Sample Book

Educational Technology for Teachers

The First Ever Multiplatform Interactive Digital Textbook on Educational Technology

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Educational Technology for Teachers

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CHAPTER ONE

Methods and Concepts for the Use of Technology in Education

"New technology is common, new thinking is rare."

-Sir Peter Blake

CHAPTER OBJECTIVES

AFTER READING THIS CHAPTER, YOU WILL BE ABLE TO:

- Define and discuss the importance of educational technology in the Information Age
- Discuss the future of teaching and learning as it relates to Information Age characteristics
- Explain the major aspects of Information Age learning methods including constructivism and student-centered learning, constructionism, and project-based learning
- Explain the concepts of higher-order learning, affordances, digital natives, web 2.0 and learning 2.0
- Choose to develop and implement an Information Age approach to educational technology in the classroom

ISTE STANDARDS FOR EDUCATORS IN THIS CHAPTER

2.1 LEARNER
a. Educators set professional learning goals to apply teaching practices made possible by technology, explore promising innovations, and reflect on their effectiveness.
c. Stay current with research that supports improved student learning outcomes, including findings from the learning sciences.

2.2 LEADER
b. Educators advocate for equitable access to technology, high-quality digital content, and learning opportunities to meet the diverse needs of all students.

2.4 COLLABORATOR
a. Dedicate planning time to collaborate with colleagues to create authentic learning experiences that leverage technology.

2.5 DESIGNER
a. Use technology to create, adapt and personalize learning experiences that foster independent learning and accommodate learner differences and needs.
b. Educators design authentic learning activities that align with educational standards and use digital tools and resources to maximize learning.
c. Educators apply evidence-based instructional design principles to create innovative and equitable digital learning environments that support learning.

2.6 FACILITATOR
a. Foster a culture where students take ownership of their learning goals and outcomes in both independent and group settings.
b. Manage the use of technology and student learning strategies in digital platforms, virtual environments, hands-on makerspaces and in the field.
c. Create learning opportunities that challenge students to use a design process and computational thinking to innovate and solve problems.

2.7 ANALYST
a. Provide alternative ways for students to demonstrate competency and reflect on their learning using technology.

Education in the Information Age

One of the most important lessons that teachers can learn about educational technology is that in order to help students learn, technology must be used in appropriate ways. Simply using technology in the classroom does not guarantee student learning. Teachers must also take advantage of new learning methods and techniques that have become possible and necessary because of advances in technology and in our society.

From the Socratic method of teaching in ancient times to the apprenticeship model during the middle ages, many different learning methods have been developed and used through the years to support student learning. Education has also been organized and structured in many different ways. Each of these learning methods and educational structures has emerged from the needs and constraints of the time and society in which the method was used.

The American one-room schoolhouse is one example of an educational structure that matched the needs and constraints of its time in rural America (Reese, 2011; Zimmerman, 2009). During the first centuries of the European settlement of America,

the majority of Americans lived in rural areas and had limited transportation options. The one-room schoolhouse provided a way for education to reach people in many different locations (Reese, 2011; Zimmerman, 2009). One-room schoolhouses were built and placed strategically so that students from a rural and geographically dispersed area could attend and learn. Students from the same geographical area often attended the same one-room schoolhouse even though they were in different grades and at different levels of learning (Reese, 2011). Each schoolhouse had a single teacher that would attempt to support the learning needs of a diverse group of students. To learn more about the one-room schoolhouse, click on the slideshow. The one-room schoolhouse eventually declined during the 20th century as a result of changes in American society such as industrialization and urbanization (Zimmerman, 2009). These changes led to an Industrial Age education system that values conformity and centralized control.

INFORMATION AGE EDUCATION

Educational practices and structures must adapt to the needs of society in the Information Age.

Changes continue to occur in our society and we have shifted from an Industrial Age that valued centralized control and conformity, to an Information Age that values personal initiative and diversity. The one-room schoolhouse and even the industrial educational system in which we currently operate remain behind with regard to learning methods and educational structures (Aslan & Reigeluth, 2013; Reigeluth & Garfinkle, 1994; Stoll & Giddings, 2012).

Just as the one-room schoolhouse was an adaptation to the needs of the society of its time, learning models and educational structures must now adapt to the needs of

Constructivism and Student-Centered Learning

Constructivism is a theory about how people learn that can help provide a framework for Information-Age learning. Constructivist theory asserts that as students try to make sense of their experiences, they build their own knowledge in a structured format (Jonassen et al., 2003; Mayer, 1999). The knowledge structures that students build can be individually constructed by the student or co-constructed as part of a social experience (Piaget, 1997; Vygotsky, 1980). As mentioned previously, the abundance of technological tools and resources should shift our teaching and learning activities in schools to be generally more student-centered. So what is student-centered learning? Student-centered learning places the student at the center of the learning experience. The student plays an active role in the learning process, setting his or her own learning

goals and determining activities and resources that will help meet these goals (Stoll & Giddings, 2012). This type of learning is in contrast to a teacher-centered learning environment in which the teacher sets the goals, and has primary responsibility for determining the types of learning activities and resources that will help meet these goals. Student-centered learning approaches are compatible with constructivist theory, because learning in constructivism means building one's own knowledge. Click on the link below to find out more about how learning may happen according to constructivist theory.

We often think of the whole-class lecture, in which the teacher shares verbal and visual information, as the prototypical teacher-centered learning environment. In student-centered learning, a variety of approaches are possible, including student investigation, information seeking, project development, experimentation and independent study. There is increasing evidence that student-centered approaches to learning promote the development of problem solving and critical thinking skills more than teacher-centered approaches to learning (American Psychological Association, 1997).

Technology tools provide many key ways to support student-centered learning approaches because they allow students to create, experiment, seek information and do other student-centered activities more efficiently.

According to constructivist theory, knowledge cannot be easily transmitted from teacher to student, and the prototypical model of teacher-centered learning – the lecture – won't be very effective. Instead, students must build their own knowledge structures through experience. The key to constructivism and student-centered learning is that students are involved in meaningful experiences, and they try to make sense of these experiences by reflecting upon and explaining them. Meaningful experiences can range from class projects, to field trips, to scientific experiments, to problem investigations. In constructivist theory, students can also build knowledge as part of a social experience as they interact with fellow students, the teacher, or others who are more knowledgeable during a meaningful learning experince (Vygotsky, 1980).

Active Learning

One type of learning that fits well within constructivism and student-centered learning is active learning. Active learning means that students are mentally and/or physically active while learning. Mentally active learning means that students are meaningfully engaged with learning materials, and physically active learning means that students are physically moving during learning activities (McGowan et al., 2021; Nguyen et al., 2020). Active learning can be used to involve students in the kind of meaningful learning experiences that are vital according to constructivist theory. When students are engaged in meaningful experiences, they are mentally active as they try to make sense of and reflect upon them. We'll share more about active learning in Chapter six, along with a variety of technologies teachers can use to support active learning.

CHAPTER TWO

21st Century Skills and ISTE NETS Standards

"Teaching in the Internet Age means we must teach tomorrow's skills today."

