Technology Curriculum

Student Workbook 6th Edition



by Ask a Tech Teacher

TECHNOLOGY Curriculum Student Workbook

Eighth Grade

By Ask a Tech Teacher©

Part Nine of Nine in the SL Technology Curriculum

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Introduction

Technology in your classroom—what an exciting way to enhance your learning! You won't be memorizing tools and struggling through new programs. You'll learn them as you use them— authentically, part of class activities. Your goal: Make school easier, more relevant, and more in tune with how you learn. We're going to help. All you need to do is follow this workbook.

How much time will that take? Here's an estimate:

Grades K-2	15-30 min. a week
Grades 3-8	30-60 min. a week

Are you surprised you can learn so much in such a short time? Wait till you see how much fun it is! We give you lots of choices. You can even work with a friend, both of you on laptops, Chromebooks, iPads (sometimes) or desktops, Windows or Macs.

Here's where you're headed (Figure 1):



Figure 1—Tomorrow's student

Follow the plan. Execute it faithfully. It works.

Programs You'll Use

Programs used in this curriculum focus on those that serve the fullness of your educational journey. Free alternatives are included where possible:

General		K-2
Email	Drawing tools	Productivity tools (Office, Google Docs)
Google Earth	Keyboard tools	Desktop publishing tools
Web tools		Photo editing tool(s)

What's in this Workbook?

Each lesson includes:

- activities to extend lessons
- class warm-up and exit ticket
- essential question
- examples, rubrics, images, printables
- problem solving

- skills—new and scaffolded
- steps to accomplish goals
- suggestions based on digital device
- to-do list
- vocabulary used

Figures 2a-b shows what comes at the beginning of each lesson and the end (zoom in if needed):



Figure 2a-b—What's included in each lesson

How to Use This Book

Your teacher(s) (meaning: all those who direct your technology training) will work with you during classtime. You'll spend an additional thirty-sixty minutes each week using your tech skills—online, with software, teaching friends, for homework, and in class projects. If there is a skill you don't understand, get help, especially when you see it come up a second or third time. By the end of 8th grade, you'll have a well-rounded tech education that prepares you for college and career.

The curriculum map (*Figure 3*) shows what's covered in which grade. Units taught multiple years reflect increasingly less scaffolding and more student direction. Here's how to use it:

• Determine what skills were covered in earlier years. Transfer that knowledge to this new school year. Your teacher will review the topics and skills from prior years, but won't re-teach.

	Mouse Skills	Vocabulary - Hardware	Problem- solving	Platform	Keyboard	WP	Slide- shows	DTP	Spread- sheet	Google Earth	Search/ Research	Graphics/	Co- ding	www	Games	Dig Cit
к	0	0	٢	3	٢					3		0	0	٢		٢
1	0	٢	٢	٢	٢	\odot	©	٢	٢	٢		0	0	٢		0
2		0	٢	3	٢	\odot	Û	3	٢	3		0	0	٢		0
3		٢	\odot	٢	٢	\odot	©	٢	٢	٢	0	٢	\odot	٢		0
4		0	٢		٢	\odot	Û	0	٢	3	3	0	0	٢		٢
5		٢	\odot		٢	\odot		٢	٢	٢	0	٢	\odot	٢		0
6		٩	٢	٩	٢	\odot	0	3	٢	0	٩	0	0	٢		0
7		\odot	\odot	٢	Û	\odot			٢	3	3	\odot	\odot	\odot	٢	\odot
8		٢	٢	٢	٢	\odot			٢	٢	٢	٢	0	٢	٢	0

Figure 3—Curriculum Map—K-8

Here are hints on using this curriculum:

- This workbook is part of the K-8 curriculum your school selected to guide you through technology skills. Each lesson takes two sessions of 30-45 minutes with equal time devoted to home practice.
- This curriculum uses the 'flipped classroom' approach. Homework prepares you for the class lesson so class time is spent on enrichment. Homework materials will be shared via the teacher.
- Every effort has been made to accommodate varied devices. Lesson samples are often in multiple platforms. If you have difficulty adapting your digital device to lesson expectations, talk to your teacher.
- Use this workbook on PCs, Macs, Chromebooks, desktops, laptops, Chromebooks, tablets.
- Check with your teacher on which of these are available with your program license.

Fig. 4—Student workbook



• A number of lessons are mixed throughout the year:

- #3 Digital Citizenship
- #4 Keyboarding
- #5 Problem-solving

Figure 5a-h—Digital Devices for workbooks



...at school or at home



- Lessons include Extensions, in case you finish early.
- Zoom in or out of workbook pages to get exactly the size that works for your needs.
- Most lessons start with a warm-up to get you into tech and end with a summative exit ticket.
- Some lessons offer several activities that meet goals outlined in the Essential Question.



🖬 indicates video

indicates work with a partner



indicates workbook material

- Always use lesson vocabulary. You gain an authentic understanding of terms by using them in conversation.
- Consider backing up your work—as a life habit. This can be done with a flash drive, by emailing the document to yourself, or saving to a secondary location.
- Expect to be a risk taker. Your teacher won't rush in to solve your problems. Instead, s/he'll ask you to think how it was done in the past. Don't be afraid of failing. That often precedes success.
- Lessons expect you to develop sixteen 'habits of mind' (*Figure 6*). In a sentence: Habits of Mind ask you to engage in learning, not simply memorize. Your teacher will cover this in more depth.
- Check off items you finish (using the _____ in front of each task). It's fine if you don't get everything done. Return to it when you finish a lesson ahead of time. Use an annotator like Adobe Reader. Also, use these tools to add notes to the lessons.

8th Grade Technology Curriculum: Student Workbook



- Each lesson includes a short list of tech problems. Be sure you are able to solve those before leaving the lesson.
- Your teacher will assess your work based on the weekly 'To Do' list and the Essential Question. Be sure you've completed items and submitted in the manner required.
- If lesson instructions don't work, ask your teacher for help or email us (with parent and/or teacher approval) at <u>askatechteacher@gmail.com</u>.
- When you finish each lesson, transfer knowledge to projects at school, home, the library, a club—wherever you use digital devices.
- Remember: It takes five times get a skill—
 - First: you hope it'll go away
 - Second: you try it
 - Third: you remember it
 - Fourth: you use it outside of class
 - Fifth: you teach a friend

Figure 7—Tech use plan



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About the Author

Ask a Tech Teacher is a group of technology teachers who run an award-winning resource blog. Here they provide free materials, advice, lesson plans, pedagogical conversation, website reviews, and more to all who drop by. The free newsletters and website articles help thousands of teachers, homeschoolers, and those serious about finding the best way to maneuver the minefields of technology in education. They have published hundreds of ebooks, workbooks, articles, and have materials shared throughout the world.

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Lesson #1 Introduction

Vocabulary	Problem solving	Homework
 Digital Digital citizen Right-click menu Save-as Select-do Technology 	 What's the difference between 'save' and 'save-as'? What's a quick way to ** (shortkey)? How do I annotate workbook (check Digital Tools Lesson)? I can't do my keyboarding homework 	Assigned prior week: What rules would you add to class? What's a 'flipped class'? Check 'Homework' cell
 Webtool 	at home (come to afterschool club)	each week for class
How do I u Previewed requir Completed exit t [tried to] solve ov Decisions followe Higher order thin Successfully anno Joined class con Left station as it v	se technology to learn? ed material; came prepared icket wn problems ed class rules king and Habits of Mind observed otated workbook versations was (neat and orderly)	To Do This Week

Step-by-step

Class warm-up: None

Required skill level: Enthusiasm and passion for technology. Welcome to 8th grade technology! Success in this class is

- predicated on your enthusiasm for learning, transfer of knowledge, and evidence of problem-solving skills. You will often 'pick which program works best' or 'devise a plan to accomplish goals' or 'teach yourself'.
- _____Share your tech background with classmates—what you know, want to know, and difficulties you see taking this class. Discuss your expectations.

_____Decode domain-specific technology language these ways:

- Use correct 'geek speak' words during class.
- Decode words you don't understand. Don't skip over it.
- Add unknown words to a virtual wall or a similar collection spot.

_____What does 'technology' mean at your school? Is it *Figure 8a* or *Figure 8b*?





Figure 8a-b—Which image represents 'technology'?

