

Topic:	Introducing pathogens and types of disease (B.7)	Topic:	Preventing pathogens from making us unwell (B.9)
Define "health"	State of physical and mental well being	State 3 ways that pathogens can be spread	Direct contact, water, air
What is the name for a disease that can be passed on from person to person?	Communicable (or infectious)	How do bacteria make us feel unwell?	Produce toxins (poisons) that damage tissues
What is the name for a disease that can NOT be passed on from person to person?	Non-communicable	How do viruses make us feel unwell?	Live & reproduce in cells causing cell damage
State three factors other than disease that can have an impact on health	Diet, stress, life events	Name 4 of the body's non-specific defence systems	Skin, nose, trachea, stomach
State one consequence of long term physical ill health	Depression	How does the skin prevent pathogens from making us unwell?	Prevent them from entering body
What is the name given to a disease causing microorganism?	Pathogen	How does the nose prevent pathogens from making us unwell?	Mucus to trap dirt & pathogens, ciliated cells to sweep it out
Define "risk factors"	Factors that are linked to an increased rate of disease	How does the trachea prevent pathogens from making us unwell?	Mucus to trap dirt & pathogens, ciliated cells to sweep it out
State three risk factors for cardiovascular disease	Diet, smoking and exercise	How does the stomach prevent pathogens from making us unwell?	Stomach acid to kill pathogens
State one risk factor for type 2 diabetes	Obesity	State three ways that white blood cells can help to defend us against pathogens	Phagocytosis, antibody production, antitoxin production
Name 2 organs effected by drinking alcohol	Brain and Liver	Which type of white blood cell carries out phagocytosis?	Phagocytes
Name 2 potential impacts of smoking	Lung disease and lung cancer	Which type of white blood cell carries out antibody and antitoxin production?	Lymphocytes
State a risk factor for cancer	Contact with carcinogens (including ionising radiation)	State one thing that can trigger cancers to form	Viruses in cells
State two lifestyle factors that can impact an unborn babies development	Smoking and drinking alcohol	What causes tumours to form?	Changes in cells that lead to uncontrolled growth and division
Why is a sample of people used when investigating risk factors for diseases?	Too time consuming/impractical to sample whole population	Define "benign tumour"	Growth of abnormal cells contained in ONE area in a membrane
Topic:	Detailed disease case studies (B.8)	Define "malignant tumour"	Growth of abnormal cells that SPREAD to other parts of the body in blood and INVADE other tissues.
Name 4 types of pathogen	Virus, bacteria, fungi, protist	Topic:	Developing new medicines (B.10)
Name 3 viral diseases	Measles, HIV, TMV (tobacco mosaic virus)	State three ways that drugs can be produced	Extracted from plants, microorganisms & synthesised
Name 2 bacterial diseases	Salmonella & Gonorrhoea	Where does the heart drug digitalis originate from?	Foxgloves (plant)
Name 1 fungal disease	Rose black spot	Where does the pain killer aspirin originate from?	Willow trees
Name 1 protist disease	Malaria	Where does the antibiotic penicillin originate from?	Penicillium mould
State 2 symptoms of measles	Fever, Red skin rash	State three things that drugs are tested and trialled for before use	1) Toxicity (safe), 2) efficacy (does it work), 3) dose (quantity)
State 2 symptoms of HIV	Flu-like symptoms, AIDS	What is used to test drugs during preclinical testing?	Cells, tissues & live animals
State 1 symptom of TMV	Discolouration of leaves	Who are medicines tested on in stage 1 of clinical trials?	Healthy volunteers (low doses - test for toxicity)
State 2 symptoms of salmonella	Fever, Cramps, Omitting, Diarrhoea	Who are medicines tested on in stage 2 of clinical trials?	Patient volunteers (low doses - test for efficacy & dose)
State 2 symptoms of gonorrhoea	Thick yellow/green discharge, Pain urinating	What is a double blind trial?	Neither experimenter or patient knows if they are taking medicine or placebo
State 2 symptoms of rose black spot	Purple/black spots on leaves, Leaves turn yellow & drop off	What is a placebo?	A substance that contains no medicine (a control)
How is measles spread & prevented?	Spread: Air Prevented: Vaccination	What is the name for the injection given to patients to prevent them from catching an infectious disease?	Vaccination
How is Gonorrhoea spread & prevented?	Spread: Sex Prevented: Condoms	Describe step 1 of vaccinations	1) small quantity of dead/inactive pathogen
How is Rose Black Spot spread & prevented?	Spread: Direct contact Prevented: Fungicide & destroying affected leaves	Describe step 2 of vaccinations	2) white blood cells produce correct antibody (slowly)
How is Salmonella spread & prevented?	Spread: Food Prevented: Cooking thoroughly & washing hands	Describe step 3 of vaccinations	3) pathogen enters body & WBC produce correct antibodies (quickly)
		State two benefits of vaccination	Prevent illness in an individual & prevent spread to others

