

B1.3 Disease fact sheet (double science)

Health	
1. Define 'health'	A state of physical and mental well-being
2. Define 'communicable' disease	A disease that can be transmitted from one organism to another
3. Define 'non-communicable' disease	A disease that is not transmitted from one organism to another
4. Name 3 factors, other than disease, that can have a profound effect on physical and mental health	Diet, stress and life situations
5. What impact do immune system defects have on an individual?	More likely to suffer from communicable (infectious) diseases
6. Name the disease that can be triggered by viruses living inside cells	Cancer
7. Name the diseases that can be triggered by an immune reaction to a pathogen	Allergies (such as skin rashes and asthma)
8. Name the diseases that severe physical ill health can lead to	Depression and other mental illness
9. Define 'pathogen'	Microorganisms that cause infectious disease
10. Name the 4 types of pathogens	Viruses, bacteria, protists, and fungi
Communicable disease - viruses	
11. Describe how viruses make us feel ill	They live and reproduce inside cells which damages them
12. Name 2 human diseases that are caused by viruses	Measles and HIV infection
13. Name the symptoms of measles	Fever and red skin rash
14. Describe why most young children are vaccinated against measles	It is a serious illness that... can be fatal if complications arise
15. Describe how the measles virus is spread	By inhalation of droplets from coughs and sneezes
16. State how to prevent/ reduce the spread of measles	Vaccination
17. Name the initial symptom of HIV infection	Flu – like illness
18. How can the HIV virus be prevented from attacking the body's immune cells?	Use of antiretroviral drugs
19. Describe what happens during late stage HIV infection/ AIDS	Badly damaged immune system Can't deal with other infections or cancers
20. Describe how the HIV virus is spread	Exchange body fluids during sexual contact Drug users share needles (exchange blood)
21. Describe how to prevent/ reduce the spread of HIV	Use condoms, programmes for drug users to get sterile needles

22. Name a virus that causes disease in many plants, including tomatoes	Tobacco mosaic virus (TMV)
23. Explain the effect of TMV on plants	Growth affected due to lack of photosynthesis caused by a mosaic pattern of discolouration on leaves
24. Describe how TMV is spread	Direct contact with infected plant Spread by insects or on tools/ hands
Communicable disease - bacteria	
25. Describe how bacteria make us feel ill	They produce poisons (toxins) that damage tissues
26. Name 2 human diseases that are caused by bacteria	<i>Salmonella</i> food poisoning and Gonorrhoea
27. Name the symptoms of <i>Salmonella</i> food poisoning	Fever, abdominal cramps vomiting and diarrhoea
28. Describe how <i>Salmonella</i> is spread	By ingesting the bacteria in food, or on food prepared in unhygienic conditions
29. Describe how the spread of <i>Salmonella</i> is controlled in the UK	Poultry are vaccinated
30. Describe the symptoms of Gonorrhoea	A thick yellow or green discharge from the vagina or penis and pain on urinating
31. State how Gonorrhoea is spread	Sexual contact
32. Describe how the spread of Gonorrhoea is controlled	Treatment with antibiotics or barrier methods of contraception eg condoms
33. Describe why Gonorrhoea is not easy to treat with the antibiotic penicillin	Many penicillin resistant strains appeared
Communicable disease - protists	
34. Name a human disease that is caused by a protist	Malaria
35. Describe the symptoms of malaria	Recurrent episodes of fever Can be fatal
36. Describe how malaria is spread	Through the bite of an infected mosquito (a vector)
37. Describe how the spread of malaria is controlled	Prevent mosquitos from breeding and use mosquito nets to avoid bites
Communicable diseases - fungal	
38. Name a plant disease that is caused by a fungus	Rose black spot
39. Explain the effects of Rose black spot disease on plants	Growth is affected due to a lack of photosynthesis because... purple or black spots develop on leaves which often turn yellow and drop early
40. Describe how Rose black spot disease is spread	In the environment by water or wind
41. Describe how to treat Rose black spot disease	Use fungicides Remove and destroy the affected leaves

