

1. Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

I plan on incorporating this standard in a variety of methods in my classroom. Presenting scientific data in a key skill in science, and using a variety of technologies including videos, presentations, and even web sites, students would be able to construct original products and works to express scientific findings and processes. Through the use of computer models and simulations, some of which have been highlighted below, students will also have the opportunity to use technology to explore complex systems and issues. Using programs such as fathom and excel will also allow students to create graphs and model data, identifying trends or forecasting possibilities.

2. Communication and Collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

Similarly to the standard above, there are a variety of methods that I can employ in my classroom to help students meet these standards. When conducting investigations, students need to be able to present findings. This could be accomplished using digital stories or videos, blogs, simple websites, or media presentations, all of which help students interact, collaborate, and communicate information to multiple audiences. Through the use of websites such as PolarTrec (highlighted below), and other similar sites, students can also have the opportunity to develop awareness of web culture and potentially contribute to original projects.

3. Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information.

Using tools such as fathom or excel, students can learn to organize, analyze, and process data, as well as report results. By using sites such as the digital story library (highlighted below), students will be provided guided inquiry opportunities using information from other sources. Using the internet for research will also provide opportunities to help students explore the variety of sources that are available, and learn to evaluate and select information and resources that are appropriate to the task they are working to accomplish.

4. Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

This can be complete in a variety of methods using technology. Some of the websites that I have highlighted in my portfolio include collections of data that ask students to think critically about the data, and solve a problem question. This can also be accomplished during a larger-scale investigation. Students should be able to identify the correct tools to be able to collect appropriate data, including electronic probes. They should be able to use programs like excel or fathom to be able to analyze their data, by creating charts and visualizing trends. Another strong skill involved in investigations is providing background data, which can be research using digital resources, which also allows me to teach students to critically examine digital resources.

5. Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

When incorporating the use of digital resources and information, part of the process includes teaching students the proper methods of annotating and citing those resources. Throughout the year, students should become comfortable using a variety of technologies, and then begin to request the appropriate technologies to use for a particular concept. They will also learn awareness of where information on the web comes from, and what types of sites they should be using or avoiding.

6. Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations.

While incorporating technology into the classroom through regular lessons as suggested above, students will gain an understanding of how to use technology, select the appropriate applications for the tasks that they are performing, and learn a variety of troubleshooting skills, as those will be used throughout the process. By weaving this technology into the science classroom, students will gain the ability to transfer their knowledge to new technologies.