-Jennifer Fleming

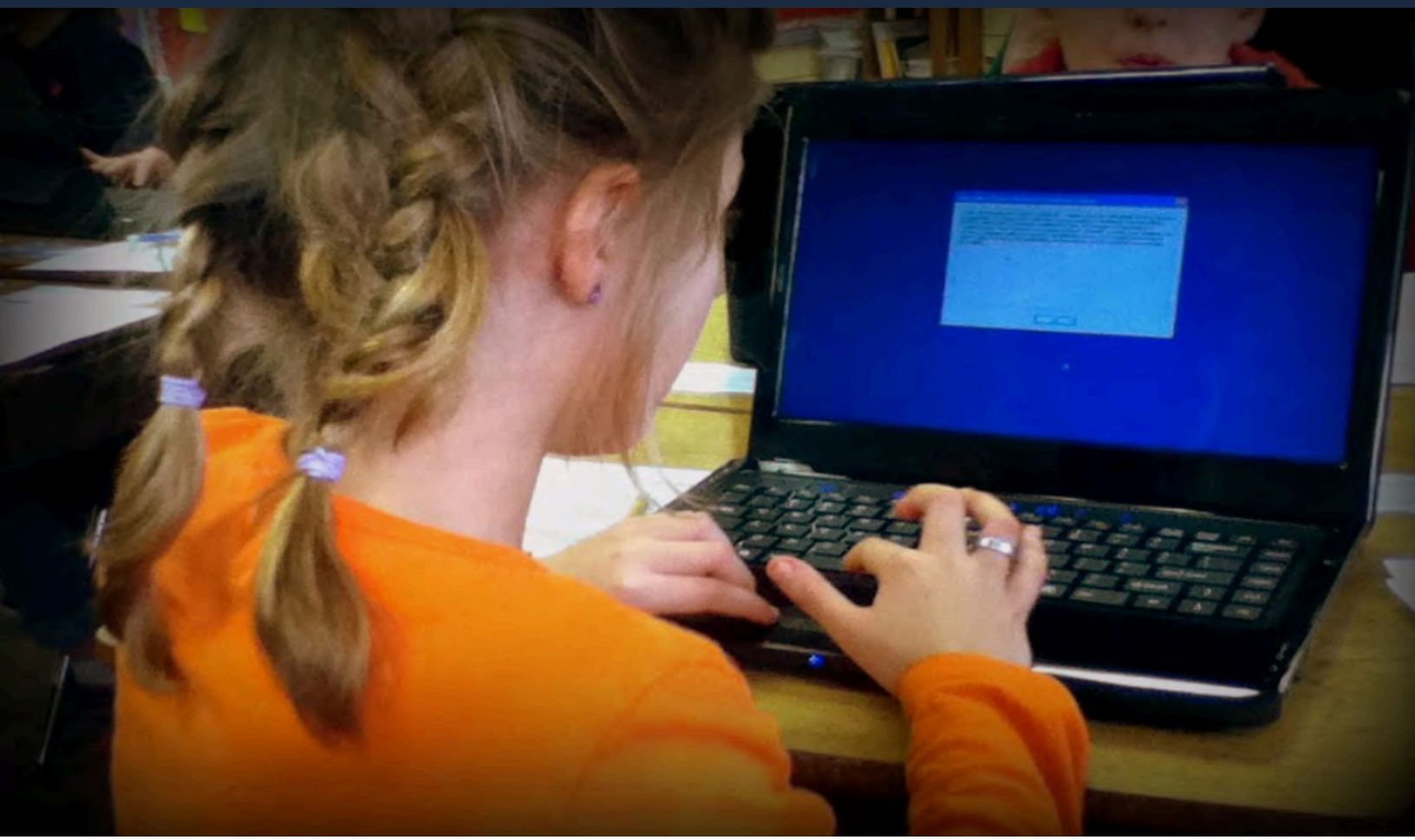
CHAPTER OBJECTIVES

AFTER READING THIS CHAPTER, YOU WILL BE ABLE TO:

- Describe the 21st century learning framework and ISTE standards
- Identify the core subjects and themes covered as part of the 21st century learning framework
- Explain the main types of skills within the learning and innovation area of the 21st century learning framework and the related ISTE standards
- Explain the main types of skills within the information, media and technology area of the 21st century learning framework and the related ISTE standards
- Explain the main types of skills within the life and career skills area of the 21st century learning framework and the related ISTE standards
- Choose learning methods that match ISTE standards

CHAPTER THREE

Student-Centered Learning Technologies



"We need technology in every classroom and in every student and teacher's hand, because it is the pen and paper of our time, and it is the lens through which we experience much of our world."

-David Warlick

CHAPTER OBJECTIVES

AFTER READING THIS CHAPTER, YOU WILL BE ABLE TO:

- Setup and use a wiki for student-centered learning
- Create and configure a class blog
- Use Google Drive applications to support student-centered learning
- Explain how different technologies can support location-based learning, including global positioning systems, augmented reality and mapping tools
- Create a quick response code to link to learning materials
- Create a personal or class website

ISTE STANDARDS FOR EDUCATORS IN THIS CHAPTER

2.1 LEARNER
a. Educators set professional learning goals to apply teaching practices made possible by technology, explore promising innovations, and reflect on their effectiveness.

2.2 LEADER
b. Educators advocate for equitable access to technology, high-quality digital content, and learning opportunities to meet the diverse needs of all students.
c. Model for colleagues the identification, exploration, evaluation, curation and adoption of new digital resources and tools for learning.

2.3 CITIZEN
b. Educators foster digital literacy by encouraging curiosity, reflection, and the critical evaluation of digital resources.

2.4 COLLABORATOR
a. Dedicate planning time to collaborate with colleagues to create authentic learning experiences that leverage technology.
b. Collaborate and co-learn with students to discover and use new digital resources and diagnose and troubleshoot technology issues.
c. Use collaborative tools to expand students' authentic, real-world learning experiences by engaging virtually with experts, teams and students, locally and globally.

2.5 DESIGNER
b. Educators design authentic learning activities that align with educational standards and use digital tools and resources to maximize learning.
c. Educators apply evidence-based instructional design principles to create innovative and equitable digital learning environments that support learning.

2.6 FACILITATOR
a. Foster a culture where students take ownership of their learning goals and outcomes in both independent and group settings.
b. Manage the use of technology and student learning strategies in digital platforms, virtual environments, hands-on makerspaces and in the field.
d. Model and nurture creativity and creative expression to communicate ideas, knowledge or connections.

2.7 ANALYST
a. Provide alternative ways for students to demonstrate competency and reflect on their learning using technology.

Wikis

The first student-centered learning technology we will introduce is the wiki. Wikis have been around for a number of years, the first wiki was “WikiWikiWeb,” which was developed and implemented by Ward Cunningham in 1995 (Leuf & Cunningham, 2001). Wikis are technologies that allow the editing of a single website, or group of pages, by multiple people (Ebersbach et al., 2008; Leuf & Cunningham, 2001). They allow quick and easy page editing by a variety of people on a website that is publicly viewable. The word “wiki” is a Hawaiian word, which means “quick.” Take a look at some examples of wikis that have been setup and used for learning activities by clicking on the following web links.

Most wikis can be configured to only allow certain users to edit pages in the wiki, but some wikis can also be configured to allow unregistered guests to edit pages. If you create a wiki, be sure to be careful with these settings as you don't want to have someone delete your content or fill your wiki with spam and advertisements. However, wikis do include features that allow you to easily revert to a previous version of the content and eliminate more recent changes if unauthorized changes to the wiki were to occur.