Triple scientists need to know all of the knowledge on the previous page as well as the triple only content

Topic:	Plant diseases (triple only) (B.12)
State 7 ways of detecting plant diseases	1) Stunted growth, 2) Spots on leaves, 3) areas of decay, 4) growths, 5) malformed leaves/stems, 6) discolouration, 7) pests
State 3 ways of identifying a plant disease	1) Gardening manual/website, 2) testing in lab, 3) testing using MAB (monoclonal antibodies)
Name one viral disease that affects plants	Tobacco Mosaic Virus (TMV)
Name one fungal disease that affects plants	Rose black spot
Name one insect that affects plants	aphids
State the effect of nitrate deficiencies in plants	Stunted growth (nitrate ions required for protein synthesis)
State the effect of magnesium deficiencies in plants	Chlorosis (discolouration) (magnesium ions needed to make chlorophyll)
Name 3 physical defences in plants	1) cellulose cell walls, 2) tough waxy cuticle, 3) layers of dead cells on stems (e.g. bark)
Name 2 chemical defences in plants	1) antibacterial chemicals, 2) poisons
Name 3 mechanical adaptations of plants	1) Thorns/hairs, 2) drooping/curling leaves, 3) mimicry
What is the name given to the chemical that is sprayed on plants to kill pests?	Pesticides
What is the name given to the chemical that is sprayed on plants to kill weeds?	Herbicides
What is the name given to chemicals that are sprayed on plants to encourage growth?	Fertilisers
What does NPK stand for in fertilisers?	Nitrogen, Phosphorus and Potassium
What is the name given to plants that have been grown without the use of artificial chemicals?	Organic
Topic:	The Brain and eye (triple only) (B.13)
State the location & function of the cerebral cortex	Outer section - perception, memory, language
State the location & function of the cerebellum	Base of brain - balance & co-ordination of voluntary movement
State the location & function of the medulla	In brain stem - controls involuntary functions e.g. breathing
Why is it difficult to investigate brain function?	Lots of different areas work together
State three ways of investigating brain functions & regions	Brain damage patients, electrical stimulation of brain regions, MRI scanning
State two changes that can occur in the eye	Accommodation (for focussing on near/far objects) Adaptation to dim/bright light
State two things that the eye organ is sensitive to	Light intensity & colour
State the name of the coloured part of our eye that expands in bright light and contracts in dim light.	Iris
State the name of the whole in the front of our eye that allows light in	Pupil
What happens to the size of the iris and pupil during bright light	Pupil = small Iris = big
What is the name for the light detecting cells at the back of the eye?	Retina
What happens to the eye during accommodation for focussing on near objects?	1) Ciliary muscles contract 2) Suspensory ligaments loosen 3) lens is thick -> more refraction
What happens to the eye during accommodation for focussing on far objects?	1) Ciliary muscles relax 2) Suspensory ligaments pulled tight 3) lens is thin -> less refraction
State the name for short sightedness	Myopia (focal point in front of retina)
State the name for long sightedness	Hyperopia (focal point past retina)

Topic:	Monoclonal antibodies (triple only) (B.39)
State the two cells required to produce monoclonal antibodies	1) Mouse lymphocyte 2) tumour cell
Name the cell that is produced from joining the two cells together in monoclonal antibody production	Hybridoma
State 4 uses of monoclonal antibodies	Diagnosis (e.g. pregnancy tests), testing in labs, tagging molecules with dye, disease treatment
How are monoclonal antibodies used in cancer treatment	MAB bound to radioactive substance that finds & binds with cancer cells
Why are "monoclonal antibodies" given this name?	Formed from clones of a single hybridoma cell
Where is the lymphocyte that is used in monoclonal antibodies collected from?	A mouse
Why is a lymphocyte used for making monoclonal antibodies?	It produces a specific antibody
Why is a tumour cell used in the production of monoclonal antibodies?	It divides rapidly
State two advantages of using monoclonal antibodies	Treat a wide range of conditions, bind to specific cells so as not to damage surrounding cells
State two disadvantages of using monoclonal antibodies	Expensive, lots of side effects
State 3 examples of side effects caused by monoclonal antibodies	Fever, muscle pains, nausea
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