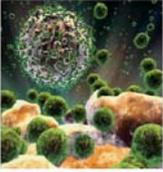
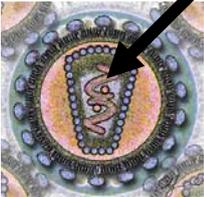


chemicals produced by micro-organisms that kill or prevent the growth of other micro-organisms	develops naturally through random genetic mutations in bacteria	resistant bacteria survive the antibiotic, and multiply rapidly, passing on the resistance gene	another name for the anaerobic respiration (of glucose) AND production of ethanol / alcohol AND CO <sub>2</sub> is ____
antibiotics	antibiotic resistance	natural selection	fermentation
the DNA copies itself, the bacteria/cell/cell membrane/cytoplasm pinches together, two bacteria form – this is called...	small, tough coated reproductive cells; means of dispersal for fungi	swellings at the tips of fungal hyphae that contain / make spores	name for the fungal 'threads' used for feeding / growth / spreading / anchoring / water absorption
binary fission	spores	sporangium	hyphae
makes CO <sub>2</sub> or alcohol (ethanol) when they carry out feeding or respiration or excretion or fermentation	_____ gas produced by yeast makes the dough rise/beer fizz/wine bubble	_____ produced by yeast, makes the beer or wine alcoholic	 outer surface of virus
yeast	carbon dioxide	ethanol	protein coat / capsid
	type of microbes that need a host/living cell to reproduce/replicate	microbes that can only reproduce/replicate inside a host cell (because they have no other life functions)	you can suffer over and over from the common cold or flu because...
nucleic acid / DNA / RNA / genetic material.	viruses	viruses	viruses mutate/change form / structure / coat / genetic material

part of the virus that is recognised by the immune system is the	nutrient agar jelly is not a living medium and so can't be used to grow...	disease-causing organism / microorganism	<u>Useful Products</u>  Yoghurt Cheese Compost  made by
proteins/antigens	viruses	pathogen	bacteria
<u>Useful Products</u> mushrooms, cheese, yeast, bread, wine, beer, and antibiotics made by	<u>Useful Process</u> sewage digestion, recycling C & N, aid to our digestive system, decomposing carried out by	<u>Useful Process</u> to kill pests / rabbits, gene therapy, vectors carried out by	chemicals that kill / eliminate / destroy / inhibit growth of microorganisms / bacteria in places like floors and toilets
fungi	bacteria	viruses	disinfectants
overuse or inappropriate use of antibiotics may lead to _____	a cold, cough or the flu, are all viral and don't respond to _____	food-producing animals are given antibiotic drugs that can cause microbes to become _____ to drugs used to treat human illness	antibiotic _____ can be passed on to subsequent generations, so the antibiotic will no longer work
antibiotic resistance	antibiotics	resistant	resistance
by finishing a course of antibiotics more bacteria will be _____	can occur in bacterial populations which may lead to antibiotic resistance, and may allow them to survive	_____ can only reproduce inside a host cell because they have no chemical processes of their own. (Eg raw materials, energy and enzymes are supplied by host cell)	_____ can feed / grow / reproduce / perform life functions on bread
killed	variation / mutations	viruses	fungi

