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Work Plan (note adjustment to introduction and goals)

Introduction:

The biology department at Utah State University has noticed that many students entering the basic biology course do not fully comprehend what is required to think scientifically. Too many students see science as a series of terms to memorize and not as a systematic pattern of thought with the purpose of solving problems. This was brought to the attention of the FACT office and the need for such a program was considered.

Because of this need, a tutorial will be designed which helps the student think more scientifically. The working plan is to help the user comprehend how concepts link together and formulate one whole picture from the subsequent parts. While scientific vocabulary is important, this will also help the student see how these pieces of information fit together. Students will be exploring a concept map relating to biology, then they will be reconstructing it to show that they understand the concept. It is hoped that students will transfer these skills from the application to their science classes.

Goals:

- Students will be able to explore a concept map of a scientific topic (for example evolution) and understand how the parts are connected.

- Students will be able to reconstruct a concept map given few prompts. This map will notify students when they have made incorrect choices and potential reasons why they made that mistake.
- Students will be able to click on individual concepts to learn more about them.

Client:

This program will be built for use in the basic level biology course at Utah State. This was commissioned by the biology department, and will be used for students struggling with basic concepts in biology. This application will also be available to other University courses where the instructor deems it appropriate.

Ideally, this program should be available via the Internet to all science instructors and their students who desire to use this program, though at the moment it will only be available for USU students. Inquiry will be made whether this project can be used by other sources. Once completed, this will be property of USU Biology Department.

Scope:

This program will be a stand-alone tool for learning about the mapped concept. It may be used with any science-based course. It will cover the sup-topics of a single topic which will be provided by the instructor. As of out last meeting, this will be an evolution concept map.

This project will be created in Flash due to the interactive nature of the media. When completed, the learner will be presented with a completed concept map with clickable interface. This will show students how the necessary concepts all link together.

From the completed map, students may go to a list of terms and a skeleton concept map. Terms such as “is composed of” and “that has” may be present on the connecting lines between the concepts. Empty boxes will direct students where to drag the available terms. If a student drags a term to an incorrect area, the student will be redirected to a screen that can help correct the misconception. From there, there will be an option to return to the concept map.

Additional instruction may be gained by clicking on the main concept map. Each term or idea will have additional resources available, including pictures, text, and video, if available. Together, these should help the student to not just learn the vocabulary, but apply it correctly.

The students can assess their understanding through the build-it-yourself concept map. By successful completion of the map, the student can demonstrate fundamental understanding of the topic.

Target Audience:

This application will be designed for college freshmen and sophomores, but may be used by high school students and possibly even middle school students capable of logical, systematic reasoning. This is designed for the

student who may not have a strong science background and who needs to be shown how science is orderly and methodical in the acquisition of knowledge.

Limitations:

Time will be the greatest limitation for this application. To create a program that will be well utilized and will help students, much forethought and effort must be applied. This program is to be used starting fall semester 2009.

Most college and high school students are well-schooled in computer use, and cues will be given for those who may have problems. Efforts will be made to make the program fully accessible.

Finished Products:

- A completed work plan
- Story boards
- Development files
- Program documentation
- Final program files

Timeline:

Feb. 24	Create storyboards, submit finalized work plan.
Feb. 25 – Feb. 28	Finalize curriculum details with instructor
Mar. 1 – Mar. 8	Create complete clickable image map,
Mar. 9 – Mar 27	Create subsequent data pages attached to main map
Mar 30. – Apr. 10	Create drag and drop concept map, link incorrect choices to data pages
Apr. 11 – Apr. 17	Add in additional media, sound, video
Apr. 18 – Apr. 22	Project testing
Apr. 23	Final project, documentation completion.