

International: Britain, Scotland, & Australia, Specific Curriculum, Framework and Codes for Classroom Use of Immune Attack

Britain National Science Standards

<http://curriculum.qca.org.uk/subjects/science/index.aspx>

Course: Science key stage 3

Description:

3.3 Organisms, behaviour and health

- all life processes are supported by the organisation of cells into tissues, organs and body systems.
- It also includes the effects of bacteria and viruses, such as those associated with sexually transmitted infections.

Scotland

<http://www.ltscotland.org.uk/5to14/curricularareas/science.asp>

Course: 5-14 Science

Description:

- organise group work to investigate the characteristics of a range of microorganisms and viruses that cause disease in plants and humans
- explore a wide variety of social and historical trends in disease control
- the role of antibiotics

Australia: Northern Territory

http://www.deet.nt.gov.au/education/teaching_and_learning/curriculum/ntcf/docs/learning_areas_science.pdf

Course: Science (Layer 1)

CC4.2

- explain the interaction between systems and the external environment, eg effects of temperature on waste elimination and transport of nutrients, role of the immune system in fighting disease, how temperature is regulated in the human body
- examine the effect of new technologies on people and their environment, eg biotechnology in reducing disease

Australia: Queensland

<http://education.qld.gov.au/publication/science/pdfs/sciencestate.pdf>

see Victoria below

Australia =: South Australia

http://www.sacsa.sa.edu.au/index_fsrc.asp?t=CB

Course: Senior years science (10-12)

Description:

Students use explanatory models to research the interrelationships within and between individual cells and whole organisms, and the environments which sustain and influence them. [In] [T] [KC1]

- investigating the relationships between human systems (eg nervous, reproduction, immune), and links between these systems, human behaviour, personal health, and the capacity to effect change [F] [Id] [In] [KC1]

Australia: Victoria

<http://www.vcaa.vic.edu.au/vce/studies/biology/biologystd.pdf>

Unit 3: Signatures of life

Description:

Students examine the barriers and mechanisms of organisms that protect them from invasion and infection by pathogenic organisms. They investigate mechanisms that control the

effectiveness of pathogens, and specific and non-specific immune responses of organisms to antigens.

Key knowledge

This knowledge includes

- coordination and regulation
- stability and change in the internal environment
- principles of homeostasis: stimulus-response model and negative feedback model; roles of nervous and endocrine systems
- signaling molecules: neurotransmitters, hormones, pheromones; plant growth regulators
- signal transduction: signals, membrane receptors; responses;
- detecting 'self' and 'non-self' molecules: antigens and membrane receptors
- pathogens: non-cellular agents, cellular agents; controls;
- physical and chemical barriers to infection in plants and animals;
- immune response
- structure and overall function of the lymphatic system
- non-specific: inflammatory response; phagocytosis; blood clotting
- specific immune response: T-cell lymphocytes and cell-mediated response; B-cell lymphocytes and humoral response, antigens and antibodies; memory cells;
- disorders of the immune response: autoimmunity; hypersensitivity, allergens and allergic