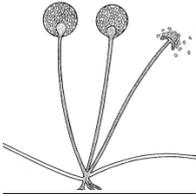
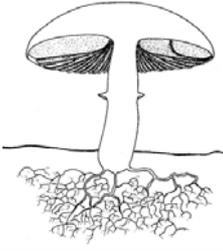
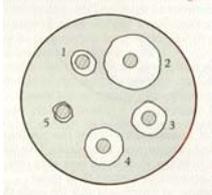
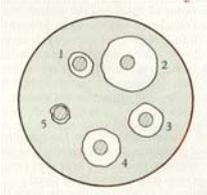
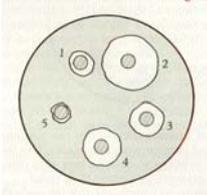
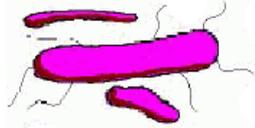
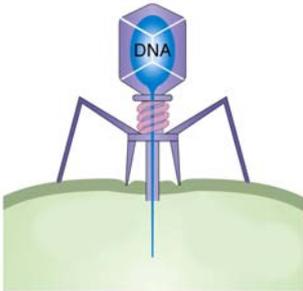
a _____ stimulates the immune system / defences / causes the body to produce antibodies	the body produces _____ antibodies to fight a particular infection	a mutation / new strain of virus is not recognised by the body's immune system. Therefore an individual is still likely to catch (a slightly different form of) the same....	a vaccine only works if the viral strain is the _____ as the immunity that has been built up
vaccine / infection	specific	disease	same
Staphylococcus (boils & pimples), Streptococcus (sore throats), Salmonella, Treponema (syphilis) are all diseases caused by	feeds on dead organic matter (and animal waste)	feeds on living organic matter / material / host	exponential growth of bacteria cannot continue indefinitely due to limiting factors such as _____
bacteria	saprophyte / saprophytic fungi and/or bacteria	parasite / parasitic fungi and/or bacteria	lack of space, nutrients, maybe O <sub>2</sub> (if aerobic)
exponential growth of bacteria cannot continue indefinitely as they become poisoned by their own	feeding / secretion of enzymes / extracellular digestion / securing fungus to substrate / absorb water and/or nutrients and/or food is done by fungal _____	another name for the fermentation (of glucose) AND production of ethanol / alcohol AND CO <sub>2</sub> is _____	without _____, nutrients would not be available / would run out / be all locked up in dead animals and plants, and animal waste
excretion / excretory products	hyphae	anaerobic respiration	decomposition / decomposers / saprophytes
large numbers produced quickly / inability to identify as in the host cell / destruction of host cell – are reasons why a _____ can make us sick	DNA / RNA alters frequently / virus mutates quickly requiring new antibody so we don't become immune to the common _____	THREE conditions required for bacteria to reproduce	bacteria reproduce on food if conditions allow growth. The bacteria release _____ into the food which can be a poison to humans making them sick.
virus	cold (also flu)	3 from: Warmth, moisture, food source, space.	toxins

<p><u>Life Process</u></p> <p>yoghurt / cheese is produced by the _____ of bacteria added to milk</p>	<p><u>Life Process</u></p> <p>bread / wine is produced by the _____ of sugars by yeast</p>	<p><u>Life Process</u></p> <p>bacteria _____ and release carbon dioxide. Carbon Dioxide makes holes in the cheese.</p>	<p><u>Life Process</u></p> <p>bacteria _____ chemicals / wastes, which add flavour to the cheese &amp; lactic acid causes milk to curdle.</p>
<p>fermentation / respiration</p>	<p>fermentation / anaerobic respiration</p>	<p>respire</p>	<p>excrete</p>
<p>sugar → alcohol + carbon dioxide.</p>	<p>fungi secrete enzymes through walls of their hyphae, which break down the food into nutrients &amp; the digested nutrients are then absorbed. This is ____</p>	<p>microbes that break down dead material / recycle nutrients</p>	<p>lactic acid (lowers the pH of the milk) allowing the milk (proteins) to curdle/ precipitate solid curds to make _____</p>
<p>anaerobic respiration / fermentation</p>	<p>extracellular digestion</p>	<p>saprophytes / saprophytic fungi / saprophytic bacteria / decomposers</p>	<p>yoghurt / cheese</p>
<p><u>Carbon Cycle</u></p> <p>Microbe respiration releases carbon dioxide necessary for _____</p>	<p>a _____ is a dead or weakened form of microbe that induces the person's body to make antibodies in advance, so it will respond quickly and kill that microbe if it infects the body.</p>	<p><u>Life Process</u></p> <p>Some bacteria cause illness. bacteria _____ toxins / substances / chemicals which cause illness</p>	<p><u>Life Process</u></p> <p>viruses usually cause illnesses because they _____ inside (living) body cells and kill them</p>
<p>photosynthesis</p>	<p>vaccine</p>	<p>excrete</p>	<p>reproduce</p>
<p><u>Life Process</u></p> <p>viruses _____ in a living cell, and they can make many hundreds of viruses inside each cell before it dies; this causes many more cells to die and organs to malfunction which leads to illness.</p>	<p><u>Life Process</u></p> <p>Bacterial _____ doesn't destroy living cells, but instead increases the number of bacteria so that the amount of toxin they _____ increases.</p>	<p>feeds on / eats / gains nutrients from living material / living things / living cells / living tissues / organisms</p>	<p><u>Life Process</u></p> <p>viruses _____ inside living body cells causing the cells to die so organs malfunction.</p>
<p>reproduce</p>	<p>reproduction, excrete</p>	<p>parasitic</p>	<p>reproduce</p>

