Unit: Space Research Project with iMovie

Grade level: 6

Description: Students research topics related to space, find pictures that illustrate that topic, and create a movie with the pictures and a voice recording of students explaining what they learned about the topic.

NC Standard Course of Study Objectives:

Technology Skills
• 1.11 Recognize, discuss, and establish ethical guidelines for use of personal and copyrighted media (e.g., images, music, video, content, language) in multimedia projects and presentations as a class/group.
• 1.12 Recognize, discuss, and model correctly formatted citations for copyrighted materials and adhere to Fair Use Guidelines.
• 1.15 Demonstrate knowledge of Copyright and Fair Use Guidelines by explaining selection and use of Internet resources in content projects/assignments.
• 2.01 Recognize, discuss, and use multi-tasking concepts (e.g., windows, toggle between two windows on the desktop, copy and paste data between two windows on the desktop).
• 2.07 Identify, discuss, and use multimedia terms/concepts (e.g., multimedia authoring, web tools) to develop content projects as a class/group.
• 2.08 Use menu/tool bar features to edit/modify/revise multimedia projects to present content information for a different audience and purpose.

NETS*S National Educational Technology Standards for Students -
Performance Indicators for Technology-Literate Students Grades 6-8
5. Apply productivity/multimedia tools and peripherals to support personal productivity, group collaboration, and learning throughout the curriculum.
6. Design, develop, publish, and present products (e.g., Web pages, videotapes) using technology resources that demonstrate and communicate curriculum concepts to audiences inside and outside the classroom.

Science Objectives, depending on students' topic of research
• 5.01 Analyze the components and cycles of the solar system including sun, planets and moons, asteroids and meteors, comets, phases, seasons, day/year, and eclipses.
• 5.02 Compare and contrast the Earth to other planets in terms of size, composition, relative distance from the sun, and ability to support life.
• 5.04 Describe space explorations and the understandings gained from them including N.A.S.A., technologies used to explore space, historic timeline, Apollo mission to the moon, space shuttle, International Space Station, and future goals.
• 5.05 Describe the setting of the solar system in the universe including galaxy, size, and the uniqueness of Earth.

Information Skills
• 4.01 Identify information needs and formulate questions about those needs.

- 4.05 Gather information from the most effective sources.
- 4.06 Comply with the Copyright Law (P.L. 94-553).
- 4.08 Credit sources of information.
- 4.09 Produce and present findings in various formats (print, graphical, audio, video, multimedia).
- 4.10 Evaluate the product.
- 5.05 Credit sources in all print, non-print, and electronic products.
- 5.06 Apply fair use copyright guidelines (Copyright Law, P.L. 94-553) in all projects.

AASL Standards for the 21st-Century Learner
- 1.1.1 Follow an inquiry-based process in seeking knowledge in curricular subjects, and make the real-world connection for using this process in own life.
- 1.1.3 Develop and refine a range of questions to frame the search for new understanding.
- 1.1.4 Find, evaluate, and select appropriate sources to answer questions.
- 1.1.5 Evaluate information found in selected sources on the basis of accuracy, validity, appropriateness for needs, importance and social and cultural context.
- 1.3.1 Respect copyright/intellectual property rights of creators and producers.
- 1.3.3 Follow ethical and legal guidelines in gathering and using information.
- 1.3.4 Contribute to the exchange of ideas within the learning community.
- 2.1.6 Use the writing process, media and visual literacy, and technology skills to create products that express new understandings.
- 2.2.5 Demonstrate personal productivity by completing products to express learning.
- 3.1.1 Conclude an inquiry-based research process by sharing new understandings and reflecting on the learning.
- 3.1.2 Participate and collaborate as members of a social and intellectual network of learners.
- 3.1.3 Use writing and speaking skills to communicate new understandings effectively.
- 3.1.4 Use technology and other information tools to organize and display knowledge and understanding in ways that others can view, use, and assess.
- 3.2.3 Demonstrate teamwork by working productively with others.
- 3.3.5 Contribute to the exchange of ideas within and beyond the learning community.

Resources and technology tools used:
- Student MacBooks
- Firefox: Internet browser
- For research: netTrekker, NC WiseOwl, other web sites identified by the science teacher
- PhotoBooth: For organizing pictures
- MLA Citation Maker: http://elementary.oslis.org/resources/cm/mlacitationse
- Pages: Word processing application
- iMovie
- iWeb

Alternatives:
- Computer lab
- Internet Explorer or Safari
- Simple folder for storing pictures
- Microsoft Word
- Windows Movie Maker
- Other web site development software

Overview of Lessons: The following lessons were conducted by the classroom science teacher, Media Coordinator and/or Technology Facilitator. They were not necessarily taught as discrete lessons at distinct times. We covered as much as we could given the time available and picked up where we left off in the next session. Students had additional time to work outside of specific lessons. In the descriptions of lessons below, the "instructor" may be the Media Coordinator or the Technology Facilitator, depending on who is available and who feels more comfortable with a particular lesson.