Discuss the focus of 8th grade technology:

1. Think critically:

- which programs, tools, and strategies work best for what activity
- devise solutions to problems based on past knowledge
- trouble-shoot; find alternatives
- work collaboratively to draw on everyone's knowledge
- understand what you do and don't know, and the difference
- research answers effectively and ethically

2. Employ problem-solving skills:

- use available tools to solve a problem
- critically think about a problem; ignore chaff; focus on pertinent details
- present information in a way others understand
- make sense of data

3. Transfer knowledge:

- ...to other parts of academic and social life
- publish and share to collaborate and seek constructive criticism
- create a digital portfolio accessible from many locations
- link information to others

4. Be a good digital citizenship:

- learn to thrive in the digital world
- learn fundamentals of research, search, social media, and communication
- understand rights and responsibilities of those who inhabit the digital world



5. Learn fundamental tech skills:

- learn to type faster than you can think
- know how to word process in many programs
- use spreadsheets to turn data into information
- make presentations that are effective, responsive to the audience, and interesting
- understand tech hardware and how to troubleshoot when needed
- learn about digital devices needed to thrive in the learning community
- know what online tools are available and what they can be used for

____Review class syllabus and goals. Use Table of Contents if desired (zoom in on *Figure 9*):

Basics			10 K I	r.
	#1 #0	Introduction	#3 Keybo	oarding
	#2	Digital loois	#11	Centrication
<u>Logica</u>	l Thinking			
	#4-5	Problem Solving	#22-24	Robotics
	#13-15	Engineering and Design	#25-27	Programming with Alice
	#19-21	Visual Learning	#28-30	SketchUp
Digital	Citizenshi	p		
	#1	Intro	#9-10	Search/Research
	#2	Digital Tools	#31-32	Web Communication Tools
	#6-8	Digital Citizenship		
 Search	/Researc	h		
	#2	Digital Tools	#19-21	Visual Learning
	#9-10	Search/Research		Ŭ
Progra	mming			
	#4-5	Problem solving	#25-27	Programming with Alice
	#12	Gradebook and Budgets	#28-30	SketchUp
	#22-24	Robotics		
<u>Collab</u>	orate/Pub	lish/Present		
	#1	Intro	#11	Word Certification
	#2	Digital Tools	#16-18	Learn Through Service
	#3	Keyboarding	#19-21	Visual Learning
	#6-8	Digital Citizenship	#31-32	Web Communication Tools
	#9-10	Search/Research		

Figure 9—Table of Contents

- Basics—Why is keyboarding important? Why is understanding tech important? How can understanding hardware help you use tech efficiently and with fewer problems? How does selecting the right tool affect communication?
- Logical thinking—How can technology teach critical thinking? How can bridge building, visual learning, robotics, Scratch, and programming show how to recognize/solve problems? What are common problem-solving strategies?
- Digital citizenship—How can you thrive in the virtual neighborhood? What are the rights and responsibilities you must consider? Which tools are best suited for your education journey?
- Search and Research—How can you use the boundless resources of the Internet effectively, efficiently, and legally?
- Programming—How does coding teach critical thinking and problem-solving? How can robotics, programming, and SketchUp make those lessons fun and easy?

• Collaborate/Publish/Present—How can you share knowledge with classmates and the world?

_____Review class rules (zoom in on *Figure 10*). Share those you think will make class productive, efficient, and fair for all, such as:

- Save early, save often, about every ten minutes.
- No food or drink around digital devices.
- Respect the work of others and yourself.
- *Keep your body to yourself—don't touch neighbor's digital device.*
- No excuses; don't blame people or computer.
- Help neighbor with words, not by doing.
- When collaborating, build on others' ideas as you clearly express your own.
- As a general rule: Select first, then do. You can't do the latter without the former.
- Don't give up.
- Don't whine.



__Handwrite your suggested rules into this PDF by *Figure 10*. When done, sign (with your annotation tool) the bottom line where it says, *"I have read and understood the above rules and I agree to abide by all of them."*

Figure 10—Class rules

Tour classroom to familiarize yourself with the room. Where are the tech devices that will assist you? Printer? Class announcements? Evidence Board? What else? Discuss digital citizenship (more in lesson on *Digital Citizenship*). What are 'rights and responsibilities' inherent to the digital community? What's *Figure 11* mean (zoom in if needed)?





Figure 11—Digital citizenship poster

____You will use a wide range of web tools in class (see the lesson on *Digital Tools*).

- _____Your teacher is open to alternative suggestions on tools to use for class projects. For example, if your teacher suggests Wordle, you can request Tagxedo. S/he will approve the change if the tool fulfills class guidelines. S/he will expect you to provide **evidence** to build your case, **compare-contrast** your tool to other suggestions, and **draw logical conclusions**.
- _____Your teacher may offer an after school **Keyboarding Club** two days a week for students who can't do their homework at home.
- Your teacher may offer **after-school help** on Keyboarding Club days for those who need assistance with tech or a project involving tech. Offer to be a volunteer to assist classmates.
- _____Homework (listed at the start of each lesson) is completed prior to class, to prepare for in-class activities. More on this 'flipped classroom' approach in the lesson on *Digital Tools*.
- _____Try to solve tech problems before requesting help.
- _____Discuss your responsibility to make up missed classes.
- _____Discuss passwords and privacy. Do not share your logins with anyone. Save login info wherever it
- is secure. More on this in another lesson.
 - _____Discuss backing up your work. Here are options:
 - flash drives—to a personal flash drive. If necessary, review their use.
 - a separate location-such as the hard drive on your laptop
 - email files to yourself-set up a file folder in email account for 'back-ups'

Class exit ticket: Vote on a poll your teacher displayed on the class screen. Which 8th grade tech topics will be the most fun, most useful, or most exciting to learn.

Extension:

- Volunteer to add homework due date to class online calendar this month.
- If you finish, start homework preview of the next Unit.

Lesson #2 Digital tools in the classroom

Vocabulary	Problem solving	Homework
 Annotation App Backchannel Benchmark Blog Cloud Digital portfolio Digital tools Domain-specific Hashtag Linkback 	 I'm too young for Twitter (use class account) Avatar didn't show in my blog (ask a neighbor how they did it) My work disappeared (Google Apps automatically saves; or, Ctrl+Z) Teacher isn't around and I need help (ask for peer support or student forum) Just give me a handout (Sorry, we learn through experience and collaboration) I'm not fast enough decoding 	Assigned prior week: Preview/test and compare-contrast tech tools; prepare presentation Log in from home/school Prepare for hardware quiz and Summative Keyboard 45 min., 15
 PDF Plagiarism Template 	 I forgot my Evidence (you'll have a chance every month) 	Find and take poll
How do I us	e technology to learn?	
Used good key	boarding habits	O DO

- Completed warm-up, exit ticket
- Completed lesson summative
- [tried to] solve own problems
- Decisions followed class rules
- Higher order thinking, Habits of Mind observed
- Successfully annotated workbook
- Joined class conversations
- Left station as it was (neat and orderly)

Step-by-step

Class warm-up:

Keyboard on class typing program.

<u>Required skill level: Familiarity with digital</u> tools; have created several projects with them.

- _____Any questions from homework? Always review
- material and come to class prepared to participate.
- _____Set up your backchannel. More later in this lesson. _____Discuss interest poll (Exit Ticket from *Lesson #1*).
- Have neighbor's check each other's mouse hold (see Figure 12–zoom in if needed):







8th Grade Technology Curriculum: Student Workbook



_Discuss how understanding hardware helps solve tech problems.

Review school digital devices. Know the basic parts and whether they're input or output. *Figures 13a-d* are thumbnails. Assessments at the end of this lesson can be filled out in your workbook (send your teacher a screenshot). *Figures 14a-b* are sample completed worksheets (zoom in if necessary).



Figure 13a-d—Digital devices and their parts



____Review these with a neighbor. For example, if you use iPads, where are the headphones? Or the mouse? How about the USB Port? Where is the microphone on, say, the PC or Chromebook? How about the charging dock?



Figure 14a—Parts of iPad; 14b—Chromebook

____Discuss digital tools in general terms. What are they? How are they different from software (*Figure 15*—zoom in if needed)?

	SOFTWARE	ONLINE TOOL
Examples	MS Office, KidPix, Type to Learn, Reader Rabbit	Google Drive apps, ABCYa, Dance Mat Typing
Access	Accessible only from where you installed the software	Accessible from any computer with an internet connection
Compatibility	Varies	Most are compatible across platforms (Windows, Macs, Linux, Chromebooks)
Control	You control	Someone else controls—may be moved or removed without your permission
Cost	Varies	Varies—often free versions are available
Daily use	Depends upon whether your computer works and whether the software is compatible with changes you've made to your computer	Depends upon whether your internet connection works
Limitation	Don't run on iPads, Chromebooks	Run on most computer systems
Maintenance	If it breaks, you have to fix it	If it breaks, someone online fixes it.
Security	As secure as your computer is	Depends upon the website's security
Set-up	You must install; might require adaptations to work on your system	No installation required—all you do is go to the site
Speed	Depends upon your system	Depends upon your internet connection
Updates	You do these	Managed by website: always up CAskaTechTeacher to date
Where it lives	On your computer (or network)	On the internet
Working with a partner	Difficult	Easy

Figure 15—Compare-contrast software vs. online tool

Consider these characteristics:

- to facilitate collaborative work
- to publish and share a project with classmates
- to communicate with multiple audiences
- to enable use of a wide variety of media and formats
- to encourage cultural understanding and global awareness
- to provide options (for example: for communication—email, forums, blogs)
- to provide access from anywhere with an Internet connection

_This *Digital Tools* lesson has three expected learning outcomes:

- *introduce digital tools used in 8th grade*
- introduce the concept that tech tools enable differentiation, collaboration, and publishing
- show how to employ them in your educational endeavors



_The following tools are discussed. Your teacher will pick those that apply or add others:

- annotation tool
- avatars
- backchannel devices
- blogs
- class calendar
- class Internet start page
- class Twitter account
- class website
- class webtools
- digital notetaking
- digital portfolios
- dropbox
- email

- Evidence Board
- Flipped classroom
- Google Apps
- logins
- maps
- online quizzes
- screenshots and screencasts
- student websites
- student workbooks
- study helper
- video channel
- virtual meeting rooms
- vocabulary decoding tools

_____Adapt them to your digital devices (Chromebooks, PCs, iMac, iPads, or other). This lesson also includes a summative assessment to see how much you know about webtools.

