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ISTE Objective: Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

Technology is wonderful - when it works. We come to depend on it, and then we run into problems. Something goes wrong just when we need it to work. Many teachers and students find this so troublesome they become afraid to use the technology. It's that fear of trying to look good for the group, having something go wrong and you end up failing or looking like the fool.

If you're using technology - this will happen to you! It will happen to your students! It's just a matter of time. It's happened to me, more than once! How do you deal with it?

First of all - try it out before you actually have to use it! Run through it in the setting and with the equipment you'll be using. It's much easier to find and resolve a glitch before you actually need to use it in front of a group. I know that sometimes you don't have that luxury.

Second - always have a backup plan that doesn't require technology or allows you to use an alternative (room, site, equipment, etc.) When I go on the road to present, I always take my own equipment with me - a laptop, projector, powered speaker, phone hotspot. If I'm depending on the cloud, I download those files to a flash drive for backup.

I was invited to present to teachers and administrators in Amman, Jordan. We were treated royally, with the conference being in one of the best hotels in the city. I hooked my laptop into the hotel system (audio and projector) and began to present. The projector worked just fine, but the audio was so low - even when turned all the way up - that the audience could barely hear it. My backup? I reached into my bag and pulled out my portable bluetooth speaker and connected to it. The sound from it filled the entire room - and really impressed the teachers too. Always plan for a technology glitch! They will surely happen.

Third - troubleshoot by using the internet! If you're experiencing a glitch, surely others around the world have also experienced it before you, and
have posted a solution to that particular problem. Are you getting an error message? Google it! Describe the problem you're having using details such as your operating system, hardware model, software version. I've found in my work that I can find a solution nearly 100% of the time. I've also found this method much quicker than using books, manuals, and other paper-based troubleshooting products.

**Fourth - use the human resources near you!** It's OK to ask for help! Almost everyone has experienced a glitch in a similar situation - so you'll have a lot of empathetic help!

These are good suggestions for you and for your students. The unfortunate aspect of this is that we only learn how to deal with tech troubleshooting problems by experiencing them. I've become good at troubleshooting only because I've had to do so much of it - for myself and for others! Seems like one of my job descriptions has always been, "I need some help with __________."

Help students troubleshoot systems and applications. Give them the opportunity to use the four suggestions given in this section. Let them troubleshoot technology glitches you may run into. Work alongside them so you get experience too!

Now, let’s take a look at knowledge transfer by jumping into the business world and learn about knowledge transfer - and apply some of those ideas to this standard. Watch the following video:

Video: Project Management & Knowledge Transfer (6:51). (Closed Captioned Version) When organizations value knowledge transfer and implement good practices to support it, they improve project outcomes substantially — by nearly 35 percent. Although specific practices vary among organizations, the most effective organizations report adhering to a five-step method for identifying, capturing, sharing, applying and assessing knowledge.

Consider the information given in the video. How can they be applied to the classroom, school, or district environment? Let’s take a simple example. You’ve been using iMovie with your students on your classroom Macs, but the District just provided new PCs that have Adobe Premiere installed. Both tools do the same thing, but using different interfaces. You’ve taken time to learn the new software, and now you need to figure out how to get your students to learn it. Let’s go through the steps.

1) **Identifying.** Even though the interfaces are different, are there similarities that we can scaffold to? Figure out what those are. You have to import video and audio. You have to put it on a timeline. There are many processes and steps that are similar to both systems.

2) **Capturing.** Create tutorials on the new software, where you build on prior knowledge they already have, and connect it to new knowledge they need to know. For example, they’ve used timelines in iMovie. Compare and contrast between iMovie and Premiere timelines. How are they the same? What’s different in how they work? Take something they already understand, and scaffold or connect new knowledge to that.

3) **Sharing.** How will you share this with your students? Video tutorial? Step-by-step guide as they work through a project? What will be your method for transferring the knowledge?

4) **Applying.** Once shared, students need to experience it - apply it - use it! Have them do their first project in Premiere.

5) **Assessing.** Through observing the students, or through their feedback, you’ll learn tweaks that need to happen to make your instruction even better - more effective - more understandable. That starts the cycle over again.

To conclude, this article's purpose is to spark some ideas how you can help students use technology effectively - understanding the basic concepts for using technology, troubleshooting when there are problems, and transferring current knowledge to learning of new technologies. *by Nathan Smith*
Available NOW on PBS LearningMedia™

**Earth Science Resources**

developed by WGBH in collaboration with NASA*

Engaging Media - Interactive - Authentic - Supports K-12 STEM Practices

Bring cutting-edge Earth science content into your classrooms with [new digital resources](#), developed by WGBH in collaboration with NASA, and with [input from a national group of 50 Teacher Advisors](#). These engaging, interactive resources have been designed for diverse learners, and feature innovative media formats including satellite images, data visualizations, and videos drawn from NASA, NOAA, and WGBH's signature programs like *NOVA* and *PEEP & the Big Wide World*. Each resource includes support materials such as background essays, teaching tips, and student handouts to make them easy to select and use in your instruction.