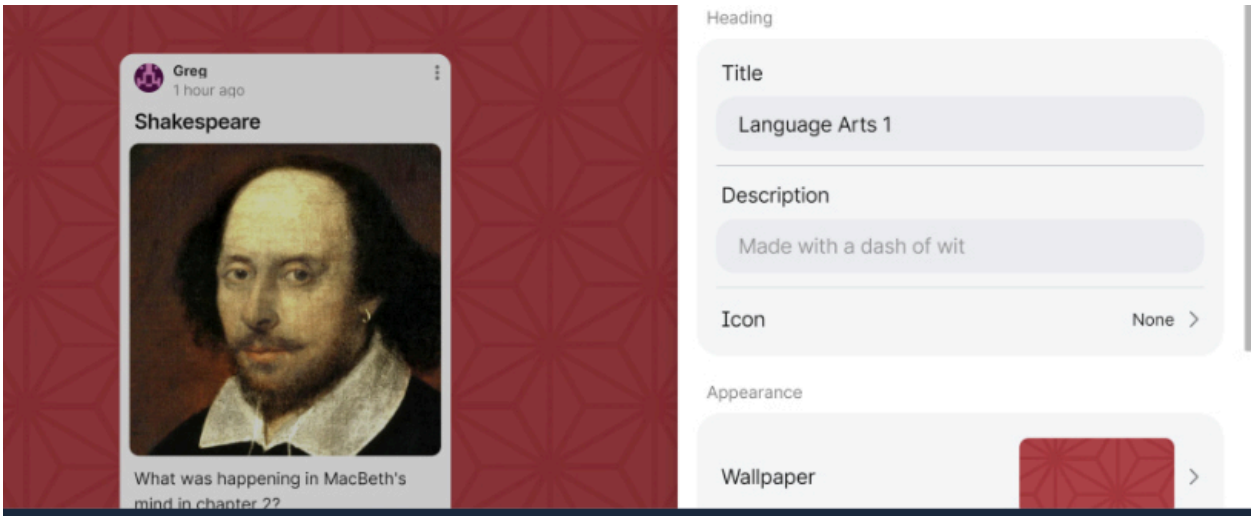
Although wikis have been around for a while, they are still popular as an educational tool. There are many different wiki programs that can be downloaded and installed on a web server for free. Some of these include mediawiki, dokuwiki and pmwiki.

However, installing, properly configuring and maintaining one of these wiki applications on a web server requires a high level of technology skills and expertise.

Most teachers choose to use a wiki service on a website where creating a wiki is as easy as signing up on the site. Probably the most popular website that offers wiki services for educators was Wikispaces, which shut down in 2018. An alternative to Wikispaces for setting up traditional educational wikis is pbworks which offers educational pricing and a limited free wiki service. Also, Google Docs is a free tool that allows for easy collaboration between students. We'll discuss Google Docs later in this chapter.

New Wiki Tools

Because opportunities for online collaboration are changing to become more media rich, many teachers are embracing wiki-like tools that allow students to post media responses and presentations in a single location. Padlet and VoiceThread are two such tools that make it easy for multiple students to post media to one place. With Padlet, a teacher can easily create a space to which students can post text, files, pictures, videos and more. Using VoiceThread, a teacher can create a single place to which students can post multiple video, audio and text responses. This allows a conversation to happen online about a video, picture, or other media. Click on the following links and view the lessons to learn more about Padlet and VoiceThread.

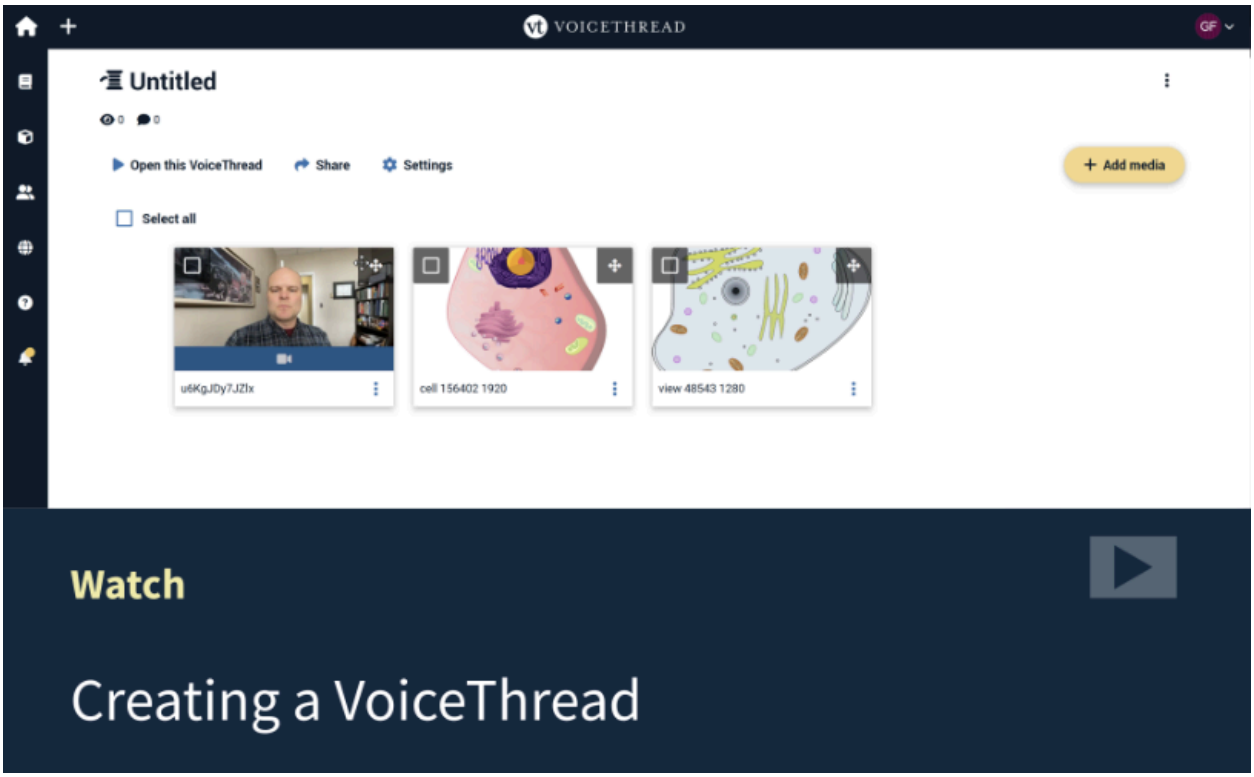


Watch

Using Padlet

Web Link

VoiceThread Website


VOICETHREAD
Untitled
Open this VoiceThread
Share
Settings
Add media
Select all
u6KgJDy7JZIx
cell 156402 1920
view 48543 1280
Watch
Creating a VoiceThread


Doodle tool
Fade doodles
On
Stop recording
0:07 / 3:00 limit
Watch
Sharing a VoiceThread With Students

Using a Wiki for Student-Centered Learning

Wikis are powerful tools for learning because they can be configured to allow students to collaboratively post content. Teachers can design projects and activities in which students post text, pictures and even videos on a designated subject to a single location. An especially powerful form of learning using wikis is "jigsaw learning," in which each group of students in a classroom may learn about a different aspect of the same subject. The groups of students can post what they have learned online to a single location, and when each group is done, the result is a single online location covering all of the different aspects of the subject.

USING A WIKI IN EDUCATION – SOCIAL STUDIES

In a social studies unit on pioneers, a teacher could assign groups of students to learn about aspects of pioneer life including transportation, shelter, food, traditions, the Homestead Act, and more. The teacher could have an online location setup with pages for each of these aspects of pioneer life. Then each group of students could post what they learned. When each group has posted their information, the result would be a full site featuring pages on the aspects of pioneer life. Each student can then use the site to learn about what other students posted.