Your teacher may ask you to complete this as a pre-assessment instead.

Student workbooks

Your teacher will introduce 8th grade student technology workbook (this ebook). Search this PDF using Ctrl+F. In general terms, here's what it includes:

- assessments
- a place to take notes
- *full-color samples of projects*
- checklists for activities
- extras to extend learning
- ability to circle back on concepts already covered or preview upcoming material

Experiment with as many as you have time for. Try to solve any problems you encounter yourself, before asking for help. If you are sharing this workbook with other students, here are suggestions to make that work well:

- pick a color to use for annotations, different from other users
- take screenshots of annotated quizzes and rubrics, and then erase your answers before leaving the workbook for other students

Annotation Tool

_____Any PDF used in your class (such as this technology curriculum student workbook) can





cur

by Ask a Tech Teacher

Technology

ricii

Grades K-8

Student

Workbook





be **annotated with one of many notetaking tools** your school will make available.



_It's worth repeating: If you share a PDF (for example, this workbook is loaded on a digital device that multiple students use), select a color different from other students.

Avatars

_____You can create an anonymous and private profile picture that will let friends know it's you but no one else. Use an **avatar** creator suggested by your teacher.

Figure 18a-d—Avatars



Your avatar should look nothing like you. Nor should it include anything that can be tied back to you. Consider this your alter-ego. For example, if you have blue eyes, give your avatar brown.
 These can be used in your blogs, websites, or any digital platform that requires a profile picture.
 If there's time, create an avatar right now, and then as you log into your class blogs, LMS, or other personal webtools, if there's an opportunity to add your profile information, use this avatar instead of your school picture.

Backchannel Devices

The 'backchannel' is classroom communication that goes on outside of the teacher's presentation. 'Backchannel devices' allow you to share your thoughts and ideas, even questions while a lesson is going on. Typically, the comments show up on the class screen, shared with all classmates, likely anonymously. You read and respond if possible. Popular backchannel options are (your teacher will provide links):

- Padlet_— a virtual wall; Figure 19a
- Socrative_— a closed virtual; Figure 19b
- Twitter a virtual stream organized by hashtags; private or public
- a Google Form that is shared with everyone in class



Figure 19a-b—Backchannel devices

_If you haven't used these before, your teacher will demonstrate and then have you test it.

Blogs

Blogs are short online articles with the purpose of sharing ideas and garnering feedback. *Figures 20a-c* are examples of student blogs. Notice how they incorporate text and images:



Figure 20a-c—Student blogs

_In 8th grade, you are particularly interested in the facility to:

- \circ engage effectively in collaborative discussions with diverse partners
- \circ build on others' ideas

_Blogs can be set to 'public' or 'private' (see *Figure 21*). School blogs are traditionally private, but consider the oxymoron of *privacy* and the *Internet*:



_____Before beginning, discuss blog netiquette (*Figure 22*—zoom in if needed):



Figure 22—Netiquette rules

______8th grade blogs are student-directed, but may require teacher approval of both posts and comments until you get used to the rules that apply to online conversations.
_____Blogs reflect your personality with your selection of colors, fonts, and widgets.
_____In general, blogs require:

- titles that pull the reader in
- tone/voice that fits you and this type of writing
- *linkback(s) to evidence that supports statements*
- at least one media to support each article (picture, video, sound)

- understanding of the target audience
- citations where needed
- occasional teamwork
- pithy content
- correct spelling and grammar with no slang

_Before beginning, sign an agreement similar to *Figure 23a*—full size at the end of lesson—after discussing it with parents. After it's signed, take a screenshot and share it with your teacher.



rigure 25u	—Dioggin	g rules, 22	Dioggi	ng ruoric		
Eighth Grade Blogging Rules	CRITERIA	Exemplary	Proficient	Partially	Incomplete	POINTS
 I will not give out any information more personal than my first name I will not plagiarize; instead I will expand on others' ideas and give credit where it is due. I will use language appropriate for school. I will always respect my fellow students and their writing. 	Relevance of Content to Students and Parents	Opints Content has usefulinfor- mation Content is clear, concise: points readers to up to date resources. Blog is updated frequently	<u>6 points</u> Content points readers to quali- ty resources, is in- formative Resources are clearly de- scribed so read- ers can navigate easily	3 points Content points to urrelated infor- mation. Resources are not clearly described so readers cannot navigate easily.	 <u>0 points</u> Resources point- ed to are inac- curate, mislead- ing or inappro- priate Annotations are missing, do not describe what is found 	
 I will only post pieces that I am comfortable with everyone seeing. I will use constructive/productive/purposeful criticism, supporting any idea, comment, or critique I have with evidence. I will take blogating seriously, posting only comments and ideas that 	Use of Media	 <u>6 points</u> Media enhance content and in- terest. Creativityen- hances content 	 <u>4 points</u> Most media enhance content. Most files show creativity 	2 points Some media don't enhance content. Some use of crea- tivity is evident to enhance content.	 0 points Media are inappropriate or de- tract from con- tent. 	
are meaningful and that contribute to the overall conversation. I will take my time when I write, using formal language (not text lingo), and I will try to spell everything correctly.	Fair Use Guidelines	<u>6 points</u> Fair use guidelines are followed with proper citations.	<u>4 points</u> Fair use guidelines are frequently followed; most material is cited.	<u>2 points</u> Sometimes fair use guidelines are followed with some citations.	0 points Fair use guidelines are not folowed. Material is improperty cited.	
 I will not bully others in my blog posts or in my comments. I will only postcomments on posts that I have fully read, rather than 	Links	<u>3 points</u> All links are active and functioning.	<u>2 points</u> Most links are active	<u>1 point</u> Some links are not active.	<u>0 points</u> Many links are not active.	
just skimmed. 11. I will not reveal anyone else's identity in my comments or posts. Any infraction of the Blogging Rules may result in loss of blogging privileges and an alternative assignment will be required.	Layout and Text Elements	3 points Fonts are easy- to-read Use of bullets, italics, bold, en- hancesreadabil- ity. Consistent for- mat throughout	2 points Sometimes fonts, size, builets, Ital- ics, bold, detract from readability. Minor formatting inconsistencies exist	 <u>I point</u> Text is difficult to read due to formatting 	<u>Opoints</u> Text is difficult to read with misuse of fonts, size, bui- lets, italics, bold Many formatting tools are misused	
	Writing Mechanics	<u>3 points</u> No grammar, capitalization, punctuation, spelling errors	2 points Few grammar, capitalization, punctuation, and spelling errors	<u>1 point</u> 4+ errors in grammar, capitalization, punctuation, and spelling	0 points More than 6 grammar/spelling/ punctuation errors.	
Student Signature Date					TOTAL POINTS	6/36

Figure 23a—Blogging rules; 23b—blogging rubric

_____Your teacher will provide information on the blogging platform you will use.

- _____Test your blog login and add a 'Hello!' post. Always practice good keyboarding as you type.
- _____Once a month, post an article on an inquiry topic. Additionally, visit and comment on five classmate blogs.
 - ____Occasionally throughout the year, use the Student Blog Rubric (*Figure 23b*—full-size assessment at the end of the lesson) to assess your progress.

Class Calendar

You will have a **digital class calendar** that tracks due dates, class events, and other important information. It might be created in Google Calendar (*Figure 24a*), Office 365, a Padlet template (*Figure 24b*), MS Publisher (*Figure 24c*), or another option. If possible, it will be embedded into the class website. You might also be able to embed it into your blog so that it auto-updates. Check with your teacher on that possibility.

- ______Volunteer to add events to the calendar for one month. If your teacher allows everyone to contribute, do so responsibly.
 - _____For Google Calendar training, visit Google's comprehensive calendar training. This may be done during class or on your own time, as a personal interest.

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Class Internet Start Page

A **class Internet start page** is a website that comes up when you open the Internet. It organizes critical content in a single location and curates links you will use.

____Your teacher will provide the link to your class internet start page, possibly Google Classroom.



____Remember: Visit the Internet safely and legally. This is discussed in depth in another lesson.

Class Twitter account

Twitter is a social media account renowned for its brief character writing. Besides text, you can also include images and videos. Using #hashtags, you can follow the community thinking on a particular topic.

_____Like blogs, **Twitter** feeds are used to:

- engage collaboratively with diverse partners
- review key ideas
- pose questions that elicit elaboration
- acknowledge information from others

_Your class will have a private class twitter account (see *Figure* 26) for announcements, group questions, discussions, and col-

laboration. Use #hashtags to organize themes like #homework, #math, and #questions.





