**Vaccines**

Approximate timing: 50 minutes

Required resources: PowerPoint presentation (supplied), slide handout (optional), internet connection

This lesson will introduce students to the concept of immunity, what vaccines do and how they work. It will also look at the risks associated with taking (or not taking) a vaccine.

The lesson supports:

* AQA GCSE Biology Infection and response 4.3.1.7
* OCR GCSE Biology A (Gateway Science) B6.3o
* OCR GCSE Twenty First Century Science Biology B B2.3

|  |
| --- |
| **Learning outcomes** |
| All students will: | Know examples of vaccines |
| Most students will: | Explain how a vaccine works |
| Some students will: | Evaluate the risks of vaccines  |
| Key word/s | Vaccines, immunity, risks |
| RESOURCES | Worksheet (word document) starter, and print off Slide 5 and 11 |

|  |  |
| --- | --- |
| **Teaching notes** | **Student learning activities**  |
| **Starter** ( 5mins )Vaccines protect people against a wide range of diseases including Whooping cough, polio and flu, MMR (measles, mumps and rubella), tetanus, HPV (Human papilloma virus), diphtheria and polioWe can now even vaccinate against pathogens that cause cancer. | Slide 1Students copy down lesson objectivesStudents look at the table and write down which diseases they think children are vaccinated against at the different ages listed (worksheet). Answers on Slide 2 |
| **Development** ( 10-15 mins) Slide 3-4Introduce the concept of immunity through discussion of chicken pox. The majority of people do not get chicken pox more than once, as they become immune to the disease after the first infection.Students need to number, or cut out and reorder (teacher will need to print off) or copy out the 6 boxes in order. Slide 6 has the answers to slide 5 – may want to print out 6 for each student. | Slide 3-4Students discuss the questions through hands up. You may wish for students to copy this down.Using the information on slide 4, students should attempt to put the boxes (slide 5) showing the stages of immunity into the correct order. The correct answer is given on slide 6.  |

|  |  |
| --- | --- |
| **Main** (30-35 mins)Slide 7Some diseases are very dangerous. Smallpox has been present in human populations for thousands of years and has killed millions of people. English doctor Edward Jenner created the world’s first vaccine in order to protect people against smallpox. A vaccine creates immunity to a particular disease, like smallpox, without the danger of making a person sick. The disease is now eradicated.Students should watch the video on Slide 8 (Youtube link at the top) and answer the questions on the slide. Students read out slide 9 and attempt to answer the questions verbally.Go over slide 10 carefully before asking students to answer slide 11. You may wish to print this off. Slide 13 – Students spend 1 minute silently thinking what would happen if we stopped vaccinating. They then spend 1 minute discussing their ideas with their partner, then each pair feeds back to the teacher.Slide 14-15 – Students read and discuss | Slide 7Students read text on slide 7 – get feedback and questions from them.Students watch the video on slide 8 and answer the questions.Students discuss the questions on slide 9.Slides 10-12Students fill in the table on slide 11. Answers given on slide 12.Slide 13- Students spend 1 minute silently thinking what would happen if we stopped vaccinating. They then spend 1 minute discussing their ideas with their partner, then each pair feeds back to the teacher.Slide 14 – Students discuss the Wakefield scandal and the real and fake side effect risks of vaccines |
| Plenary (5 mins)Plenary questions are linked to initial learning objectives. 1. Different strains of the flu
2. A) Passive B) Active
3. They may contract a weakened form of a live attenuated virus
 | Slide 16Students answer question on slide 16 to assess learning. |
| Homework | Students should write a one page argument on whether Andrew Wakefield should be convicted of manslaughter if someone dies because they were scared off taking the MMR vaccine  |