These innovative instructional modules are NGSS-aligned, and contain digital media that address the content and practices in the National Research Council's Framework for K-12 Science Education. Modules span Grades K-12 and feature a total of 70 free learning resources:

**MODULE TOPICS**

- K-2  Weather; Land & Water
- 3-5  Weather & Climate; Land & Water
- 6-8  Weather & Climate; Story of Earth
- 9-12  Weather & Climate

Designed by DAQRI, the [Anatomy 4D app](#) enables you to:

- Learn about and explore the human body and heart in intricate detail
- Highlight various organ systems individually, so for instance, you can focus on just the skeletal, muscular, or respiratory system
- Change the view back and forth between a male and female body
- Zoom in to experience each organ or body part in-depth
- Use new image targets including the new heart target (this new app release still supports the original image target)
- Get inspired about human anatomy!

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Amplify Your ELLs' Voices With Digital Storytelling

[Play video](#)
Geologic Map Day: Celebrate on October 13!

On Friday, October 13, 2017, you are invited to join in the celebration of the sixth annual Geologic Map Day! The final major event for the school week of Earth Science Week 2017 (October 8-14), Geologic Map Day will promote awareness of the study, uses, and importance of geologic mapping for education, science, business, and a variety of public policy concerns.

The event will enable students, teachers, and the wider public to tap into educational activities, print materials, online resources, and other opportunities for participation. Check out the Geologic Map Day poster included in the Earth Science Week 2017 Toolkit (http://www.earthsciweek.org/materials). The poster provides a number of maps, plus step-by-step instructions for a related classroom activity, encouraging students to explore what geologic maps can tell them about karst, sinkholes, and impact of geology on life in Florida and in their own area.

Geologic Map Day is hosted by the U.S. Geological Survey, the Association of American State Geologists, the National Park Service, the Geological Society of America, NASA, and Esri in partnership with AGI, the organizer of Earth Science Week. Additional resources for learning about geologic maps can be found on the Geologic Map Day web page.

"I Wonder" Questions: Harnessing the Power of Inquiry

By encouraging students' wonder and recording their "I Wonder" questions, teachers can view those questions holistically and use them to develop lessons and projects that will harness student curiosity.
'Earth Connections' Contest Wants Your Videos

Now is the time to enter the new "Earth Connections" contest hosted by AGI, organizer of Earth Science Week. Submit a brief, 30-90 second original video that tells viewers about how people have an impact on Earth systems, or how Earth systems have an impact on people, in your part of the world.

The contest is open to individuals or teams of interested persons of any age in any part of the world. Videos may include footage shot on site, animations, computer images, drawings, data, and more. Technology tools for creating video entries are recommended on the contest website.

The deadline for entries is 5 p.m. ET, Friday, October 13, 2017. The winner will receive a prize of $300 USD, a copy of AGI's The Geoscience Handbook, and his or her photograph will be used on the Earth Science Week website. The winner's and finalists' names will be posted on the Earth Science Week website.

For contest guidelines, see the Earth Connections page on the Earth Science Week website. For more information, contact Celia Thomas, AGI's Center for Geoscience & Society program associate.

Free App Explores Ice, Sea Level Change

Why does sea level change at different rates? How has it changed in the past? Who will be at risk from more extreme weather and sea level rise in the future? Geoscientists often hear questions like these from students, government officials, and the media.

A free app called "Polar Explorer: Sea Level" lets users explore a series of maps of the planet, from the deepest trenches in the oceans to the ice at the poles. See how ice, the oceans, precipitation, and temperatures have changed over time and listen as scientists explain what you're seeing and why.

"We wanted to make climate data accessible and engaging to the public, for everyone from students to interested adults," says Margie Turrin, education coordinator at Lamont-Doherty Earth Observatory, who designed the app with Bill Ryan, Robin Bell, Dave Porter, and Andrew Goodwillie. "The data is displayed in interactive maps with just enough guidance to support independent exploration." Learn more online.
Faces of Climate Change — Introduction

This is the first of three compelling short videos showcasing the dramatic changes in Alaska's marine ecosystems through interviews with scientists and Alaska Natives. This introduction to the impacts of climate change in Alaska includes interviews with Alaska Natives, commentary by scientists, and footage from Alaska's Arctic.

This video was produced by the Alaska Sea Grant program, the Alaska Marine Conservation Council, COSEE Alaska, and the Alaska Ocean Observing System.

https://vimeo.com/19581877

Faces of Earth - Building the Planet

Prepare to witness the explosion that formed planet Earth, and travel back in time to explore the evolution of the Earth we know today. We’ll see new technologies that allow today’s geoscientists to strip back layers of the Earth, to see what previously could only be imagined. This is episode 1 of the 4 part Faces of Earth series.

Faces of Earth - Shaping the Planet

Every minute of every day, the face of Earth changes - sometimes right before our eyes. Go inside tectonic events, watching earthquakes rumble, volcanoes explode, and land transformed. This is episode 2 of the 4 part Faces of Earth series.