Figure 26—Twitter—private account

_Most blog and website activity can also be tweeted, so it's a great redundancy for getting news where it needs to go. But be careful—social networks must be handled right. More on that in the lesson on *Digital Citizenship*.

Figure 27a-b-Social media safety



Class Website

__Class websites serve as a general resource collection for class information. They are a first-stop for parents, visitors, and often you to find out about class activities. This is maintained by the teacher, but you may (or not) be permitted to manage, update, and add articles to class site. __Class websites include much of the same information that the Internet start page, but in more detail. For example, an upcoming field trip post will include sign-up forms, parent permission slips, and links to resources supporting the trip.



They are also similar to a class blog (if you have one), but posts are static: They don't move down

a stream as more are added. Most classes will have either a class website or blog. Popular inclusions to class websites are:

- polls
- discussion boards and forums
- *teacher picture and bio*
- *links to class activities*
- class expectations, standards
- link to grades

Class Webtools

Class webtools are programs accessed directly from the Internet. They aren't on the digital device you use at school (though there may be a shortcut to the tool). In fact, if you don't have an Internet connection, you won't be able to use them. You'll like webtools because if you start a project at school, you can finish it at home—no problem.

_Webtools you'll use may include:

- online math program (i.e., Khan Academy) •
- digital keyboarding program
- avatar creator for digital citizenship
- badge to assess progress •
- reading library
- school sports team

_Log into all class webtools right now to make sure there are no problems.

Digital Notetaking

Why take notes (from Common Core):

- determine central ideas
- provide an accurate summary
- *identify key steps*
- cite text evidence to support analysis
- analyze structure used to organize text ٠
- analyze author's purpose

Here are five **digital notetaking methods** your teacher might suggest you use (zoom in for how-to notes):

- word processing program (for any digital device) Figure 28a
- Notability (for iPads) Figure 28b





Figure 28a-b—Notetaking tools

• Google Apps – Figure 29 (zoom in if needed)

Figure	29	Collab	orative	notes	in	Google	Spread	sheets
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Civil Warkeep responses to File Edit View Insert Format The Control State of the	o 140 character Data Tools Form rial - 10	rs, just like you d Help All changes	o on Twitter ☆ saved in Drive	Title with all students
A B Timestamp Student Sam Sheldon Adima Mohammed Neil Shara	C Major Battles	D Causes	E Quotes	F G H I J Student answers all questions. It's clear to teacher who completed work. All knowledge is shared.

- Evernote/OneNote (for most digital devices) Figure 30a
- Twitter (for most digital devices) Figure 30b

Figure 30a—Evernote; 30b—Twitter



Digital portfolios

____Digital portfolios are a virtual collection place for classwork, homework, research materials, or any other information you use for school. They can be used for the following purposes:

• store work (in Cloud) required in other classes or at home

- interact, collaborate, and publish with peers, experts, or others
- edit or review work in multiple locations
- submit class assignments

There are a variety of approaches to digital portfolios that satisfy some or all of the above uses: 1) folders on school network, 2) fee-based companies such as Richer Picture, 3) cloud-based storage like Dropbox or Google Apps (*Figure 31b*—zoom in if needed), and 4) online collaborative sites like wikis.

_____Review the *Assessment* rubric at the end of this lesson on what you should include in your personal digital portfolio. Occasionally, use it to review your progress.

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[B+c]] Use the Tables is align right (see more on Horse gapp) Remains where we is the gap in the <u>Tool</u> when you use Heading T for their 18te. Do this for each project. This is important-this is here? gade your work.	CREATE	My Drive	Files organized into folders
Your swatar • Ching, the seate and foot - Analysis control 51 = - Analysis control 52 = - Analysis control 52 = • are score which of show and/or to your lie folder	CSG	Image: Second secon	
Your projects And an example of each shill we do in class and a reflection on what you their of it disclarly here you will use it in the More • suggestions for changestips for future students.	Online KBMonth1-9	☆ 人 website grading rubricfaculty websites.pdf ☆ III collaborative timeline in GAFE.xts	List of files. Select one to work with

Figure 31a—Wiki; 31b—Google Drive

Dropbox

A classwork and homework **dropbox** is an online collection spot for work you must submit to your teacher. It can be created through the school Learning Management System (LMS), email, Google Apps, Google Classroom, or other options.

_____If your school has this option, your teacher will review it. If not, s/he'll show you how to submit your work.

_____If you have Google Apps, create a Homework dropbox like *Figure 32*—zoom in if needed:





- Create a folder called 'Homework' that is shared with your teacher.
- Submit work by copying it to that folder.

Email

_____Use a **web-based email account** such as Gmail (comes with GAFE and Google Classrooms). _____Review email etiquette (*Figure 33*—zoom in if needed):



- Use writing conventions.
- CC anyone mentioned.
- Make 'Subject line' email topic.
- Answer swiftly after reading.
- Don't use all caps—THIS IS SHOUTING.
- Don't attach unnecessary files.
- Don't overuse high priority.
- Don't email confidential information.
- Don't email offensive remarks.
 - Don't forward chain letters or spam.
 - Don't open attachments from strangers.
- _____Volunteer to clarify terms like 'high priority', 'chain letters', and 'CC'.

____Be aware: The email program you use at home may not match the one used at school. Ask your parents to show you how to use the home-based email.

____Why is correct grammar/spelling important in email and not so much with texting? Hint: Consider this Common Core standard: *Produce ... writing in which development, organization, and style are appropriate to task and audience.*

____Discuss how email can be used to backup important documents (by emailing a copy to yourself or creating a draft email with doc attached and stored in 'Draft' file).

____When you get an email, before answering, follow this checklist:

- Do you know sender?
- Is email legitimate? For example, does the 'voice' sound like sender?
- Is sender asking for personal information? Legitimate sources never do.
- Is there an attachment? If so, don't open it.

Evidence Board

__The **Evidence Board** (*Figure 34a*—zoom in if needed) is a bulletin board that celebrates transfer of knowledge from tech class to home, friends, or other educational endeavors.



____About once a month, share how you use tech skills outside of class. You'll make a ten-second presentation to class, fill out a badge (like *Figure 34b*), and post it on the Evidence Board by your class. By year end, you want this collection to encircle the classroom.

Flipped Classroom

A flipped classroom (see Figure 35 and Figure 36b—zoom in if needed) is when your teacher records lectures for consumption as homework—before the next class session—and then dedicates class time to project-based learning supported by the homework. This approach allows you to ask questions of your teacher or collaborate with peers as you're doing the work, rather than struggling with it at home and asking for help the next day. Your teacher will show you where you'll find homework (probably on the class website or

blog) and model how to complete it. __Likely, it will include several pieces:

- summary video prepared
- reading material from ebooks, online sources
- hands-on work such as keyboard practice
- preparatory steps required to participate in the classtime project

____Tools that might be used to collect homework materials are:

- Google Classroom
- Google Drive
- a class LMS (Learning Management System)
- Google Apps

Figure 35—What is a flipped classroom?





Figure 36a-b—Flipped classroom

Google Apps

_____To access **Google Apps** requires a Google account.

Figure 37—Google Apps

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__Take time to explore Google Drive before moving on. The most popular apps—and the ones you will use the most—are:

- Google Docs
- Google Slides
- Google Spreadsheets
- Google Draw
- Google Contacts—Figure 39



Figure 39—Google Contacts					
Google		٩			
Contacts -	🗆 👻 🚨 🛨 More 🛪				
NEW CONTACT					
* My Contacts					
Starred					
* Circles (31)					
 Friends (3) 					
 Family (6) 					
 Acquaintances (2) 		vveicome to Contacts! To add a conta			
 Following (1) 					
 Techies (7) 					

Everything created in Google Apps is backed up instantly in the Cloud, secure and private. Importantly, it enables collaboration and sharing anywhere. This facilitates a shift from software-based, print-centric programs to a more open, equitable and green approach to education (Microsoft now has their version called Office 365).

_____Take time to get started on your account—log in, use Drive, share documents. What's the similarity between Google Docs/Spreadsheet/Presentation and MS Office?

Logins

_____Volunteer to demonstrate how to log into digital devices and tools. Record logins to a secure location that only you have access to. Suggestions:
Keep a physical copy in your personal binder or digitally in your digital portfolio.
Keep a snapshot on your digital device for quick reference.
_____Digital tools that might require a login include:

class etextbooks
online webtools like keyboarding programs
class LMS (which likely includes your grades)

____Review of logins is optional. Your teacher may decide you need no assistance with this.

Maps

Create **maps of events**, **literature**, **history** and more using an app like Scribble Maps._Have it available for any time you need to map out class inquiry locations or track events in a novel:



Figure 40—Map Creation App

Online Quizzes

Your teacher may use an **online quiz tool** like Google Forms (part of Google Apps). It doesn't matter which as long as you get used to taking quizzes, being graded online, and getting immediate feedback.

