**WebQuest Description:** This WebQuest deals with the threat of Bioterrorism which is becoming more and more serious. It is exposing our lives to extreme hazards. Students should know more about it, its manifestations and suggest ways to prevent it. The activity is due after 3 weeks from the day of publication and it's graded for 100 points.

**Grade Level:** 0

**Curriculum:** Health / PE

**Keywords:** Bioterrorism, biohazards, Anthrax, Bird flu, Swine flu...

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**WebQuest URL:** http://zunal.com/webquest.php?w=37990

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**Tasks**

You will work in groups of three trying to answer the following questions: 1- What is bioterrorism? What's the biology behind it? 2- What are some examples? 3- What is the history of Bioterroristic attacks? What countries have suffered from their spread? How and Why? 3- How can we prevent Bioterrorism? Are governments properly facing the threat? Who is to be blamed? At the end of this WebQuest, you will be asked to: Submit a hard copy of your answers in the form of a research paper for a maximum of 9 pages. Each student should write his individual part. It should be typed, double spaced with the use of times New Roman, 12 pt. Design a powerpoint presentation and/or a Poster that summarizes everything you learned from this Quest; including images and drawings that enhance understanding. A bibliography of all references used to enhance your reliability (Using APA style). Moreover, you should manage to interview a health professional (a doctor, professor...) about Lebanon’s position regarding this issue and the defense policies that exist. Please, remember that you only have 3 weeks to finish this task. Late submission will be penalized.

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**Process**

After dividing yourselves into groups of three, assign a job for each one of you. You will need: A Biologist: He/she will research the web to find the accurate definition of bioterrorism, its biological nature in addition to finding examples of biological agents that were or can be used in terrorist attacks including a brief explanation about them, how they can spread and their dangers. Our biologist will find it useful to consult the following resources:

- http://bioterrorismenc2210lanorda.com
- http://www.fas.org/biosecurity/education/dualuse/FAS_Introduction/1_A.html
- http://people.howstuffworks.com/bioterrorism.htm
- http://www.medindia.net/bioterrorism/bioterrorism.htm
- http://www.biotechnology.org/101-14/bioterrorism_anthrax_attack.asp
- A Critique: He will be responsible for finding more about preparedness measures, defense policies and safety regulations. He/she should also comment on the effectiveness of such measures and whether governments are holding their responsibilities or not. Some websites concerning this aspect are:

- http://people.howstuffworks.com/bioterrorism.htm
- http://www.idph.state.il.us/Bioterrorism/default.htm
- http://bioterrorismenc2210lanorda.com
- http://www.medindia.net/bioterrorism/bioterrorism.htm
- http://www.biotechnology.org/101-14/bioterrorism_anthrax_attack.asp

As for the presentation and/or poster and for the interview, I suggest that you all cooperate in doing them since they represent the summary of the whole Quest. You will be credited as...
### Evaluation

<table>
<thead>
<tr>
<th>Category and Score</th>
<th>Excellent (95-100%)</th>
<th>V.Good (80-90%)</th>
<th>Good (70-80%)</th>
<th>Unsatisfactory (less than 65%)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Written Report (35% of the total for each student)</strong></td>
<td>Each student writes 2-3 pages of consistent clear information providing accurate answers to each task according to the required format. Language is clear and concise reflecting in-depth research and understanding.</td>
<td>Each student writes 2 pages of consistent and clear information, providing accurate answers to the required task in the proper format. Language is clear.</td>
<td>Each student writes less than 2 pages of consistent and clear information. Language is little complicated and student misses some points in his/her task.</td>
<td>Each student provides less than 1 paper regarding his/her task. Some missing information. Information is unorganized and confusing.</td>
<td>%35</td>
</tr>
<tr>
<td><strong>Powerpoint presentation (30% of total)</strong></td>
<td>Presentation is organized, clear and consistent addressing the required tasks. Students provide many graphics (&gt;8) and animations that enhance the audience’s understanding. Students finish their presentation at the right time (10 minutes).</td>
<td>Presentation is organized, clear and consistent addressing the required tasks. Students provide some graphics (5-8) that enhance the audience’s understanding. Students don't use the assigned time. (either finish before or after 10 minutes)</td>
<td>Presentation is organized and clear. Students don't use many graphics (4-5). They don't use the whole allotted time or may exceed it.</td>
<td>Presentation is not properly organized and confusing. Students don’t graphics to enhance our understanding. Short, repetitive presentation. One of the team members doesn't present.</td>
<td>%30</td>
</tr>
<tr>
<td><strong>Interview (15%)</strong></td>
<td>Students choose a well-known health or biology professional to interview. At least 5 relevant questions with effective and clear answers to the issue discussed.</td>
<td>Students choose an expert to interview. 4-5 relevant questions with effective and clear answers to the issue discussed.</td>
<td>Students choose a professional to interview. 2-3 relevant questions with clear answers to the issue discussed.</td>
<td>Students don’t interview an unqualified person. Less than 2 questions with irrelevant answers concerning the issue discussed.</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Bibliography (10%)</strong></td>
<td>Student cite their sources using APA style. They include at least five additional resources not provided in the WebQuest.</td>
<td>Student cite their sources using APA style. They include 4-5 additional resources not provided in the WebQuest.</td>
<td>Student cites their sources using APA style. They include 2-3 additional resources not provided in the WebQuest.</td>
<td>Student didn’t cite their sources properly. They didn’t include any additional resources not provided in the WebQuest.</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Cooperation (10%)</strong></td>
<td>Student achieve a successful team work. They submit their assignment before the deadline. Tasks are well distributed and accomplished by the students.</td>
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<td>Student achieve a successful team work. They submit their assignment by the deadline. Tasks are well distributed and accomplished by the students.</td>
<td>Student’s team work wasn’t very successful. They needed more time. Tasks aren’t well distributed and accomplished by the students.</td>
<td></td>
</tr>
<tr>
<td><strong>Total Score</strong></td>
<td>Excellent (95-100%)</td>
<td>V.Good (80-90%)</td>
<td>Good (70-80%)</td>
<td>Unsatisfactory (less than 65%)</td>
<td>%100</td>
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### Conclusion

By the end of this Web Quest, you should have developed an understanding about one of the most serious threats of our age. Instead of working hard to find cures for hazardous diseases, many governments are funding research for the creation of new strains of biological agents that can be used as biological weapons which can be used for political purposes. In addition, by trying to answer the questions, you have developed a lot of skills such as research skills, critical thinking, using the web for finding the most accurate answers, organizing your work and your time as well as cooperating with others, learning to communicate with others and being part of a team. The issue you worked on really needs more and more awareness. This poses the following question: Is biological research really conducted for the sake of humanity? Who can stop bioterrorism if those countries fighting it are the ones funding research for biological weapons? Are we approaching “a Third Biological War”?
Focus: The purpose of this WebQuest is to introduce students to the issue of bioterrorism, its history, risks and defense measurements. Using this WebQuest, student will apply basic research and critical thinking skills to explore and learn more about bioterrorism.

Objectives/Goals: I would recommend using such a project not all for biology students. University students who are majoring in biology as well as all other students should really know what’s happening in the world around them. Every now and then, we here about a certain outbreak that exposes millions of lives to dangers. It has normal become to hear about Swine Flu, Bird’s Flu, smallpox outbreak and so on, but students should know that these aren’t “natural” occurrences.

Credits: The resources and web links included on this website are external websites and I would like to thank them for creating such useful WebPages.

Special thanks to Dr. Hoda Baytiyyeh Naja for teaching us about WebQuests and allowing us to benefit from it now and in the near future.

Standards

Credits

Other