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IB Biology HL: Vaccines

Go to: <http://www.historyofvaccines.org/content/how-vaccines-work>

**Do the Overview, Response to Vaccine and Response to Pathogen sections. Then complete the Vaccine Response Activity. Draw and annotate the immune system components that respond to the injection of the vaccine.**

Go to: <http://www.pbs.org/wgbh/nova/bioterror/vaccines.html>

**Read “Making Vaccines” and answer the following questions:**

1. What did the US government do in October 2001? Why?
2. Who developed the smallpox vaccine? When?
3. Give a brief description of his research:
4. What is a pathogen?
5. Normally when you are infected with a pathogen, what happens in your body?
6. Explain how a vaccine helps your immune system.

**Click “Go to Making Vaccines," located beneath the small box on the right side of the screen. Read the introduction.**

1. What are some of the procedure simplifications used in this simulation?
2. Click on the “Live vs. Non-Live Vaccines” tab on the right side of the window. Compare live and non-live vaccines and include examples of each.

**Click on the box in the upper left hand corner to start making a smallpox vaccine. Follow the instructions on the screen to make the vaccine. Answer the questions below:**

1. How is the smallpox vaccine different from most other similar vaccines?
2. What happens in the body when the cowpox virus invades it?
3. **Step 1**: Why do you separate the virus?
4. **Step 2**: Explain what happens inside the body once someone gets a vaccination.
5. **Step 3:** What is the final step?

**Make the other vaccines. Briefly describe how each is made and state how each vaccine differs from the others.**

Measles virus:

Polio virus:

Tetanus:

Hepatitis B:

HIV: