairs</b> on <b>cilia cells</b> <b>sweep</b> mucus out of the airways.
<b>Stomach</b>	Contains <b>hydrochloric acid</b> which <b>kills</b> micro-organisms.
<b>Skin</b>	Acts as a <b>physical barrier</b> . <b>Scabs</b> are formed when <b>platelets</b> cause <b>blood clotting</b> .

3.3 - Fighting Disease		
Immune System	Body system that <b>destroys pathogens</b> . Made up of <b>white blood cells</b> .	
How do white blood cells (WBCs) fight disease?	1. <b>Phagocytosis</b> – WBCs <b>engulf</b> and <b>digest</b> pathogens.	
	2. WBCs produce <b>antitoxins</b> to <b>neutralise toxins</b> .	
	3. WBCs produce <b>specific antibodies</b> which <b>lock onto</b> the <b>antigens</b> on the <b>surface</b> of the <b>pathogen</b> .	
Antibiotics	<b>Cure infections</b> caused by <b>bacteria</b> . <b>Kill bacteria</b> but <b>cannot kill viruses</b> .	
Painkillers	<b>Treat the symptoms</b> of disease but <b>cannot kill pathogens</b> .	
Vaccinations	<b>Inject a weakened</b> form of <b>pathogen (dead or inactive)</b> . White blood cells produce <b>specific antibodies</b> . If same pathogen re-enters, white blood cells can <b>rapidly produce antibodies</b> before they get ill. Person becomes <b>immune</b> to the disease.	
3.4 - Healthy Lifestyle		
Smoking	Nicotine	Causes <b>addiction</b> .
	Tar	Is <b>carcinogenic</b> (causes <b>cancer</b> ).
	Carbon monoxide	Reduces the amount of <b>oxygen</b> that <b>red blood cells</b> can carry.
Drugs	A <b>chemical substance</b> that affects the way your body works. Can be <b>medicinal</b> or <b>recreational</b> .	
Alcohol	Contains the <b>drug ethanol</b> . Can cause <b>liver cirrhosis</b> .	
Healthy Diet	Eat the <b>right amount</b> of each <b>nutrient</b> . <b>Avoid</b> food containing <b>high</b> amounts of <b>fat, sugar</b> and <b>salt</b> .	
Overweight Problems	<b>Type 2 diabetes, stroke, heart disease, some cancers</b> .	
Underweight Problems	<b>Lack of energy, weakened immune system, risk of deficiency disease</b> .	

## Y8 Science Cycle 3 - Sheet 3

### Health & Disease