

Harvard Summer Program Immunology Project Resource Information Form	
Title	Do I really have to wash my hands?
Resource Type	<input type="checkbox"/> Lesson Plan <input type="checkbox"/> Activity <input type="checkbox"/> Lab Activity <input checked="" type="checkbox"/> Web-quest
Description	Using a webquest, students will research hygiene as it relates to basic immunology, (using handwashing as an example.) After using links to research these topics, students will create a brochure for the nurse's office called "Do I really have to wash my hands?"
Author(s)	Sylvia Cooley
Author Institution(s)	The teacher should print out the questionnaire to give to students as a pre-test. Then, after going over the format of the webquest page with students, set the students loose to do their own research using the provided links. Students will be provided with a rubric and graded on the brochure they create. The brochure is the end product that shows what they know and have learned.
Objective	Students will learn about The Germ Theory- how germs cause disease. They will learn some of the history of this discovery, along with societal changes that are related to hygiene. The history of surgery and sterilization, along with the importance of handwashing (not only for doctors, but for students in their daily life) will be investigated. Students can research various bacterial infections in addition to how the immune system works. Students who want to take the project further can read about The Hygiene Hypothesis or the connection between cancer and germs.
Key Concepts	The Germ Theory The Immune System Bacterial infections Handwashing and disease prevention The Hygiene Hypothesis Cancer as a chronic infection
Student Prep	Prior introduction to Monera would be helpful but not necessary
Materials	Computer connection to internet Paper
Grade level(s)	High School 9-12
Teacher Prep Time	One hour: Preview the site and links Print out the questionnaire
Class Time	Minimum 2 class periods Ideal- 5 class periods
National Standards	National Science Standard for 9-12 Life Science Content includes: 1. Biological evolution 2. Interdependence of organisms Three objectives in the AP Curriculum: 1. Compare the form and function of the organisms of the kingdom Monera. 2. Analyze the diversity of the moneran organisms. 3. Investigate, analyze and evaluate the importance of the monerans.

State Standards	Biology, Grades 9 or 10 Recognize eukaryotic cells. Explain how major organ systems in humans function with specific anatomy that perform the function of that organ system. Analyze changes in an ecosystem resulting from natural causes or human activity.
Sources	Links and jpg.s are referenced on the site. Otherwise the webquest is original.
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Assessment	A pre-test (called a questionnaire) is provided on the site for teachers to print out and give to students before beginning the assignment. This will allow the teacher to see how much the class understands as a whole before the project begins. The brochure created as an end product by each student will show what students learned after completing the webquest.