

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

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Ročník: 1. – 4. ročník
Vzdělávací oblast: Jazyk a jazyková komunikace
Vzdělávací obor: Anglický jazyk
Tematický okruh: odborná slovní zásoba a témata pro studenty oboru Aplikovaná chemie
Téma: Let's defend against infections
Klíčová slova: bacteria, viruses, immunity, white blood cells

Metodický list/anotace:

Materiál slouží k seznámení se základní odbornou slovní zásobou pro studenty oborů Aplikovaná chemie. Jedná se zejména o termíny z oblasti biologie a chemie.

Studenti odhadují na základě svých znalostí význam slov. V případě potřeby pracují se slovníkem. Důležité je pochopení obsahu a aktivní slovní zásoba. Studenti využívají svých znalostí z oborů chemie, biologie a mikrobiologie.

Připraví krátkou prezentaci se zajímavými informacemi.

Defending against infections

Pathogens

- Pathogens are microorganisms that cause disease.
- Bacteria and viruses are the main types of pathogen.
- Transmission of pathogens occurs through many different routes, including airborne, direct or indirect contact, sexual contact, through blood, breast milk, or other body fluids, and through the fecal-oral route.

Bacteria

- Bacteria are microscopic organisms. Bacteria are living cells and in favourable conditions they can multiply rapidly. Once inside the body, they release poisons or toxins that make us feel ill. Diseases caused by bacteria include:
 - food poisoning
 - cholera
 - typhoid
 - whooping cough

Bacteria – pic.1

- *Helicobacter pylori*



Viruses

- Viruses are among the smallest organisms known and consist of a fragment of genetic material inside a protective protein coat.
- Viruses can only reproduce inside host cells and they damage the cell when they do this. A virus gets inside a cell and then make thousands of copies of itself. The viruses are then passed out in the bloodstream, the airways, or by other routes.

Diseases caused by viruses

- influenza (flu)
- colds
- measles
- mumps
- rubella
- chicken pox
- AIDs

White blood cells

- destroy pathogens
- produce antibodies to destroy particular pathogens
- produce antitoxins that counteract the toxins released by pathogens
- white blood cells do not eat the pathogens - they ingest them
- antibodies and antitoxins are not living things - they are specialised proteins

Immunity

- Pathogens contain certain chemicals that are foreign to the body. These chemicals are called antigens. Certain white blood cells, called lymphocytes, can produce specific antibodies to kill a particular pathogen.
- Antibodies are proteins. They can neutralise pathogens in a number of ways. They can bind to pathogens and damage or destroy them, they coat pathogens, clumping them together so that they are easily ingested by white blood cells called phagocytes.

Phagocytes

see:

- http://www.youtube.com/watch?v=cD_uAGPBfQQ
- <http://www.youtube.com/watch?v=CEOV-SFTIpY>

Zdroje

- pic. 1 - YUTAKA TSUTSUMI, M.D..
en.wikipedia.org [online]. [cit. 24.09.2013].
Dostupný na WWW:
<http://en.wikipedia.org/wiki/File:EMpylori.jpg>

Literatura

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- PHILLIPS, Janet a kol. Oxford studijní slovník. Oxford: Oxford University Press, 2010, ISBN 978019 430655 3.