

UNIT 10 Immunisation; community health; and pollution

	Learning Outcomes	Suggested Teaching Activities	Online Resources	Other resources
	13 (a) Define immunity to disease 13 (b) Define active immunity, illustrated by immunity to tuberculosis gained naturally during recovery from the disease and artificially through BCG vaccination 13 (c) Define passive immunity, illustrated by immunity to tetanus gained by injection with immune serum 13 (d) Discuss the differences between active, passive, artificial and natural immunity	Students should be given <ul style="list-style-type: none"> • Sheet of Key Terms defined with examples. • Plus graphs showing antibody response. • Table comparing differences with class discussion about the pros and cons of each 	http://www.projectalevel.co.uk/biology/types.htm and http://web.ukonline.co.uk/webwise/spinneret/edexcel/prov.ac.htm simple definitions http://www.utc.edu/Faculty/Bucky-Bell/P-210-acq-immun.jpg simple table with definitions	P.Gadd pg 182-183; fig 18.14 and 18.15 D. Mackean pg 253-255 Fig 32.4 P. Gadd pg 182-183
	13 (e) Discuss the WHO campaign that eliminated smallpox and the immunisation programme to control tuberculosis.	Students should <ul style="list-style-type: none"> • produce a "time-line"/flow chart of events to show the WHO actions and success on smallpox eradication. • Make notes on TB program and its effectiveness so far 	http://www.who.int/mediacentre/factsheets/smallpox/en/ WHO on smallpox	D. Mackean pg 255 P. Gadd pg 165 Fig 17.2
	14 (a) Define sewage 14 (b) State the risks from leaving sewage untreated and exposed to rain and flies	Students should be given a sheet with gaps to fill on defining sewage and refuse. The class could brain storm risks and then write a summary.		D. Mackean pg 281
	14 (c) Identify from a drawing a section through a pit latrine and describe the functions of the parts 14 (d) State the reasons for the careful siting of pit latrines in relation to water sources	Students should be given an unlabelled diagram of a pit latrine to be labelled and annotated in class, from an OHT or textbook. They should then make notes on the danger of contaminating water sources, mixing washing and drinking water.	http://www.rehydrate.org/dd/img1/dd114.jpg Pit latrine diagram	P. Gadd pg 222 fig 21.6 and 221 for details D. Mackean pg 281 fig 37.1
	14 (e) Describe the large-scale treatment of sewage by either the biological filter	Students should be given an unlabelled diagram of sewage treatment to be labelled	http://www.dcs.exeter.ac.uk/water/sewage.htm	P. Gadd pg 223 fig 21.8 D. Mackean pg 284-285 figs

	<p>(trickle filter) method or the activated sludge method</p> <p>14 (f) State the part played by micro organisms in making sewage harmless and the effluent safe for discharge into a river</p>	<p>and annotated from OHT or textbook or from a set of slides from Bioschool to illustrate each stage.</p> <p>They should visit a sewage works to see the process in action</p> <p>They should be given the Micro-organisms role as notes and diagrams.</p>	<p>http://www.sewl.com.au/sewl/upload/document/flush_it.pdf</p>	<p>37.7 and 37.11.</p> <p>D. Mackean pg 284-285 fig 37.8 and 37.10</p>
	<p>14 (g) Compare the relative purity of water from e.g. rivers, canals, shallow wells, boreholes and rainwater</p> <p>14 (i) Describe the large-scale treatment of water from a river, lake or canal by either the slow sand filter method or the rapid sand filter method. (ref to14h and 12e in Unit 9: boiling water and steam sterilisation)</p>	<p>Students should;</p> <ul style="list-style-type: none"> • Create a table showing order of water source in relation to purity and why it is or isn't pure • Be given a diagram showing formation of types of wells and how they filter water • Listen to commentary on slow sand filter from web page cee.vt.edu. • Be given a diagram of large scale water treatment to annotate with slow or rapid as the filter method. 	<p>http://www.lenntech.com/Water-FAQ.htm http://ga.water.usgs.gov/edu/earthgwaquifer.html http://www.cee.vt.edu/program_areas/environmental/teaching/wtprimer/slowsand/slowsand.html</p>	<p>D. Mackean pg 274-277 figs 36.1 and 36.2; 36.4 and 36.5 P. Gadd pg 225</p> <p>D. Mackean pg 280 fig 36.16 Pg 277 fig 36.13/36.14 P. Gadd pg 227 fig 21.15 and 21.16</p>
	<p>14 (j) State the dangers from allowing domestic waste to accumulate around living quarters: attraction of houseflies and provision of suitable conditions for breeding; attraction of rats and mice (vectors of disease)</p> <p>14 (k) State the reasons for, and the methods of, controlling the breeding of houseflies</p> <p>14 (l) Relate the life cycle of the housefly to the need for the regular emptying of bins for domestic waste (all the above relates to 11k and 12k)</p> <p>14 (m) State the methods of disposal of domestic refuse: burying, burning, incineration (total destruction by burning at</p>	<p>Students should be shown photos of piles of refuse and discuss what sort of problems this brings.</p> <p>Ref should be made back to life cycle of Housefly done in Unit 9 and the role of refuse for laying of eggs.</p> <p>Students should be told that there are two ways to deal with waste; burn or bury.</p>	<p>http://www.dalbeattie.com/domesticcivildefence/refuse.html www.bioschool.co.uk</p> <p>http://creatures.ifas.ufl.edu/urbanflies/house_fly.htm</p>	<p>P.Gadd pg 220 D. Mackean pg 281 And pg 246 fig 31.14</p> <p>P.Gadd pg 220 D. Mackean pg 286</p>

	very high temperature) and compacting refuse at communal sites to make it more difficult for rats to penetrate.	They should be shown pictures of rubbish site tipping, burying and incinerating.		
	15 (a) Define pollution 15 (b) State the toxic components of motor exhaust fumes: carbon monoxide, lead and nitrogen oxides 15 (c) Describe the effects of lead on the body	Students should write out definition of pollution They should list components of exhaust fumes and their effects. They should list the effects of lead on the body	http://www.webster-dictionary.org/definition/pollution http://www.dph.sf.ca.us/cehp/Lead/lead_in_body.htm http://www.naturalmom.com/ledleft.htm	P.Gadd pg 228 D. Mackean pg 281 D. Mackean pg 304 P.Gadd pg 230
	15 (d) Describe the undesirable effects of water pollution by: discharge of untreated sewage (cholera and schistosomiasis); discharge of chemical waste from industrial plants; run-off of chemicals (fertilisers, pesticides and herbicides) and discharge of oil.	Students should be given a table of <ul style="list-style-type: none"> • Sewage • Industry • Agricultural run-off • Oil With pollutants and their effects. The class should be divided into 4 groups to research each pollutant and present to class the findings, giving a poster display.	http://www.lenntech.com/Water-FAQ.htm	D. Mackean pg 304-306 P.Gadd pg 230-234