1. Research
   a. Introduction to space topics
   b. Using print resources for research
   c. Online research
2. Images
   a. Review copyright and Fair Use guidelines
   b. Finding non-copyrighted images for space topics
   c. Saving images to PhotoBooth
   d. Citing sources for images
3. iMovie
   a. Creating Titles in iMovie
   b. Adding still pictures to iMovie
   c. Creating a voice recording in iMovie
   d. Adding music and transitions in iMovie
4. Publishing online
   a. Exporting iMovie project
   b. Adding to iWeb page
   c. Challenge for web site visitors

Detailed Lessons

1. Research

   a. Introduction to space topics:
      i. The classroom science teacher invited the class to brainstorm topics, information and questions about space and space exploration.
      ii. Students then chose a topic from a list of astronomers, planets, other celestial objects, astronauts, space missions, etc.
      iii. They then brainstormed a list of questions specific to their topic. Groups of two or three students shared the same topic.

   b. Print resources:
      i. The Media Coordinator pulled books from the 520s, 629s, biographies, and reference sections.
      ii. We reviewed with the class different sources of information in print, including encyclopedias.
      iii. We reviewed how to locate information within different sources: guide words, tables of contents, indexes, etc.
      iv. As students found resources with useful information, they used the MLA Citation Maker web site to create a citation for that resource. They saved citations to a Pages document.

   c. Online resources:
      i. The classroom science teacher had found a selection of web sites with useful information for students' research. He shared that list with students.
      ii. We also reminded students that NC WiseOwl has reliable and useful information.

   d. Students used the information found to write a script for their iMovie project.

2. Images

   a. Copyright and Fair Use:
      i. The instructor reviewed the meaning and importance of copyright.
      ii. We explained that since students' projects were going to be published online, we could not use any copyrighted images.

   b. Non-copyright sources of images: Students were introduced to sources of images that are in the public domain or under a creative commons license that allows their free use.
      i. Most NASA images are in the public domain since it is a government entity.
      ii. Wikimedia Commons has many images that are available for free use.
      iii. Kaleidoscope (via NC WiseOwl) has a list of "copyright-friendly" sources of images, but they are a bit more difficult to search.

   c. As students found useful images, they bookmarked the web sites where they found the images.

    d. They saved the images to a folder in PhotoBooth so that they would be accessible in iMovie.

    e. They used the MLA Citation Maker at http://elementary.oslis.org/resources/cm/mlacitationse and saved their citations to a Pages document.

3. iMovie

    a. Creating Titles in iMovie

        i. The instructor demonstrated how to create a beginning title and citation title in iMovie.

        ii. Students opened iMovie.

        iii.   Students created a new iMovie project (File > New Project) and gave it a name related to their space topic.

        iv.   Creating a beginning title:

            1. Students clicked on the Title button.

            2. They dragged the centered Title into the project workspace.

            3. They typed in their topic as a title and their own name. They adjusted the font, color, etc. as desired.

        v. Creating a citation title:

            1. Students opened the Pages document with their research and image citations.

            2. They copied their list of citations.

            3. They dragged the Scrolling Credits Title into the project workspace.

            4. They pasted their citation list into the title.

            5. They adjusted the font, color, size as desired.

    b. Adding still pictures to iMovie

        i. The instructor demonstrated how to add still pictures to an iMovie project and how to use the cropping tool to make the whole picture visible or use the Ken Burns affect to pan across a picture.

        ii. Students clicked on the still picture button.

        iii.   They navigated to their PhotoBooth folder.

        iv.   They dragged their chosen images into the project workspace in between their beginning and citations titles. They put the images in an order that fit their report.

        v. They clicked on the cropping tool for each image to either make the entire image "Fit" or adjust the start and end of the Ken Burns effect.

    c. Creating a voice recording in iMovie

        i. The instructor demonstrated how to use the voice recording button in iMovie and how to change the timing of the images to fit the poem.

        ii. Students extended the time for each of their images to make sure the images would last longer than their recitation of their poems.

        iii.   Students clicked on the voiceover button. They clicked on the beginning title and read their script.

        iv.   Students adjusted the timing of each image to make it appear in conjunction with related words or phrases in the script.

4. Publishing online
    a. Students exported their iMovie projects as a QuickTime movie file and copied them to a flash drive.
    b. The classroom science teacher created iWeb pages for each topic group: astronomers, planets, etc. Students' movies were added to the appropriate page.
    c. Students came up with a challenge for visitors to the web site. They could come up with some quiz questions or an activity for visitors to complete. These challenges were added to a page on the web site.
    d. The site was uploaded to the district web server to make it "live."

5. Evaluation
    a. Students were videotaped answering questions about the project such as:
        i. What did you like about this project?
        ii. What was the hardest part of this project?
        iii.   What did you learn from this project?
        iv.   How would you change this project?
    b. A rubric was used to evaluate the iMovie projects.