

Media Making in the Science Classroom: 21st Century Skills for Students and Teachers

Today, science demands sophisticated skills not generally taught as part of standard science curricula. Ideally, classroom instructional strategies in the sciences should teach a scientific body of knowledge *and* cultivate other abilities required for the practice and process of science. There are many connections between the skills used for media making and those required for scientists. For this reason, student media-making projects are an excellent way to introduce these 21st century proficiencies, many of which are also recognized in the Common Core Content Standards for English Language Arts and Literacy in Science.

The sections below outline some of the different skills that are critical for success in the scientific community. Media making, as part of student learning, can help develop these competencies.

COLLABORATION AND TEAMWORK

Discussion and collaboration are integral to the scientific process.

- Almost all scientific papers are the result of partnerships among scientists who are often in different laboratories, departments, institutions and countries.
- Science publishing includes the peer review process, which requires extensive discussion among scientists.

Media making in groups develops important aspects of teamwork.

- Interacting with other students cultivates interpersonal skills.
- Working with a team toward a common goal promotes communication in a way that reflects the practice of science.

Common Core Standards grades 3-12

- Speaking and Listening Standards: Comprehension and Collaboration

CRITICAL AND FOCUSED OBSERVATION

Careful observation is fundamental to every scientific discipline. Observation is often listed as the first step of the scientific method.

- Media making teaches observation skills by pushing students to consider images, video or data in depth during the process of creating content.
- As students create material, they must ask and answer the question of why a particular image best represents a concept rather than passively accept an image presented by the text or teacher.

Media making raises the quality of student observation.

- Media making encourages students to observe attentively and thoroughly.
- Media making promotes a higher level of thinking about the observations.

Common Core Standards grades 3-12

- Speaking and Listening Standards: Comprehension and Collaboration (grades 3-12); Presentation of Knowledge and Ideas (grades 6-12)

USE OF TECHNOLOGY FOR DATA COLLECTION AND ANALYSIS

Data collection and analysis usually require the use of technology, regardless of the scientific discipline.

- Scientists use online databases and tools extensively when searching for information or managing data.
- The ability to manipulate digital images or video is fundamental for microscopy, a method widely used in the life and physical sciences.

Media making provides a general familiarity with tools.

- There is often a direct crossover between the software and techniques used in media making and those used in science. For example, both scientists and media producers often capture and manipulate images and sound for data analysis as well as presentation of information.

Common Core Standards grades 3-12

- Speaking and Listening Standards: Presentation of Knowledge and Ideas

UNDERSTAND AND EVALUATE INFORMATION AND PROCESSES

Scientists must be able to understand, integrate and evaluate information in different formats and from different sources.

- Students learn scientific techniques from text, pictures, diagrams, videos and online discussions.
- Scientific knowledge comes from papers and presentations that include text, pictures, charts, graphs, video and audio.
- Scientists must extract relevant information from each format and judge its credibility.

Media making helps students learn how to navigate among different media and make judgments about what they find. ^[1]

- Multimedia content creation asks students to evaluate and choose among formats, helping them understand that each format can convey a different aspect of information.
- Students practice obtaining information from various formats, each of which requires discrete skills and ways of thinking.
- Before using media, students must assess a source's reliability and accuracy.

Common Core Standards grades 3-12

- Speaking and Listening Standards: Comprehension and Collaboration
- Reading Standards for Informational Text: Key Ideas and Details; Integration of Knowledge and Ideas

CREATE MULTIMEDIA CONTENT AND COMMUNICATE SCIENCE

Scientists must produce different types of communications in order to share their research.

- Career advancement requires scientists to create papers and multimedia presentations for other scientists.
- Scientists should be able to convey information to the general public.

Media making teaches students important aspects of communication.

- The intended audience determines the media format and content.
- Multimedia presentations require planning a timeline, organizing information and developing public-speaking skills.
- Students learn which factors make a presentation interesting and comprehensible.

Common Core Standards grades 3-12

- Speaking and Listening Standards: Presentation of Knowledge and Ideas

REFERENCES

1. Jenkins, H. (2006) *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century*. Retrieved March 14, 2014 from: http://digitallearning.macfound.org/atf/cf/%7B7E45C7E0-A3E0-4B89-AC9C-E807E1B0AE4E%7D/JENKINS_WHITE_PAPER.PDF

ABOUT THE TOOLKIT

This resource is a component of the Media-Making Toolkit for Science Education, developed by KQED Education. The Toolkit includes instructions, worksheets and rubrics to assist educators in implementing media-making projects with students.

For a complete listing of the resources in KQED's Media-Making Toolkit, please visit www.kqed.org/education