Other Wiki Tools

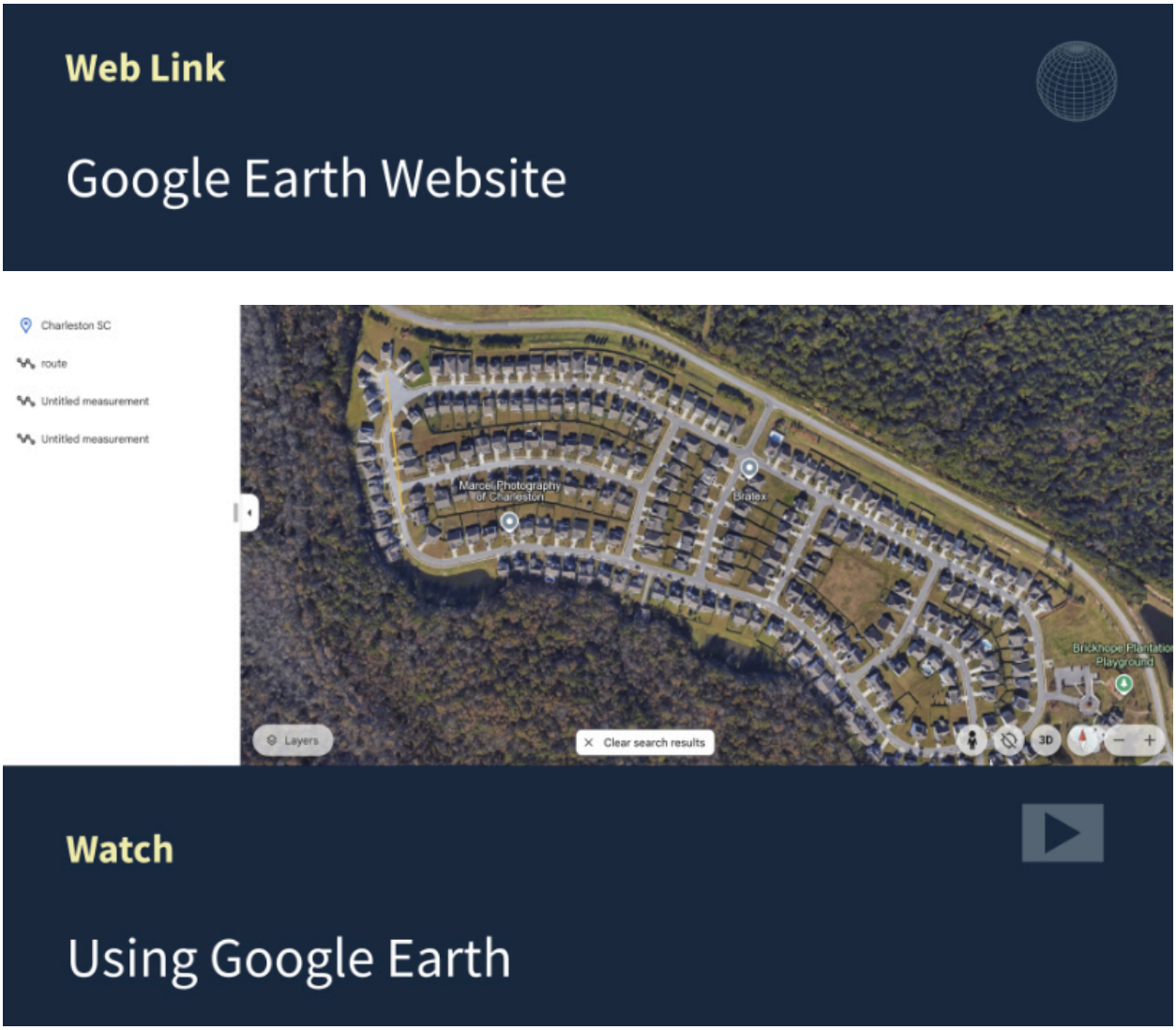
Here are a few other useful wiki-like websites and apps that allow various users to add and edit words and pictures in a collaborative space. Pinterest allows users to "pin" a picture with a link to the website where the picture came from to a collaborative board. This social media site has allowed users to easily share quality ideas and links with each other. Seesaw is an iPad app that allows students to easily create text, graphics and other media and submit to the teacher or post to a class journal. This app makes it easy to organize and share student work.

Mapping Tools

Perhaps the most common Information Age location-based learning experiences use one of a set of available online maps. From Google Maps to Bing Maps to Apple Maps, a variety of sites are available to use to navigate around the world and find more information about locations. These online maps can be used in education to provide students with enhanced visuals of locations for learning purposes. Google Earth is an excellent free mapping tool that can be used for location-based learning experiences.

Google Earth uses the same technology as Google Maps, but adds many features to what is available on Google Maps for free. Follow the web link below to access the

Google Earth website and watch the lesson which shows you how to use Google Earth.



Teachers have taken advantage of Google Earth to support learning in many different ways. Perhaps the simplest use of Google Earth in the classroom involves showing key locations featured in subject matter content to students on an interactive whiteboard. However, here are some more sophisticated ideas for using Google Earth in education.

IDEAS FOR USING GOOGLE EARTH IN EDUCATION

- Have students follow the locations of an historical event using Google Earth and make note of the geography, terrain and other features from each location.
- Explore the main location of a literary work by viewing the location and making note of the setting, culture and geography for the work.
- Follow the journey of the characters in a literary work with students by showing journey locations, noting distances and making other observations that relate to the story.
- Learn more about the culture and language in a foreign country by zooming in on a part of that country and also going to street view to see pictures of people, buildings and signs.

An additional student-centered idea for teaching mathematics is to have students measure objects and distances using the Google Earth ruler and then calculate volume, circumference or use other mathematical formulas. Several interesting objects in Google Earth can be used including:

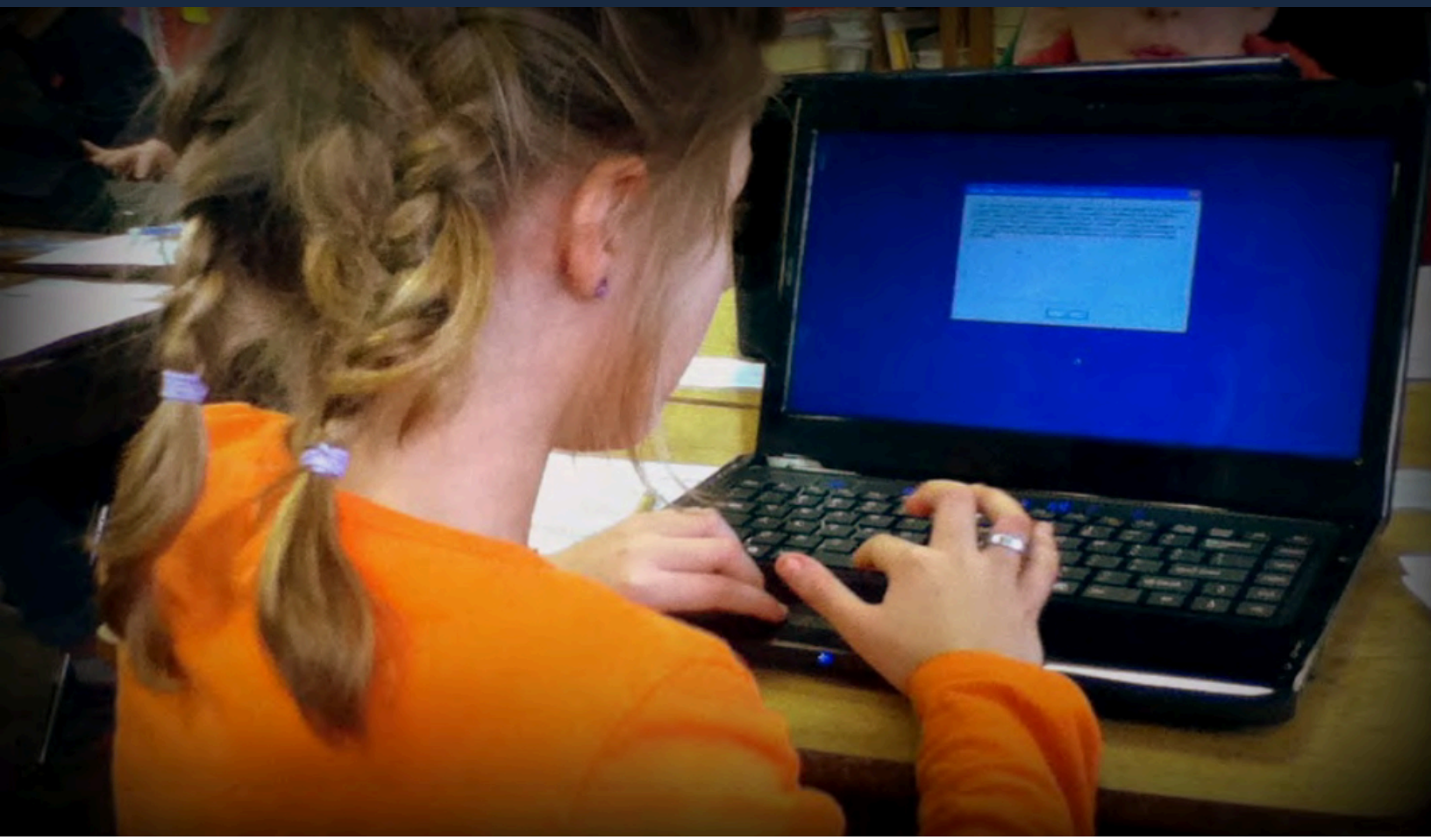
- A cylindrical building in Singapore (circumference, diameter, radius)
- The triangular Flatiron building in New York (angles, lengths and hypotenuse)
- The pyramids at Giza (volume, length and width)

Using the link below, take a look at the Google Earth Education website to get more ideas for using Google Earth for learning.

Web Link

Google Earth Education Website

Student-Centered Learning Technologies



In this chapter we have discussed several different student-centered learning technologies. In student-centered learning, the student takes responsibility for learning by setting and meeting goals and carrying out independent learning activities. In this chapter we discussed wikis, blogs, and other online collaboration tools. We also discussed location-based learning tools, QR codes and websites. All of the technologies featured in this chapter can be used to support student-centered learning. The key is making sure that the student (not the teacher) is the one who creates, posts, shares

and/or discusses as part of the learning process.

Of course, just knowing how to use a learning technology isn't enough. Teachers need to understand the affordances of any technology that is used for teaching or learning. They must be able to plan a lesson that integrates student-centered learning technologies to meet a content standard. Take a look at the following sample project that can help you enhance your lesson planning skills with technology.

CHAPTER FOUR

Project-Based Learning with Technology

"Teachers need to stop saying, 'hand it in,' and start saying, 'publish it,' instead."

-Alan November

CHAPTER OBJECTIVES

AFTER READING THIS CHAPTER, YOU WILL BE ABLE TO:

- Discuss the essential elements of project-based learning
- Select appropriate technological tools and applications for a project
- Create a plan for project-based learning in your classroom
- Teach and model quality presentation skills, including planning, presence, visual design and voice
- Create a recorded online presentation for students to watch
- Teach and model quality video production and editing techniques
- Explain copyright and fair use as they relate to project-based learning and classroom activities
- Describe the role that open digital media resources and open-source software can play in project-based learning

ISTE STANDARDS FOR EDUCATORS IN THIS CHAPTER

2.1 LEARNER
a. Educators set professional learning goals to apply teaching practices made possible by technology, explore promising innovations, and reflect on their effectiveness.

2.3 CITIZEN
b. Educators foster digital literacy by encouraging curiosity, reflection, and the critical evaluation of digital resources.
c. Educators mentor students in safe, legal and ethical practices with digital tools and content.
d. Educators model and promote management of personal data, digital identity and protection of student data.

2.4 COLLABORATOR
a. Dedicate planning time to collaborate with colleagues to create authentic learning experiences that leverage technology.
c. Use collaborative tools to expand students' authentic, real-world learning experiences by engaging virtually with experts, teams and students, locally and globally.

2.5 DESIGNER
a. Use technology to create, adapt and personalize learning experiences that foster independent learning and accommodate learner differences and needs.
b. Educators design authentic learning activities that align with educational standards and use digital tools and resources to maximize learning.
c. Educators apply evidence-based instructional design principles to create innovative and equitable digital learning environments that support learning.

2.6 FACILITATOR
a. Foster a culture where students take ownership of their learning goals and outcomes in both independent and group settings.
b. Manage the use of technology and student learning strategies in digital platforms, virtual environments, hands-on makerspaces and in the field.
c. Create learning opportunities that challenge students to use a design process and computational thinking to innovate and solve problems.
d. Model and nurture creativity and creative expression to communicate ideas, knowledge or connections.

ISTE STANDARDS FOR EDUCATORS IN THIS CHAPTER

2.7 ANALYST
a. Provide alternative ways for students to demonstrate competency and reflect on their learning using technology.
b. Use technology to design and implement a variety of formative and summative assessments that accommodate learner needs, provide timely feedback to students and inform instruction.
c. Use assessment data to guide progress and communicate with students, parents and education stakeholders to build student self-direction.

CHAPTER FIVE

Resource-Based Learning with Technology

"The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn."

-Alvin Toffler

CHAPTER OBJECTIVES

AFTER READING THIS CHAPTER, YOU WILL BE ABLE TO:

- Describe the importance of resource-based learning in the Information Age
- Find, evaluate and select appropriate learning resources for student learning
- Create quality resource-based learning activities for students
- Model and teach key practices for determining the accuracy of an information source
- State the steps students follow as they complete an information seeking activity
- Explain the children's internet protection act and its effect on schools
- Develop and implement quality student information seeking activities

ISTE STANDARDS FOR EDUCATORS IN THIS CHAPTER

2.1 LEARNER
b. Pursue professional interests by creating and actively participating in local and global learning networks.

2.2 LEADER
b. Educators advocate for equitable access to technology, high-quality digital content, and learning opportunities to meet the diverse needs of all students.
c. Model for colleagues the identification, exploration, evaluation, curation and adoption of new digital resources and tools for learning.

2.3 CITIZEN
b. Educators foster digital literacy by encouraging curiosity, reflection, and the critical evaluation of digital resources.

2.4 COLLABORATOR
b. Collaborate and co-learn with students to discover and use new digital resources and diagnose and troubleshoot technology issues.
d. Demonstrate cultural competency when communicating with students, parents and colleagues and interact with them as co-collaborators in student learning.

2.5 DESIGNER
a. Use technology to create, adapt and personalize learning experiences that foster independent learning and accommodate learner differences and needs.
b. Educators design authentic learning activities that align with educational standards and use digital tools and resources to maximize learning.
c. Educators apply evidence-based instructional design principles to create innovative and equitable digital learning environments that support learning.

ISTE STANDARDS FOR EDUCATORS IN THIS CHAPTER

2.6 FACILITATOR
a. Foster a culture where students take ownership of their learning goals and outcomes in both independent and group settings.
b. Manage the use of technology and student learning strategies in digital platforms, virtual environments, hands-on makerspaces and in the field.

CHAPTER SIX

Active Learning with Technology

"Technology will not replace great teachers, but technology in the hands of great teachers can be transformational."

-George Couros

CHAPTER OBJECTIVES

AFTER READING THIS CHAPTER, YOU WILL BE ABLE TO:

- Define active learning
- Use a classroom response system for active learning
- Describe components of interactive whiteboard systems
- Use an interactive whiteboard for active learning
- Select and use an interactive whiteboard software application to create an engaging presentation
- Support active learning with an interactive whiteboard
- Create interactive whiteboard presentations and classroom response system activities that support higher-order learning

ISTE STANDARDS FOR EDUCATORS IN THIS CHAPTER

2.2 LEADER
b. Educators advocate for equitable access to technology, high-quality digital content, and learning opportunities to meet the diverse needs of all students.
c. Model for colleagues the identification, exploration, evaluation, curation and adoption of new digital resources and tools for learning.

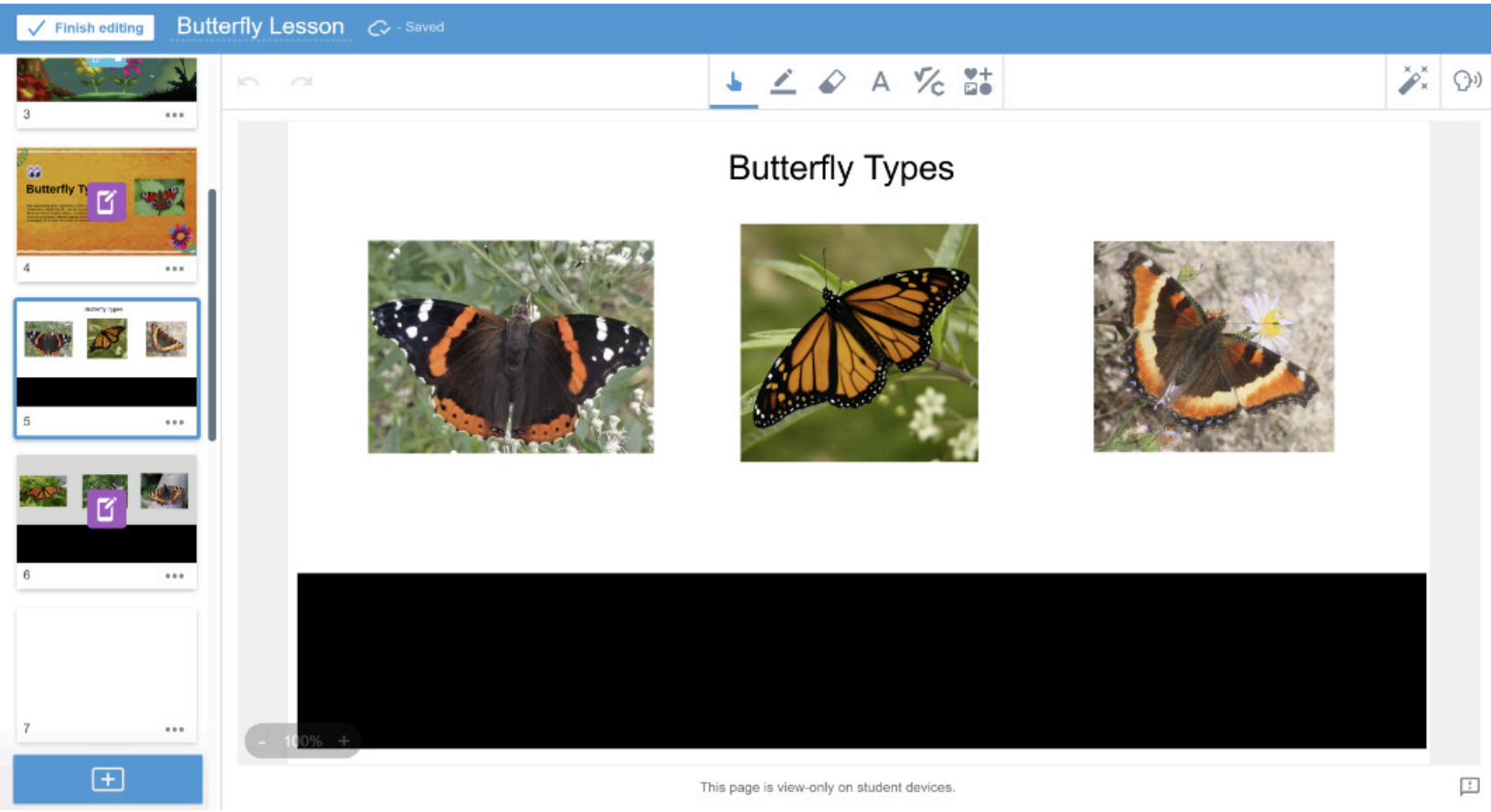
2.4 COLLABORATOR
b. Collaborate and co-learn with students to discover and use new digital resources, and diagnose and troubleshoot technology issues.

2.5 DESIGNER
a. Use technology to create, adapt and personalize learning experiences that foster independent learning and accommodate learner differences and needs.
b. Educators design authentic learning activities that align with educational standards and use digital tools and resources to maximize learning.
c. Educators apply evidence-based instructional design principles to create innovative and equitable digital learning environments that support learning.

2.6 FACILITATOR
a. Foster a culture where students take ownership of their learning goals and outcomes in both independent and group settings.
d. Model and nurture creativity and creative expression to communicate ideas, knowledge or connections.

2.7 ANALYST
a. Provide alternative ways for students to demonstrate competency and reflect on their learning using technology.
b. Use technology to design and implement a variety of formative and summative assessments that accommodate learner needs, provide timely feedback to students and inform instruction.

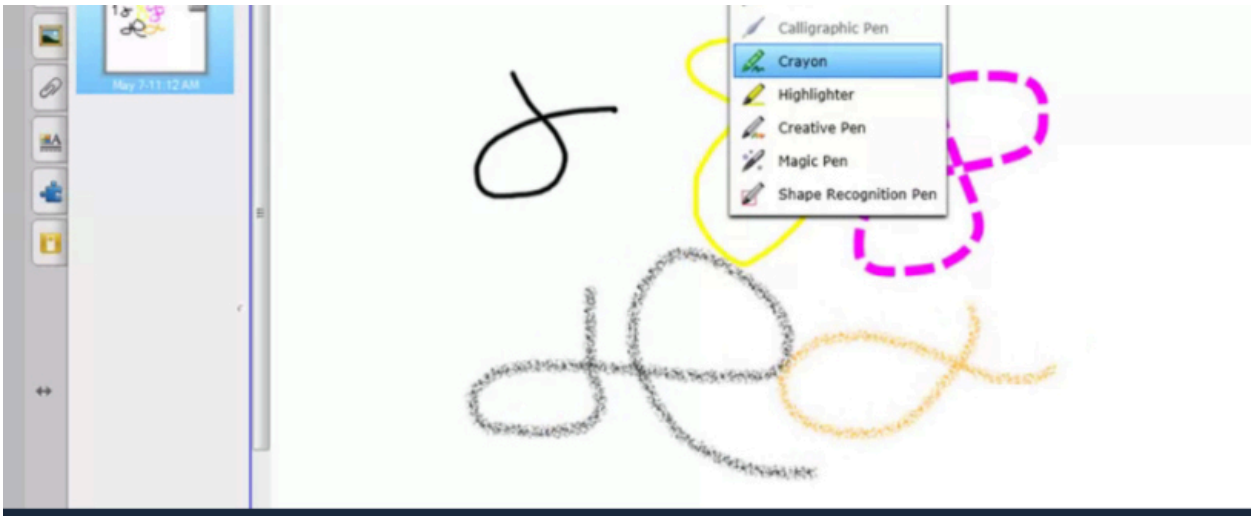
Lumio and Smart Notebook



Lumio and Smart Notebook are applications provided by Smart technologies, the maker of Smart brand interactive whiteboards. Smart Notebook works with Smart brand interactive whiteboards, while Lumio works on any Internet-connected interactive whiteboard. Of course you don't have to use Lumio or Smart Notebook software for every educational activity on a Smart brand interactive whiteboard, since there are many other ways to present information. However, Lumio and Smart Notebook software add interactive elements that are not available in other applications. For example, there are a variety of activities, games, and other resources available in these applications that allow you to support active learning.

Smart Notebook

Watch the following lessons to learn more about how to use Smart Notebook.

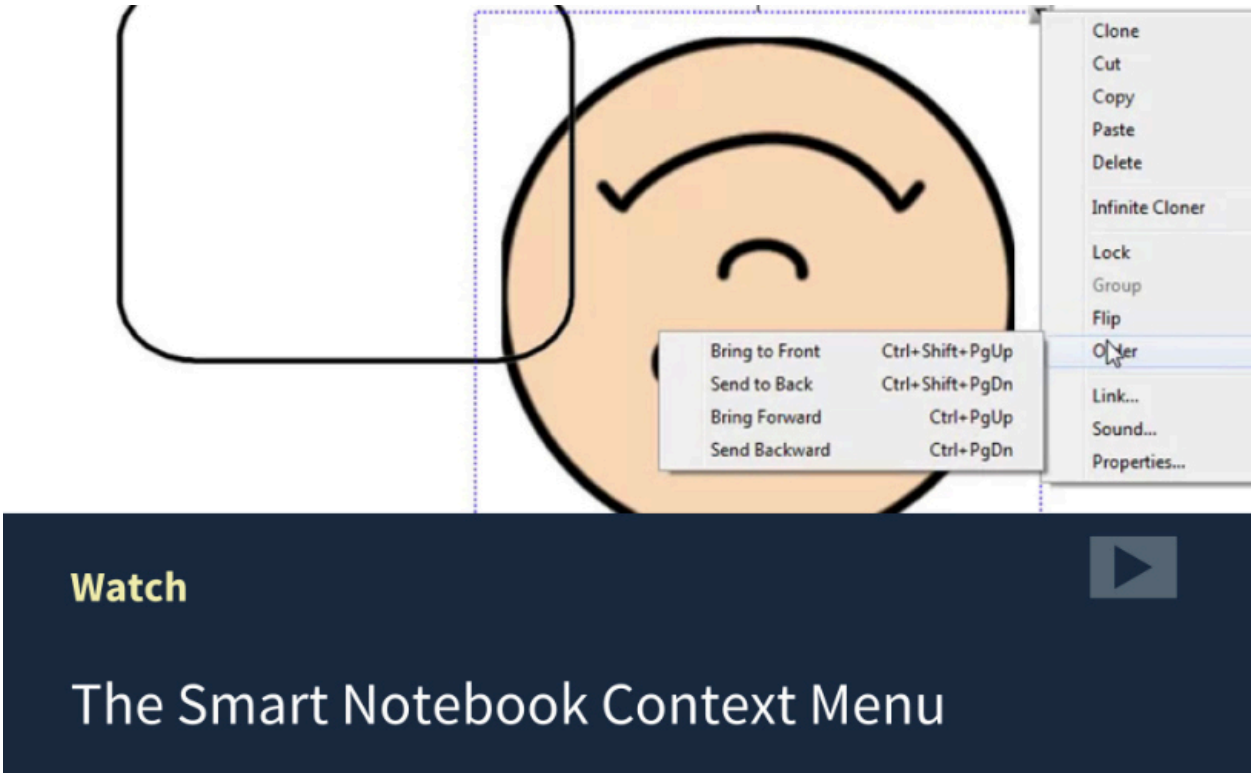


Watch

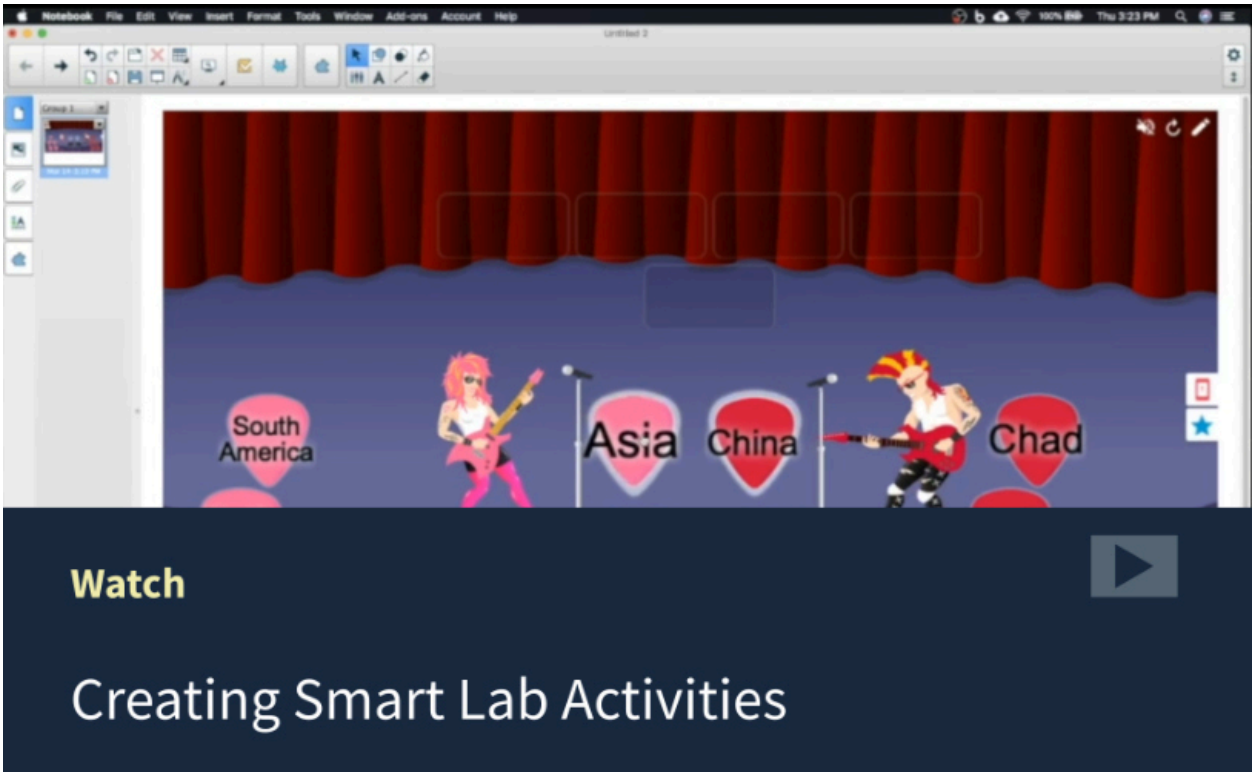
Introduction to Smart Notebook

Watch

Pictures and Media in Smart Notebook



There are also new online activities you can create using Smart Lab and Smart Online Learning Suite (subscription-based services) that allow students to complete activities on a personal device while one student is in the front of the classroom at the interactive



whiteboard. Watch the lesson that shows how to create Smart Lab activities that students can complete on the interactive whiteboard, and on their own classroom laptop or tablet computer. If you are interested in learning more about Smart Notebook, you can check out the lessons linked on the right as well.

