CHEMISTRY MULTIMEDIA PROJECT

 This project is adapted from the work of Dr. Jason Ohler (http://www.jasonohler.com/) – for more information on multimedia projects, including story maps and story tables, his book, Digital Storytelling in the Classroom, is a valuable resource.

Use this sheet as your cheat-sheet when assigning this project to students!

Objective: The students will be able to research a chemistry topic at the level of a college freshman, and will demonstrate the ability to outline, draft, and properly cite a research project.

This project is meant for 10^{th}-12^{th} grade Chemistry students, and (as written) covers lab topics normally beyond the means or scope of a high school course. It is designed for 1 day of in-class research and planning, 11 days (2 weekends included) of out-of-class work with daily check-ins on progress, and 1 day of presentation, 13 days in total.

It is NOT meant to replace a standard unit or to teach students how to use video editing software. If you are worried about them making a video, have the students create a PowerPoint or Prezi and speak while going through the slides in-class.

Assessments:

- A graphic outline of their project, following quick research in-class ('Story Maps' in Dr. Ohler's book) *(simple completion grade, but give feedback!)*
- A draft of their script *(completion grade, but give feedback!)*
- A second draft of their script in a 'Story Table' (again, see Dr. Ohler's work for greater detail) in which the words are matched to descriptions or depictions of the media with which they will be synced *(completion grade, but give feedback!)*
- The video or multimedia presentation *(evaluative grade, see rubric)*
- A worksheet and quiz (so that students are motivated to watch each other's projects and learn from them) – the students can grade the worksheet for their video to lessen the amount of work for you! *(evaluative grade)*

Example Timeline:
Assigned Wednesday, December 5, 2012 (outline collected that class); Script due Friday, December 7; Story table (second draft) due Tuesday, December 11; Video due Monday, December 17 (students grade each other's worksheet after presentations during class, hand back to help study for quiz).

A quick note about content objectives:

This project *should* relate to content objectives. However, the main purpose of this project is to develop research skills. This project in Chemistry is most effective during the second-half of the course, when the kinetic theory of motion, atomic orbitals, gas laws, and transfer of energy have already been covered.

This way, the students have some knowledge going into their research, and have the opportunity to explain the lab techniques based on this understanding (i.e., the students covering gas distillation can explain how the boiling temperature is lowered when pressure is reduced). When used this way, the students can see how scientists in the real world use the concepts they have been learning.

As the students submit their scripts, it is worthwhile to take time and review with the groups some of the concepts that are covered in their presentation.

For Alaska, the state standards this project, as written, touch upon are:

B1 – Concepts of Physical Science

" A student should understand and be able to apply the concepts, models, theories, universal principals, and facts that explain the physical world.

A student who meets the content standard should:

1. *develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior;*
2. *develop an understand that energy appears in different forms, can be transformed from one form to another, can be transferred or moved from one place or system to another, may be unavailable for use, and is ultimately conserved;*
3. *develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems; and*
4. *develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects."*

E1 – Science and Technology

"A student should understand the relationships among science, technology, and society.

A student who meets the content standard should:

5. *develop an understanding of how scientific knowledge and technology are used in making decisions about issues, innovations, and responses to problems and everyday events;*
6. *develop an understanding that solving problems involves different ways of thinking, perspectives, and curiosity that lead to the exploration of multiple paths that are analyzed using scientific, technological, and social merits; and*
7. *develop an understanding of how scientific discoveries and technological innovations affect and are affected by our lives and cultures."*

Chemistry Video-Essay Project
Overview and Timeline

Topic (circle the one your group chose):

X-ray crystallography	Mass Spectroscopy	IR Spectroscopy
Gas Chromatography	Vacuum Distillation	UV-Vis Spectroscopy

Summary: With your group, you will research your topic and create a short (2-3 minutes) video for your peers. The video should spend about ⅔ to ¾ of the time on how the process works, and ⅓ to ¼ of the time on how chemists use the data from the process. **To get a passing grade, this project must be well researched and include a proper bibliography**. You will also create a set of 5 fill-in-the-blank style sentences (with at least 10 total 'blanks') as notes for your peers to work on during your video, and 5 multiple-choices questions that you will turn in – all questions will be combined into a single quiz.

Components:

1. Video Map (today, end of class) - A graphic outline showing the main topics to be covered in your video. Search for 'Story Map' on Google or Bing if you want a specific format, or create your own.
2. Rough Draft of Script (Friday, 12/7)
3. Revised Script in Story Table (Tuesday, 12/11) – In a two-column table, match your revised script with the images or videos you plan to show as you speak those words.
4. Video (Monday, 12/17) – To be shown in class, and complete with bibliography (turn in a paper copy as well as citing your sources at the end of your video)
5. Fill-in-the-blank sheet and 5 multiple-choices questions (Also due Monday, 12/17)

Rubric For Chemistry Video-Essay Project

Video Map: Includes key points to be covered in the video.	_____ (5 points)
Rough Draft of Script: Full-length draft of script, and list of sources used to write included at the end. Must have at least 3 GOOD sources (college websites, lab resources, reference books).	_____ 5 points
Story Table: Revised Script, matched up to media that will be shown as words are being spoken. Includes list of sources used for ALL the media as well as the script. Do not infringe copyrights!	_____ (10 points)
Video: Brief Intro, credits – 3 points _____ Nice production; smooth and clean design – 3 points _____ Media matches script and is not a distraction – 6 points _____ Narration clear, easy to understand and follow – 5 points _____ Information is accurate – 10 points _____ Information is properly cited at the end – 15 points _____ 2-3 minutes long (excluding citations) – 3 points _____ Paper Bibliography turned in, matches video – 5 points _____	_____ (50 points)
Fill-In-The-Blank and Multiple-Choices Questions Fill-in-the-blank have 5 sentences with at least 10 blanks, and both sets of questions match video – 5 points _____ YOUR grade on the fill-in-the-blank sheet – 10 points _____ YOUR grade on Multiple Choice Quiz – 10 points _____	_____ (30 points)
Total: (Equivalent to 1 test + 1 homework + 1 quiz)	_____ (100 points)