Screenshots and Screencasts

_____You will use **screenshot** (still images—*Figure 41a*) tools, apps, or add-ons (depending upon your digital device), as well as **screencasts** (videos—*Figure 41b*) to record information from your screen. If you didn't cover the 7th grade on '*Screenshots and Screencasts*', your teacher will review these tools with you.

Figure 41a—Screenshot to explain login; 41b—screencast to explain the use of screencasts

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1. Your user name	Screen Recorder Ready! For beat results, set the volume on your microphone before recording (Windowskae, only) You can close this page or navigate to another sale if you need to.	Help Send Feedback Screen Recorder not loading? Download and install our app install-our	Presenter pic in corner-optional
User-Name Password 2. Your password	Keep it short	Conveyed+Install Try unlimited music. First 30 days on us.	

Most digital devices include a built-in tool that lets you grab a screenshot of your device's screen which you may be able to mark up, and then save or share. This is great for rubrics and other assessments included in this PDF. Here's a list for common digital platforms:

- Windows: the Snipping Tool
- Chromebook: hold down the control key and press the window switcher key
- Mac: Command Shift 3 to do a full screenshot and Command Shift 4 for a partial
- **iPad**: hold Home button and power button at same time
- **Online**: a screenshot tool

Student website

_____Most teachers will select **either blogs or websites** for students, depending upon your goal:

- Blogs are more interactive and time-sensitive.
- Websites more fully cover a topic and new posts don't push older out of the way.

Like blogs, student websites are a great way to encourage reflection, organization, logical thinking, and are a perfect place to embed sharable projects i.e., Tagxedos and Animotos. Websites are available in Google Apps, but there are popular options your teacher may suggest.
_____Websites reflect your personality with colors, fonts, and layout. In general:

- website and article titles pull readers in
- articles review what readers can expect, provide evidence, and summarize content
- links connect to evidence and links work
- at least one media is provided to support each article (picture, video, sound)
- posts understand the target audience. How are website readers different from Tweeting? Or writing essays?
- citations are included as needed



_____Occasionally, assess your website based on the criteria in *Figure 42* (full size at end of lesson):

		Evaluation	scale:		
	Exemplary: Proficient: Partially Proficie	ent or Incomplete:	32-36 points 28-31 points < 28 points (resu	ibmit)	
CRITERIA	Exemplary	Proficient	Partially	Incomplete	POINTS
Relevance of Content to Students and Parents	Content has useful infor- mation Content is clear, concise; points readers to up to date resources. Content is up- dated frequently	<u>6 points</u> • Content points readers to quali- ty resources, is in- formative • Resources are cleany de- scribed so read- ers can navigate easily	3 points Content points to unrelated infor- mation. Resources are not clearly described so readers cannot navigate easily.	 <u>0 points</u> Resources point- ed to are inac- curate, mislead- ing or inappro- priate Annotations are missing, do not describe what is found 	
Use of Media	 <u>6 points</u> Media enhance content and in- terest. Creativityen- hances content 	A points Most media enhance content. Most files show creativity	2 points Some media don't enhance content. Some use of crea- tivity is evident to enhance content.	 <u>0 points</u> Media are inappropriate or detract from contract from content. 	
Fair Use Guidelines	<u>6 points</u> Fairuse guidelines are followed with proper citations.	<u>4 points</u> Fairuse guidelines are frequently followed; most material is cited.	<u>2 points</u> Sometimes fair use guidelines are followed with some citations.	0 points Fair use guidelines are not followed. Material is improperly cited.	
Links	<u>3 points</u> All links are active and functioning.	<u>2 points</u> Most links are active	<u>1 point</u> Some links are not active.	<u>0 points</u> Many links are not active.	
Layout and Text Elements	3 points Fonts are easy- to-read Use of bullets, italics, bold, en- hances readabil- ity. Consistent for- mat throughout	2 points Sometimes fonts, size, bullets, ital- ics, bold, detract from readability. Minorformatting inconsistencies exist	<u>Lpoint</u> • Text is difficult to read due to for- matting	Opoints Text is difficult to read with misuse of fonts, size, bui- lets, Italics, bold Many formatting tools are misused	
Writing Mechanics	3 points No grammar, capitalization, punctuation, spelling errors	2 points Few grammar, capitalization, punctuation, and spelling errors	<u>1 point</u> 4+ erors in grammar, capitalization, punctuation, and spelling	<u>0 points</u> More than 6 grammar/spelling/ punctuation errors.	
				TOTAL POINTS	/30

Figure 42—Student website rubric

Study Helper

Study Helpers are online tools that assist you in test preparation. Your teacher will suggest some for you.

_____Your teacher may require these so you are familiar with the concept, comfortable with their use, and able to employ them to achieve educational goals.

Video Channel

_____The class **video channel** includes the **homework video collections** as well as how-to videos

and class movies that apply specifically to your group. Most videos can be embedded into blogs, websites, and digital portfolios, and accessible through your school LMS. _Your teacher will show you how to access this channel and find the videos you need.

	Unlisted playlist address	T C S + flipped classroom infographic	P 🖡 🕯
de and 📋 Scoop.it! 🌾 Kozzi.com - My Subscr 🔝 How to Teach Digital 🐕 Wikispaces - techte.	Unlisted playlist address	. 😕 Jacqui Murray Teach 🔛 K-8 Classes 🔀 Hangouts 📮 Google	e Voice - Inbox 🖲 RingCentral Cloud
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► () 207 /2234.		● ✿ 匚 []	B class ≢12

Figure 43—Screencast

____The channel will be set to 'private' (which requires a passcode to access) or 'unlisted' (which requires the website address).



Basic info Advanced settings	
Video KB class #1	Unlisted -
Video is not listed i YouTube database. Viewer must have address	Video Keyboarding Curriculum Companion

Virtual Meeting Rooms

____Depending upon your school culture and age limits, this may require parent permission slips.

Vocabulary Decoding Tools

_____Vocabulary decoding tools enable you to decipher the meaning of words and phrases directly from your digital device, often from the program you are working in. Depending upon the device, these will be:

- on the digital device homepage (Figure 45a)
- on the browser toolbar (Figure 45b)
- a right click (Figure 45c)



Volunteer to show how to quickly look up words rather than skip over content that includes the word. Then, practice with several vocabulary words from this lesson.

Summatively

Work in by doing • • • • • • •	n groups to become familiar with digital tools g one or more of the following: blog about digital tools and comment on each other's blogs participate in after-school virtual meet- ings to share thoughts on digital tools collect online links to your blog sidebar tweet about digital tools on class Twitter feed using #hashtags such as #8thSmith. create a group folder and share information a slideshow using PowerPoint, Google Slides, or	with group members an online tool suggested by your teacher.
Class exit ticket:	Email, tweet, or comment on a classm receive.	ate blog post and reply to one you
Extension: •	For more Google Apps, try these:	

- Scholar: Research and analyze sources from books, websites, other
- Translate: Use this online translation tool for any text
- Create a Voki as an introduction to your wiki or blog.
- Create a word cloud on what you think about technology, what tools you're excited to learn, or a profile of yourself. Share on website or blog.
- Start homework preview of the next unit.

Assessment 1—Parts of the computer

HARDWARE—PARTS OF THE COMPUTER

Student name: _____



Name each part of computer hardware system and whether it's INPUT or OUTPUT. Spelling must be correct to get credit



Assessment 2—Parts of the smartphone

HARDWARE—PARTS OF THE SMARTPHONE

Adapt this to your needs





Reg &

Assessment 3—Parts of an iPad

Parts of an iPad



Assessment 4—Chromebook parts

Parts of a Chromebook



Assessment 5—Student blogging agreement

Eighth Grade Blogging Rules

- 1. I will not give out any information more personal than my first name
- 2. I will not plagiarize; instead I will expand on others' ideas and give credit where it is due.
- 3. I will use language appropriate for school.
- 4. I will always respect my fellow students and their writing.
- 5. I will only post pieces that I am comfortable with everyone seeing.
- 6. I will use constructive/productive/purposeful criticism, supporting any idea, comment, or critique I have with evidence.
- 7. I will take blogging seriously, posting only comments and ideas that are meaningful and that contribute to the overall conversation.
- 8. I will take my time when I write, using formal language (not text lingo), and I will try to spell everything correctly.
- 9. I will not bully others in my blog posts or in my comments.
- 10. I will only post comments on posts that I have fully read, rather than just skimmed.
- 11. I will not reveal anyone else's identity in my comments or posts.

Any infraction of the Blogging Rules may result in loss of blogging privileges and an alternative assignment will be required.