Human defences	
42. Describe how the body's non-specific defence system prevent pathogens from entering the body	<ol style="list-style-type: none"> 1. Skin – Barrier to pathogens. Scabs and blood clots (seal wounds to restore barrier) 2. Nose – Has hairs and mucus (traps pathogens and large particles) 3. Trachea and bronchi – Mucus (traps pathogens) & cilia (tiny hairs- move mucus to back of throat) 4. Stomach – Contains HCl (acid) - kills pathogens
43. What happens if a pathogen enters the body?	The immune system tries to destroy it
44. Name the type of cell that destroys pathogens that enter the body	White blood cells
45. List 3 ways white blood cells destroy pathogens	<ol style="list-style-type: none"> 1. Phagocytosis (engulf and digest) 2. Make antibodies 3. Make antitoxins which stop the toxins
Vaccination, antibiotics and painkillers	
46. Define 'antigen'	A chemical on the surface of a pathogen that antibodies recognise as foreign
47. What do vaccines contain?	Dead or inactive pathogens
48. State the body's response to a vaccine	White blood cells stimulated to produce the correct antibody
49. Explain how illness/ infection is prevented in the vaccinated person	(Memory) white blood cells recognise the pathogen's antigen and respond quickly to produce lots of the correct antibody
50. State the benefit of immunising (vaccinating) a large proportion of the population (herd immunity)	Reduces the spread of pathogens
51. Define 'antibiotic'	Medicine that helps cure bacterial disease by killing bacteria inside the body
52. Name an antibiotic	Penicillin
53. Describe the impact of antibiotic use on the number of deaths from infectious diseases	Has greatly reduced the number of deaths
54. What is causing great concern about antibiotics now?	The emergence of resistant strains of bacteria
55. Name the pathogen that antibiotics can't kill	Viruses
56. State why it is difficult to develop drugs that kill viruses	They could also damage the body's tissues (because viruses live and reproduce inside our cells)
57. State what painkillers are used for	To treat the symptoms of disease (but not to kill the pathogens)
Lifestyle disease (non-communicable disease)	
58. Define 'risk factor'	An aspect of lifestyle or substances in the body/ environment that is linked to an increase in the rate of a disease
59. Name the 3 risk factors whose effects are linked to cardiovascular disease	Diet, smoking and exercise
60. Name the risk factor for type 2 diabetes	Obesity

61. Name the organs that alcohol affects	The liver and brain function
62. Name the 2 effects of smoking on the lungs	Lung disease and lung cancer
63. State the possible effects of smoking/ alcohol on unborn babies	Can lead to miscarriage, premature births, low birth weight and stillbirths
Cancer	
64. Describe 'cancer'	The result of changes in cells That lead to uncontrolled growth and division
65. Define 'benign' tumour	A growth of abnormal cells Cells contained in one area , usually in a membrane Cells don't invade other parts of body
66. Define 'malignant' tumour	Cells Invade neighbouring tissue And break away to spread to different parts of body in blood Forming secondary tumours
67. Cells from which type of tumour are cancerous?	Malignant tumours
68. Name the risk factors for cancer	1. Lifestyle risk factors = Carcinogens, including ionising radiation , eg Smoking, too much alcohol, the Sun's ultraviolet rays, some infections eg HPV 2. Genetic risk factors
Drug discovery, development and testing	
69. Where do drugs traditionally come from?	Plants and micro-organisms
70. From where does the heart drug digitalis originate?	Foxgloves (plant)
71. From where does the painkiller aspirin originate?	Willow (plant)
72. From where does penicillin originate and who discovered it?	<i>Penicillium</i> mould (microbe) By Alexander Fleming
73. Where do most new drugs come from?	Synthesised by chemists in the pharmaceutical industry May use plant chemical as starting point
74. Why do new medical drugs have to be tested and trialled before use?	Check they are safe and effective Check for toxicity, efficacy and dose
75. Describe preclinical testing	Testing that is done in a lab using cells, tissues and live animals
76. Who takes part in clinical testing?	Healthy volunteers and patients
77. Describe clinical testing	Very low doses of drug used at first If drug is safe, further trials done to determine optimum dose
78. What happens in double blind trials?	Some patients are given a placebo Neither Doctors nor patients know who has taken the real drug (this reduces bias)
79. When can results of drug testing and trials be published?	Only after scrutiny by peer review
80. What are the benefits of the peer review process?	Helps to detect false claims Establishes an agreement (consensus) about which claims should be regarded as valid
81. Explain the problems associated with reports of scientific developments in the popular media	Not subject to peer review May be oversimplified, inaccurate or biased