_____ convert the nutrient into a simpler / another form, which can be reused by another organism.	fungi break down dead organic matter / wastes containing _____ into simpler compounds / other forms, which can be used / eaten / absorbed by other organisms	fungi break down dead organic matter and convert it into nitrates, which can be used by _____	_____ Cycle Decomposers respire / excrete & release _____ into the atmosphere. The CO <sub>2</sub> can be absorbed by plants (to do _____)
saprophytes / decomposers	nitrogen / carbon	plants	carbon carbon dioxide photosynthesis
_____ Cycle Decomposers feed on dead organic matter / wastes containing nitrogen / proteins. They help to convert them into ____ that can then be absorbed by ____	_____ bacteria (eg in chicken) reproduce forming a large number of bacteria which excrete large amounts of toxins. This is then eaten by people who become ill.	chemicals that slow down / inhibit the reproduction / metabolism / chemical processes / growth of other micro-organisms	bread, wine, beer, ginger beer, <i>blue</i> cheese, camembert cheese, brie cheese are all made with the help of a ____
Nitrogen nitrates plants	Salmonella	antibiotics	fungi
fungi (yeast) are involved in making wine. The alcohol is produced from the process of _____ and released by _____	bacteria help to make yoghurt. As the bacteria _____ it releases <i>lactic acid</i> which causes the milk to solidify / adds flavour to the yoghurt.	fungi (yeast) are involved in making bread. The carbon dioxide released from the process of _____ of the yeast helps the bread <i>to rise</i> .	appearance of bacteria (colonies) on agar plate
respiration / fermentation excretion	respires/ferments	respiration / fermentation	bacterial colonies are "dots" and may be shiny
anaerobic respiration / fermentation converts / breaks down _____ into alcohol / energy.	genetic material is injected into host cell where the cell (nucleus) makes more and many new viruses are then released from cell.	appearance of fungus on agar plate	agar plates are incubated upside down so that.....
sugar / carbohydrate	viral replication	fuzzy, furry, fluffy, thready	condensation does not fall on the growing microbes

on an agar plate, _____ are furry as sporangia thrust into the air	on an agar plate, _____ are shiny because they have slime / shiny capsules.	fungi reproduce releasing _____ through sporangia whilst bacteria reproduce by _____.	sporangia are above ground to release spores into the air so they are easily _____, so new fungi can grow further away
fungi	bacteria	spores binary fission	spread / dispersed
_____ feed by extra cellular digestion to supply the materials needed for growth and reproduction. _____ do not feed (as the materials for replication are supplied by the host cell).	bacteria carry out _____ to provide the energy for cell division / growth, but viruses don't _____ (as they don't have the structures and host cell supplies the energy to replicate viruses)	many spores / sporangia outside body / spores light / easily dispersed / able to survive outside body / damp areas / specific transmission from foot to foot / damp foot – disease is...	hyphae absorb nutrients which allow further growth of the hyphae into new food supply. As the hyphae grow, new sporangia are produced.
bacteria viruses	respiration respire	athletes foot	how fungi spread / how fungal mycelium forms
thrush, athletes foot (tinea), and ringworm are all diseases caused by	German measles, AIDS, flu, chicken pox, cold sores and swine flu are all diseases caused by	<u>Nitrogen Cycle</u> bacteria in soil and root nodules of plants called legumes (pea, bean clover) are called _____	<u>Nitrogen Cycle</u> bacteria in the soil that convert dead plants and animals and animal waste into nitrates are called...
fungi	viruses	Nitrogen fixing bacteria	nitrifying bacteria
<u>Nitrogen Cycle</u> bacteria in the soil that convert nitrates into nitrogen (and are bad for soil fertility) are called...	<u>Nitrogen Cycle</u> nitrifying bacteria in the soil convert dead plants and animals and animal waste into ....	<u>Nitrogen Cycle</u> plants need to absorb nitrates through their roots to manufacture _____	agar plates are incubated at 25°C rather than 35°C to discourage....
denitrifying bacteria	ammonium compounds and nitrates that can be used by plants	proteins / amino acids	growth of microbes that would thrive in the body

agar plates are destroyed after use by...	word to describe introducing bacteria or fungi onto an agar plate is _____	free from microorganisms	milk heated to high temperatures for a short time to kill any microbes in it is called ____
burning / exposure to concentrated bleach or disinfectant	Inoculate / inoculation	sterile	pasteurised
materials are broken down by microbes in decomposition (decay) process, the speed increasing in ___ and ___ conditions	_____ are weak disinfectants that are safe to use on the skin or on cuts and wounds	<u>Food Preservation</u> Salting or sugar curing (hams) reduces the _____ of the food, preventing bacterial growth	<u>Food Preservation</u> Freezing or refrigerating will _____ the growth of micro-organisms, but will not usually _____ them.
Warm & moist	antiseptics	water content	slow kill
element in periodic table; basis of all proteins, carbohydrates and fats	burning, releasing carbon dioxide and water from wood / plant material	breakdown of waste and dead remains by microbes	nitrogen compounds which are soluble in water and are taken up by plant roots; often found in fertilisers
carbon	combustion	decay / decomposition	nitrates
element in periodic table; added to carbohydrates to form proteins in plants	when plants convert water, carbon dioxide and energy to sugar (then starch) and oxygen	cellular reaction to release energy, carbon dioxide and water from sugars	
nitrogen	photosynthesis	respiration	fungal hyphae / mycelium

		<p>a culture of lactobacillus bacteria are added to milk to make</p>	 <p>a set up like this can be used to</p>
<p>fungus sporangia &amp; spores</p>	<p>mushroom / fungus</p>	<p>yoghurt</p>	<p>compare effectiveness of different antibiotics / disinfectants / antiseptics</p>
 <p>the clear zones are where...</p>	 <p>most effective antibiotic here at inhibiting bacterial growth is...</p>	<p>If conditions for bacterial growth are unsuitable, bacteria may secrete thick wall and survive for years as a _____</p>	<p><u>Food Preservation</u></p> <p>Cooling bacteria reduces their growth rate, but does not usually _____ them</p>
<p>microbes didn't grow / microbes were killed</p>	<p>Number 2</p>	<p>spore</p>	<p>kill</p>
<p>anaerobic bacteria do not need &amp; may even be killed by _____</p>	<p>whip-like structure that helps some type of bacteria to move</p>	<p><u>Shapes of bacteria</u></p> 	<p><u>Shapes of bacteria</u></p> 
<p>oxygen</p>	<p>flagellum</p>	<p>spherical / coccus</p>	<p>rod shaped / bacillus</p>
<p>size order of microbes – biggest to smallest – is ....</p>		<p><u>Shapes of bacteria</u></p> 	<p><u>Shapes of bacteria</u></p> 
<p>fungi bacteria viruses</p>	<p>bacteriophage (virus that invades bacterial cells)</p>	<p>comma shaped / vibrio</p>	<p>spiral shaped / spirillum</p>