Student Signature Date

Assessment 6—Blog grading rubric

Student Blog Rubric

Adapted from University of Wisconsin-Stout

Exemplary: Proficient: Partially Proficient or Incomplete: 32-36 points 28-31 points < 28 points (resubmit)

CRITERIA	ITERIA Exemplary Proficient Par		Partial	Incomplete	POINT S
Relevance of Content to Students and Parents	evance ontent tudents Parents9 points Content has useful infor- mation6 points content points readers to quali- ty resources, is in- formative3 points unrelated infor- mation.• Content bas 		 <u>3 points</u> Content points to unrelated infor- mation. Resources are not clearly described so readers cannot navigate easily. 	 <u>0 points</u> Resources pointed to are inaccurate, mis- leading or in- appropriate Annotations are missing, do not describe what is found 	
Use of Media	 <u>6 points</u> Media enhance content and in- terest. Creativity en- hances content 	 <u>4 points</u> Most media enhance content. Most files show creativity 	 <u>2 points</u> Some media don't enhance content. Some use of creativity is evident to enhance content. 	 <u>0 points</u> Media are in- appropriate or detract from content. 	
Fair Use Guidelines	<u>6 points</u> Fair use guidelines are followed with proper citations.	<u>4 points</u> Fair use guidelines are frequently followed; most material is cited.	<u>2 points</u> Sometimes fair use guidelines are followed with some citations.	<u>0 points</u> Fair use guidelines not followed.	
Links	<u>3 points</u> All links are active and functioning.	<u>2 points</u> Most links are active	<u>1 point</u> Some links are not active.	<u>0 points</u> Many links are not active.	
Layout and Text3 points Fonts are easy- to-readElements• Use of formatting enhances read- ability. • Consistent for- mat throughout		 <u>2 points</u> Sometimes fonts, size, bullets, ital- ics, bold, detract from readability. Minor formatting inconsistencies exist 	 <u>1 point</u> Text is difficult to read due to formatting 	 <u>0 points</u> Text is difficult to read with misuse of for- matting Many format- ting tools are misused 	
Writing Mechanics	<u>3 points</u> No grammar, capitalization, punctuation, spelling errors	<u>2 points</u> Few grammar, capitalization, punctuation, and spelling errors	<u>1 point</u> 4+ errors in grammar, capitalization, punctuation, and spelling	<u>0 points</u> More than 6 grammar/ spelling/ punctuation errors.	
			I	OTAL POINTS	/30

Assessment 7—Website grading rubric

Student Website Rubric

Adapted from University of Wisconsin-Stout

<u>Evaluation</u>	<u>scale:</u>
Exemplary:	32-36 points
Proficient:	28-31 points
Partially Proficient or Incomplete:	< 28 points (resubmit)

CRITERIA Exemplary		Proficient	Partially	Incomplete	POINT S
Relevance of Content to Students and Parents9 points 		 <u>6 points</u> Content points readers to quali- ty resources, is in- formative Resources are clearly de- scribed so read- ers can navigate easily 	 <u>3 points</u> Content points to unrelated infor- mation. Resources are not clearly described so readers cannot navigate easily. 	 <u>0 points</u> Resources point- ed to are inac- curate, mislead- ing or inappro- priate Annotations are missing, do not describe what is found 	
Use of Media	 <u>6 points</u> Media enhance content and in- terest. Creativity en- hances content 	 <u>4 points</u> Most media enhance content. Most files show creativity 	 <u>2 points</u> Some media don't enhance content. Some use of crea- tivity is evident to enhance content. 	 <u>0 points</u> Media are inappropriate or depropriate or detract from content. 	
Fair Use Guidelines	<u>6 points</u> Fair use guidelines are followed with proper citations.	<u>4 points</u> Fair use guidelines are frequently followed; most material is cited.	<u>2 points</u> Sometimes fair use guidelines are followed with some citations.	<u>0 points</u> Fair use guidelines are not followed. Material is improperly cited.	
Links	<u>3 points</u> All links are active and functioning.	<u>2 points</u> Most links are active	<u>1 point</u> Some links are not active.	<u>0 points</u> Many links are not active.	
Layout and Text Elements	 <u>3 points</u> Fonts easily read Formatting enhances readability. Consistent format throughout 	 <u>2 points</u> Sometimes formatting detracts from readability. Minor formatting inconsistencies exist 	 <u>1 point</u> Text is difficult to read due to for- matting 	 <u>0 points</u> Text is difficult to read with misuse of fonts, size, bullets, italics, bold Many formatting tools are misused 	
Writing Mechanics	<u>3 points</u> No grammar, capitalization, punctuation, spelling errors	<u>2 points</u> Few grammar, capitalization, punctuation, and spelling errors	<u>1 point</u> 4+ errors in grammar, capitalization, punctuation, and spelling	<u>0 points</u> More than 6 grammar/ spelling/ punctuation errors.	
				TOTAL POINTS	/30

Assessment 8—Digital portfolio rubric Digital Portfolio Rubric

Selection of ArtifactsAll artifacts and work samples are clearly and directly related to the purpose of portfolio.Most artifacts and work samples are related to the purpose of the digital portfolio.Some of the artifacts and work samples are related to the purpose of the digital portfolio.None of the artifacts and work samples are related to the purpose of portfolio.ReflectionsAll reflections clearly describe growth, achievement and accomplishments, and include goals for continued learning (long and short term).Most reflections describe growth and include goals for continued learning. It is clear student put thought and consideration into writing.Af ew of the reflections describe growth and include goals for continued learning. It is clear student put thought and consideration into writing.Most graphic elements and multimedia contribute to concepts, ideas and relationships, ereate interest, and are appropriate for chosen purpose.Most graphic elements and multimedia contribute to concepts, ideas and relationships.Multimedia do not contribute to concepts, ideas and relationships.Multimedia do not contribute to concepts, ideas and relationships.Use of multimediaPhotographs, graphics, audio and/or video files enhance concepts, ideas and relationships, create interest, and are appropriate for chosen purpose.Most graphic elements and create interest.Some of the graphic elements and multimedia do not contribute to concepts, ideas and relationships.Multimedia do not relationships.	ING
ReflectionsAll reflections clearly describe growth, achievement and achievement and accomplishments, and include goals for continued learning (long and short term).Most reflections describe growth and include goals for continued learning. It is clear student put thought and consideration into writing.A few of the reflections describe growth and include goals for continued learning. It is not clear student put thought into his/her writing.None of the reflections describe growth and include goals for continued learning. It is not clear student put thought into his/herNone of the reflections describe growth and does not include goals for continued learning. It is clear student put thought into his/herUse of MultimediaPhotographs, graphics, audio and/or video files enhance concepts, ideas and relationships, create interest, and are appropriate for chosen purpose.Most graphic elements and multimedia contribute to concepts, ideas and relationships.Some of the graphic elements and multimedia do not contribute to concepts, ideas and relationships.Multimedia doesn't contribute to concepts, ideas and relationships.	
Use of MultimediaPhotographs, graphics, audio and/or video files enhance concepts, ideas and relationships, create interest, and are appropriate for chosen purpose.Most graphic elements and multimedia contribute to concepts, ideas and relationships, enhance the written material and create interest.Some of the graphic elements and multimedia do not contribute to concepts, ideas and relationships.Multimedia doesn't contribute to concepts, ideas and relationships.	
Documentation & CopyrightCopyright guidelines followed with accurate citations. All content displays appropriate copyright permissions.Most images, media and text created by others are cited with accurate, properly formatted citations.Some images, media or text created by others are not cited with accurate, properly formatted citations.No images, media or text created by others are cited with accurate, properly formatted citations.	
Ease of NavigationNavigation links are generally function well, but it is not always clear how to locate an artifactNavigation links are confusing and it is often unclear how to locate an artifact or move to related pages or section.Navigation links are confusing and it is difficult to locate artifacts and move to related pages or a different section.	
Layout and Text ElementsDigital portfolio is easy to read. Fonts and type size vary appropriately for headings, sub- headings and text. Use of font styles (italic, bold, underline) is consistent and improves readability.Digital portfolio is generally easy to read. Fonts and type size vary appropriately for headings, sub- headings, sub- <th></th>	
CaptionsAll artifacts are accompanied by a caption that clearly explains importance of 	
Writing MechanicsThere are no errors in grammar or spelling.The few grammar and spelling errors require minor revision.There are four or more errors in grammar and spelling requiring editing and revision.There are more than six errors in grammar and spelling requiring major revision.	

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Lesson #3 Keyboarding

 Cumulative Hunt-and-peck Hunt-and-peck Keyboard shortcuts QWERTY Shortkey I can't type with hands covered (Keep practicing) I keep losing home row (find bump on F and J with pointers) I do fine with 2-4 fingers (but you won't get fast) How does tech help me work better? Worked independently Completed Challenge Completed formative projects Completed formative projects Completed warm-up 	Vocabulary	Problem solving	Homework
 Shortkey Tilde Touch typing Wpm I do fine with 2-4 fingers (but you won't get fast) I do fine work better? Worked independently Completed Challenge Completed Handwriting vs KB Completed formative projects Completed warm-up 	 Cumulative Hunt-and-peck Keyboard shortcuts QWERTY 	 I can't remember key placement (trust yourself to know) I can't type with hands covered (Keep practicing) 	Assigned prior week: KB 45 min, 15 min/ Prepare to discuss KB
 How does tech help me work better? Worked independently Completing required quizzes Completed Challenge Completed Handwriting vs KB Completed formative projects Completed warm-up 	 Shortkey Tilde Touch typing Wpm 	 I keep losing home row (find bump on F and J with pointers) I do fine with 2-4 fingers (but you won't get fast) 	checklist and a quiz Know 5 shortkeys
[tried to] solve own problems	How does tech he Worked independe Completing require Completed Challer Completed Handw Completed format Completed warm-u [tried to] solve own	elp me work better? ently ed quizzes nge vriting vs KB ive projects up problems	Po his

Step-by-step

Class warm-up: Keyboard on class typing program, paying attention to good habits.

This lesson is spread throughout the year.

Left station as it was (neat and orderly)

•

_____Required skill level: Keyboarding basics.

- _____Before beginning, open backchannel device.
- _____Any questions from preparatory homework?
- _____Which reasons in *Figure 46* (zoom in if needed) are why you care about keyboarding?
 - _____At this point in your typing education, you should:
 - \circ keep copy to the side of the keyboard
 - o take proper care of tech equipment
 - use correct posture—legs in front, body in front and one hand's width from table, elbows at sides, posture upright, feet flat on the floor, hands curled over home row
 - effectively use software and Internet-based sites for keyboard practice







___Have your neighbor check your posture. It should be habit, whether you're at home, school, the library, or anywhere (*Figures 47a-b*—zoom in if needed):





_Review how your hands should look (*Figure 48*):



Figure 48—Keyboarding hand position

_____Keyboarding is cumulative. What can be learned this year depends heavily upon what was learned earlier. If hunt 'n peck becomes ingrained, it's difficult to develop competence later.
____Your teacher will review keyboarding best practices:

- Keep hands curved over home row.
- Use correct posture:
 - Sit straight, shoulders back, head up, body centered one hand's width from table, feet flat on the ground.
 - Keep elbows close to sides.
 - Reach for keys—don't move hands (only fingers).
- Touch type with a steady, even pace.
- Keep eyes on copy or screen—NOT keyboard.
- Use keyboard shortcuts (i.e., Ctrl+B and Shift+Alt+D).

Technique	Date	Date	Date	Date	Date
•					
Feet placed for balance and sits up straight					
Body centered to the middle of keyboard					
Eyes on the screen					
Types with correct fingering					
Types with a steady, even rhythm					
Keeps fingers on home row keys					
Has a good attitude and strives to improve					
WPM (words per minute)					

____If you just started keyboarding, your teacher will pick only a few criteria to assess and add others as you're ready for them.

_____Volunteer to add each keyboarding activity to class calendar.

_____By the end of 8th grade, you should:

- type 45 wpm and over three pages in a single sitting
- compose at the keyboard with ease, eyes on copy
- know at least twenty shortkeys (i.e., Alt+F4, Esc, Ctrl+P, Ctrl+S, Ctrl+C, Ctrl+V, Ctrl+Alt+Del, Ctrl+B/I/U, double-click to enlarge window, Alt+Tab, Win key, Shift+tab, right mouse button key, Ctrl+, Ctrl-, ???)
- reach fingers from home row to other keys. When viewed, hands appear still with fingers moving—no flying hands.
- o touch type all keys
- know all keys
- be able to present your thoughts in written format in a way that represents you wellgood formatting, minimal errors, and quickly
- understand keyboard parts and functions

____The **Mulligan Rule** applies to all keyboarding assessments. A 'mulligan' is a do-over. You can retake any quiz/project/test without losing credit.

__Practice 10-15 minutes during class and 45 minutes per week as homework.

_____Practice one keyboard row at a time. Here's a schedule for the **first six weeks**:

- Weeks 1-2: home row
- Weeks 3-4: QWERTY row
- Weeks 5-6: lower row

_Throughout year, your teacher will observe as you type and evaluate errors. Causes of errors

include tension, wandering attention, faulty reading, the wrong mind set, and fatigue. _____Here are nine activities included in this lesson:

- blank keyboard quiz
- formative assessments
- important keys quiz
- *keyboarding challenge*
- projects
- shortkeys
- summative speed/accuracy quizzes

Shortkeys

_____Throughout year, reinforce use of shortkeys like:

- when saving, Ctrl+S
- when printing, Ctrl+P
- when needing to undo an action, Ctrl+Z
- when copying, Ctrl+C
- when pasting, Ctrl+V
- when cutting, Ctrl+X
- when enlarging a window, double click title bar
- when closing a program, Alt+F4
- when entering date, Shift+Alt+D
- when taskbar disappears, Win key
- to bring up Start button, Win key
- to bold/underline/italicize: Ctrl+B/U/I
- when toggling between two windows (say, for research), Alt+Tab
- when tabbing to the left, Shift+tab

Take a screenshot of *Figure 49*, print, and tape to your digital device or notebook. See *Figures 50a-d* for platform-specific shortkeys (zoom in to see better):



Figure 50a—iPad shortkeys; 50b—Chromebook shortkeys; 50c—PC shortkeys; 50d—Internet shortkeys

10 Favorite iPad Shortkeys	10 Favorite Chromebook Shortkeys	10 Favorite Chromebook Shortkeys 10 Favorite PC Shortkeys 10 Favorite Inte			
And an evaluation of the formation of th			Branch Control of the state of the sta		

Authentic keyboarding using projects

Typing is best learned project-based. These can be short reports, magazines, trifolds, or a story. *Figures 51a-e* are projects from the K-7 curriculum that reinforced authentic keyboarding:

Figure 49—Shortkeys

SHORTKEYS

CTRL+S

CTRL+P

CTRL+Z

CTRL+C CTRL+V

CTRL+X CTRL+B

CTRL+U

CTRL+I

CTRL+

CTRL-



Figure 51a-e—Project-based learning and keyboarding

Figures 52a-f are projects in the 8th grade tech curriculum that will reinforce authentic keyboarding:





Formative assessments

_____Once a month, practice on a site like TypingTest.com to see how fast/accurately you type. More than five errors? Slow down. Less than five—speed up.

Summative speed/accuracy quizzes

Each grading period, you'll be tested on speed and accuracy to track improvement. The first quiz is a benchmark—to evaluate skills. The rest are graded based on improvement. If you do your homework and use good habits at the computer, you'll do fine.

• 20% improvement 10/10 • No improvement

9/10

• Slowed down 6/10

7/10

• 1-10% improvement 8/10

10-20% improvement

Grade level standard: **45 wpm.** If you haven't been practicing keyboarding for several years (or haven't used this curriculum since kindergarten), your teacher may adjust this. The speed quiz can be delivered several ways:

- Use an online typing test like TypingTest.com.
- Place a page from a book being read on the class screen. You copy it for the quiz. This method forces your eyes up rather than on your hands.
- Print a page from a book being read in class. You place it to the side of your keyboard and type from it.

_____Type for three-five minutes, then save/share/print as is the custom in your class.

Important Keys Quiz

- _____Volunteer to explain why it's important to memorize key placement (*Figure 53*—zoom in if needed).
 - **Each grading period**, you take a blank Important Keys quiz (see *Figure 54* and *Assessment* at the end of the lesson—adapt this to your digital device) to test key placement knowledge. You get ten minutes and can work in pairs and must retake until you pass.
- _____If you are taking this quiz more than once (say, once a grading period), the first is a baseline. Next quizzes will be scored like the keyboard speed quiz.





Figure 54—Important keys on keyboard





Blank keyboard quiz

- **Each grading period**, you take a blank keyboard quiz (*Figures 55a-b* are blank keyboards for a PC and a Chromebook. Adapt as needed for your digital device. See end of Lesson for *Assessments*) to test knowledge of key placement. You get ten minutes, working in pairs. You must retake until you pass. Success translates to speed, accuracy, and facility with touch typing.
- _____Volunteer to explain why it's important to memorize keys (see *Figure 53*).
- _____The first quiz is a baseline. Next time, quizzes are graded like keyboard speed quiz—on improvement.
 - ____Common mistakes are forgetting *Esc* at the left side of F row, forgetting tilde at the left side of number row, and getting QWERTY row in the wrong pace.



Figure 55a—Blank keyboard quiz for PCs; 55b—for Chromebook

Handwriting vs. Keyboarding

- _____By a show of hands, who thinks they type faster than they handwrite? By 8th grade, everyone should. If you handwrite faster, you probably don't like typing and vice versa.
- Today, compare these two by typing and writing a document. Why measure both?
- _____Warm up with keyboarding. Review posture and hand position.
- _____Open TypingTest.com or similar. Take a three-minute quiz. Independently determine how to do this (if you haven't before). When done, record your speed on a common spreadsheet that's shared with you (like *Figure 56*—zoom in if needed):

	A	В	с	D
1		Handwriting speed	Typing speed	Which is faster?
2	Masha	38	45	typing
3	Devon	40	65	typing
4	Sam	37	40	typing
5	Manda	36	34	handwriting
6				

Figure 56—Spreadsheet for Handwriting vs KB data

_____Next: Handwrite pages from a book being read in class to evaluate handwriting speed. Do this for three minutes (the same length as keyboarding). When done, enter your speed into the same common shared spreadsheet.