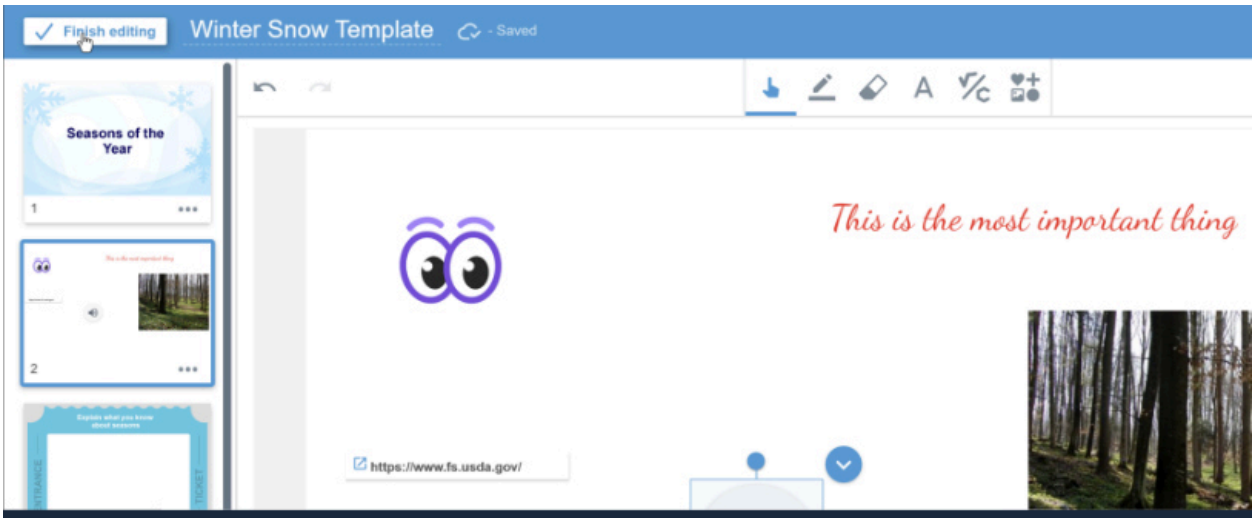
ADDITIONAL SMART NOTEBOOK LESSONS

For more information, you can watch the following additional Smart Notebook Tutorials:

- Recording and Object Animations in Smart Notebook
- Creating Drag and Drop Activities in Smart Notebook

Lumio

Lumio is an online learning software application that works well with interactive whiteboards to support both physically and mentally active learning. Unlike Smart Notebook, you don't have to install Lumio on your computer, instead you use it by logging into the site online. Watch the following lessons to learn more about how to use Lumio.



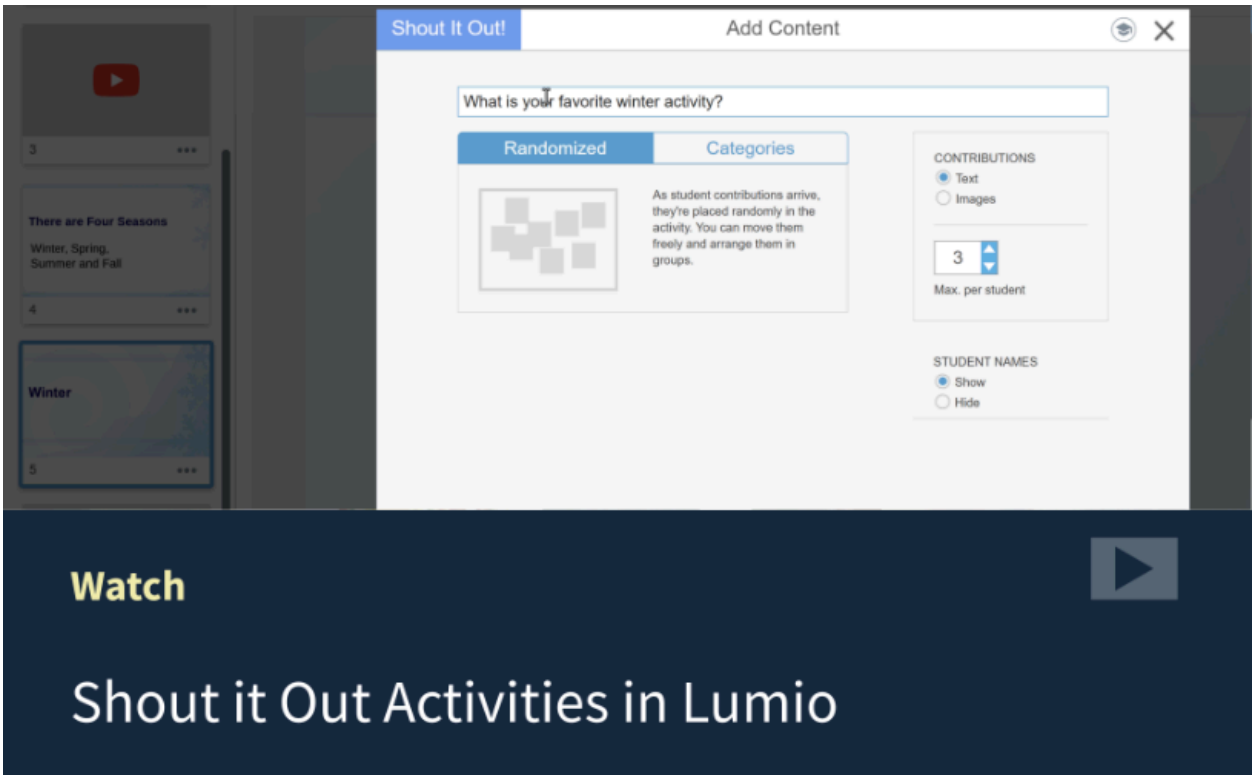
Watch

Creating Your Own Lumio Pages

Watch

Game-Based Activities in Lumio

Some of the activities that you create in Lumio can be set to allow students to complete them on their own device. This provides more active learning, giving each student a chance to participate. Watch the following lessons that feature these types of activities.



CHAPTER SEVEN

Distance Learning

"We need to bring learning to people, instead of people to learning."

-Eliot Masie

CHAPTER OBJECTIVES

AFTER READING THIS CHAPTER, YOU WILL BE ABLE TO:

- Explain key concepts related to distance learning
- Discuss the major reasons that educational institutions provide distance learning
- Plan distance learning activities that follow effective practices for student learning
- Identify and use distance learning tools for synchronous distance learning
- Conduct an effective synchronous distance learning session

ISTE STANDARDS FOR EDUCATORS IN THIS CHAPTER

2.1 LEARNER
a. Educators set professional learning goals to apply teaching practices made possible by technology, explore promising innovations, and reflect on their effectiveness.
c. Stay current with research that supports improved student learning outcomes, including findings from the learning sciences.

2.2 LEADER
a. Shape, advance and accelerate a shared vision for empowered learning with technology by engaging with education stakeholders.

2.3 CITIZEN
a. Educators create experiences for learners to make positive, socially responsible contributions and build inclusive communities online.

2.4 COLLABORATOR
c. Use collaborative tools to expand students' authentic, real-world learning experiences by engaging virtually with experts, teams and students, locally and globally.

2.5 DESIGNER
a. Use technology to create, adapt and personalize learning experiences that foster independent learning and accommodate learner differences and needs.
b. Educators design authentic learning activities that align with educational standards and use digital tools and resources to maximize learning.
c. Educators apply evidence-based instructional design principles to create innovative and equitable digital learning environments that support learning.

2.6 FACILITATOR
a. Foster a culture where students take ownership of their learning goals and outcomes in both independent and group settings.
b. Manage the use of technology and student learning strategies in digital platforms, virtual environments, hands-on makerspaces and in the field.

ISTE STANDARDS FOR EDUCATORS IN THIS CHAPTER

2.7 ANALYST
a. Provide alternative ways for students to demonstrate competency and reflect on their learning using technology.
b. Use technology to design and implement a variety of formative and summative assessments that accommodate learner needs, provide timely feedback to students and inform instruction.
c. Use assessment data to guide progress and communicate with students, parents and education stakeholders to build student self-direction.