Faces of Earth - Assembling America

From the Pacific Northwest to the shores of the Atlantic seaboard, the breadth and scope of America is like no other place on Earth. Travel with geoscientists and explore how time and the forces of nature have shaped the continent and influence the life in the United States. Episode 3 of the 4-part Faces of Earth series.

Faces of Earth - A Human World

Earth has shaped human evolution and now humans are shaping Earth. We will see how geologic and climatic changes have shaped human development, even sparked human migration around the globe as ice sheets advanced and retreated. Humans have become a force of nature in themselves, but is it a mistake to think human innovations have put humankind and Earth on an equal footing? This is episode 4 of the 4 part series Faces of Earth.
**Classloom** is a free tool for teachers dedicated for teacher-parent communication.


Designed like a social communication platform for teachers and parents Classloom aims at making this communication faster, easier and streamlined. It’s basically a cloud solution and completely free.

A teacher and also a class parent can open a class based group in Classloom and invite class parents easily by email. In a group a teacher can share all school events, homework assignments, exam schedule, announcements, photos and documents with group members. All groups are close groups and no one can reach any content other than group members.

Each group also has a group wall which is designed such as a typical social media timeline. Teachers and parents can post text messages, photos, url’s and also Youtube video links to the group wall. They can make comments to the posts and like posts and comments. So that all class parents and teachers can communicate and discuss school or class issues easily.

The system also sends instant and weekly notification emails to the group members whenever there is an update in their group or groups. This way all parents are updated about any activity in their child’s school life and become part of it. There is also an online instant private messaging function in the system which allows the members communicate and chat one to one. (Source)
Do-It-Yourself Geo Apps

Your app in the iOS or Android app store? You are almost there.

This free course provides a fun and easy way to create data-driven apps that can end up in the iOS or Android store. You’ll learn to use free web services for mapping, routing, and accessing real-time location-based data without coding. Whether you’re looking for a career path or just want to build something cool, this course is for you.

The course runs from September 6 to October 3, 2017 and includes seven sections. Each section takes about one to two hours to complete. Students who complete all content earn a certificate of completion from Esri.

September 6, 2017 - October 3, 2017
Registration closes September 20.

Learn how to use ThingLink to create interactive images that have hotspots that show the viewer videos, additional photos, text explanations, and more. ThingLink is great for teachers and students but also has business applications as well as family uses.

Learn how to use HyperPad to start making your own iOS games and other apps. HyperPad makes the game creation process much faster and more doable for most people. However, it's still a challenging process, so this video is just the first in a 2-part series.
Free “NASA’s Journey to Mars” Planetarium/Dome Show

Audience: Informal Educators

Are you looking for ways to spark interest in pushing the boundaries of technology and innovation? Right now, NASA's fleet of Mars robotic explorers is paving the way for human exploration of the solar system in the coming decades. Join NASA in preparing for a monumental journey of a lifetime — to Mars!

“NASA's Journey to Mars” is a short planetarium presentation that can be used in the educational domes and planetariums, to inspire interest in STEM. To learn more, including how you can acquire the show for use in your area, visit

https://www.nasa.gov/feature/journey-of-a-lifetime-mars-education-resources/

Please direct questions about the “NASA’s Journey to Mars” planetarium/dome show to Elsie Weigel at elsie.weigel@nasa.gov.

Become a Member of the Infiniscope Education Advisory Board

- **Audience:** Formal and Informal Educators of Grades 5-12
- **Application Deadline:** Sept. 29, 2017
- **Category:** Other Opportunities

The Arizona State University Infiniscope Project (under cooperative agreement with NASA’s Science Mission Directorate) aims to recruit individuals with enthusiasm and ambition for a renewable, one-year term from 2017-2018 on its advisory board. Board members will review Infiniscope-developed educational products and receive a stipend, training, collaborative space, and recognition on the Infiniscope website. Board members also will have opportunities to earn badges and attend group meet-ups at national conventions.
Mission X: Train Like an Astronaut -- Walk Around the Earth Challenge

- **Audience:** All Educators and Students, Home School Parents and After-school Groups
- **Challenge Dates:** Oct. 2 - Dec. 7, 2017
- **Category:** Student Competitions

Mission X encourages children of all ages to pursue healthy lifestyles based on training like an astronaut. To prepare for an Earth-to-moon journey in 2018, online mascot Astro Charlie is making a trip around Earth. Mission X is challenging Fit Explorers to perform activities that will move Astro Charlie the 66 million steps required to walk around Earth! That's 25,000 miles, or 40,000 kilometers! Visit the website for full challenge details and to do your part to help reach the globe-trotting goal.

World Space Week 2017

- **Audience:** All Educators and Students
- **Event Date:** Oct. 4-10, 2017
- **Category:** Educational Resources, Other Opportunities

The Space Age began Oct. 4, 1957, with the launch of Sputnik 1. On Oct. 10, 1967, the Outer Space Treaty was signed to regulate peaceful use of space by all countries in the world. To commemorate these events, World Space Week, as declared by the United Nations, is held each year from Oct. 4-10. During this week, teachers are encouraged to use space-themed activities to excite students about science and technology. Visit the WSW website to search for events in your area and to find educational materials.