___Discuss purpose of this evaluation. The fastest 8th grader is probably 35-40 wpm. How about typing speed? Many people type 45-100 wpm—or faster. What conclusion do you draw?



_____Students names who typed faster than they handwrote will be posted.

Keyboarding Challenge

_____Divide into teams. Select a captain—s/he will be the only person who can answer questions. Responses must be quick—to show team really knows the right key. See *Assessment* at the end of this lesson.

___Your teacher will ask Team #1 a question, i.e., "*Which finger types f*?" They get 3 seconds to answer (answer may be visual). If they don't know or can't answer fast enough, teacher moves to Team #2, but won't repeat the question. If



they don't know the question or can't answer, teacher moves to Team #3 and then Team #4. If no one can answer, teacher will provide the answer.

_____Next question goes to Team #2—even if they were the ones who answered Team #1's question. This is how teams get ahead. Pose question to Team #2 and repeat step above.

Class exit ticket: None

Extension:

- Volunteer to enter keyboarding assignment dates.
- Volunteer to put Keyboard Challenge into a Jeopardy template.



Assessment 10—Important Keys

8th Grade Technology Curriculum: Student Workbook



Assessment 11—Blank keyboard quiz



Assessment 12—Chromebook blank keyboard quiz

Assessment 13—Keyboarding Challenge

KEYBOARDING TEAM CHALLENGE

Review the following concepts. These are similar to questions that will be asked during the upcoming Team Challenge to find the year's most techsavvy student!

- 1. What's the computer log in
- 2. What's the computer password
- 3. What's your password for TTL4
- 4. What row do your finger start on before you even type a letter
- 5. What's the row above home row
- 6. What's the row below home row called
- 7. How do you find the f and j key without looking
- 8. Name three keys you use your pinkie to push
- 9. Name three keys you use your ring finger to push
- 10. Name three keys you use your middle finger to push
- 11. Name three keys you use your pointer to push
- 12. Name one key you use your right thumb to push
- 13. Which finger do you use for the backspace key
- 14. Which finger do you use for the shift key
- 15. Which finger do you use for the enter key
- **16. Which finger do you use for the escape key**
- 17. What are three rules of how you sit at the keyboard
- 18. Do you have cat's paws or dog paws at the computer

- 19. Why (do you use cat's paws or dog paws)
- 20. What part of the chair do you sit on when keyboarding
- 21. Where are your elbows when keyboarding
- 22. Where does your right thumb rest when keyboarding
- 23. What is typing without looking at the keys called
- 24. Which finger pushes the a key
- 25. Which finger pushes the b key
- 26. Which finger pushes the ac key
- 27. Which finger pushes the d key
- 28. Which finger pushes the e key
- **29.** Which finger pushes the f key
- **30.** Which finger pushes the g key
- 31. Which finger pushes the h key
- 32. Which finger pushes the i key
- 33. Which finger pushes the j key
- 34. Which finger pushes the k key
- 35. What finger pushes enter
- 36. What's the keyboard shortcut to exit a program
- 37. As a general rule, which finger pushes a key
- 38. How do you capitalize a letter
- 39. As a general rule, do you fingers move or your hands in finding the keys
- 40. What is one keyboard shortcut
- 41. What is a desktop

Lesson #4-5 Problem Solving

Vocabulary	Problem solving	Homework			
 Authentic problems Conjecture Deductive reasoning Democratic society Inductive reasoning Mathematical language Proportional reasoning Responsible citizen Visual learner 	 What's the difference between 'save' and 'save-as'? Why 'save early save often'? Which tool do I use (what works best?) It's confusing (ask a friend to explain their thinking) I couldn't get on keyboarding website (try another one) I tried to solve the problem (try another strategy; failure is fine) 	Assigned prior week: Review word processing, quotes, problem-solving strategies (for quiz) Select problem/date for Problem Solving Board Review webtools and know which you will use Keyboard 45 min., 15 a time			
How does tech Signed up for Prob Worked well in a gr Completed warm- [tried to] solve owr Decisions followed Higher order thinkir Successfully annot	help problem solve? lem Solving Board roup up, exit ticket a problems class rules ng, Habits of Mind observed ated workbook	To Po This Week			

- Joined class conversations
- Left station as it was (neat and orderly)



Step-by-step

Class warm-up: Keyboard on class typing program, paying attention to posture.

This lesson is part of many lessons-not a standalone. Learn to consider yourself a 'problem-solver'.

- Required skill level: Personal bias for critical thinking and independent problem-solving.
- Questions on homework? Come to class prepared.
- _Before beginning, open your backchannel device.
- _Discuss what it means to be a 'problem-solver'. Who do you go to when you need one? Do you believe s/he gets it right more often than others? Would you believe most people are wrong half the time?





thinking, critical thinking, reasoning, and thought habits. Discuss why you should become a problem-solver (hint: see prior point-most people are wrong half the time).

Discuss characteristics of a 'problem-solver' (from Common Core):

- attend to precision
- value evidence
- comprehend and critique
- *demonstrate independence*
- make sense of problems and persevere in solving them
- use appropriate tools strategically •
- understand other perspectives ٠

Is problem-solving 'cerebrally-stimulating? Is it fun? Why or why not? Discuss great quotes about problem-solving in Figure 57 (zoom in if needed).



Figure 57—Problem-solving quotes

Discuss shortkeys. How are they problem-solving? Volunteer to demonstrate how you use a shortkey to perform a skill. Is it easier to explain with the shortkey or the toolbar tool? Discuss problem-solving strategies (see *Figure 58*—zoom in if needed):

- Act out a problem 0
- Break a problem into parts
- Distinguish between relevant Try, fail, try again and irrelevant information
- Draw a diagram
- *Guess and check*
- Observe and collect data
- See patterns 0

- Think logically 0
- Try to solve before asking for help
- Use Help files
- Use tools available
- Use what has worked in past
- Work backwards



Figure 58—How to solve a problem

_____When you face a problem, use these strategies to solve it before asking for assistance. _____This lesson includes two projects to reinforce problem-solving in everyday life:

- Problem-Solving Board
- Analysis of authentic problem-solving skills

Problem-Solving Board

The Problem-Solving Board includes common problems faced when using technology. Ideally, these were collected throughout the year—problems that stopped you as you tried to use tech. *Figure 59* shows what the list might include (zoom in if necessary):

Problem						
My browser is too small	I can't find a tool					
Browser toolbar missing	My screen is frozen					
Can't exit a program	My menu command is grey					
What's today's date	Can't find Bold , Italic					
Double click doesn't work	Can't find the program					
Start button disappeared	Internet toolbar's gone					
Program disappeared	My computer doesn't work					
l erased my document	My programs are gone					

Figure 59—Common tech problems

__Sign up for the Problem-Solving Board via a Padlet wall, SignUp Genius, a shared spreadsheet, or another method suggested by your teacher.

_Here's how it works:

- Select presentation date.
- Select problem to teach classmates.
- Find solution. Almost all of problems will require only two-three steps.
- Teach classmates how to solve problem.
- Take questions. The audience is responsible for making sure you make sense.

____Here's where you can get answers:

- Help files
- Google Search
- family and friends

You must come prepared, having researched question. You may use visual displays to clarify information, such as screenshots, screencasts, and graphics.



___Entire presentation takes about three minutes. *Assessment 14* will be adapted for your class:

Assessment 14—Problem Solving Board

EM SOLVING BOARD	D RUBRIC
Problem solved:	
on	
r	
nce for help if didn't know answer	
utters	
novements (giggles, wiggles, etc.)	
	Problem solved: pn r nce for help if didn't know answer utters novements (giggles, wiggles, etc.)

You should own these tech problems by the end of class.

Analysis of authentic problem-solving skills

- ____During the grading period, identify five-ten problems faced in any part of your life—home, school, or personal. Record the problem-solving strategy you used to solve it in a collaborative spreadsheet shared with classmates, similar to *Assessment #15b*. It'll include:
 - tech problem you faced

- how you solved it
- strategy you used from the list
- additional comments

___At the end of class, it will be a resource you can draw on for future problems.

Assessment 15a-b—Problem solving authentic data

How To Palver roblems	Common Tech Problems and Solutions (Responses) 💠 🖿 File Edit View Insert Format Data Tools Form Add-ons Help								
Common Tech Problems and Solutions	Sheets	home 🗠 🤉 🖥 🕴	% .0 <u>,</u> .0 <u>0</u> 123 - A	irlal - 10 -	B / 5 A.	🗞 . 🗄 - 88 - 💷	. <u>↓</u> . → . oo □ □		
West to your named	fx	Timestamp							
wart toto prozenia de job Jover Min a versione et honore et kland		٨	8	с	D	E	F		
Mart was the solution? This is the solution you used to odd with	1	Timestamp	What is your name?	What tech problem did yo	What was the solution?	What problem solving st	r Anything you'd like to add?		
	2	11/8/2015 13:24:05	i Test	How to find text on a pag	Ctrl+F	Guess and check, Thou	ght logically		
Here shares range of any affinities of the state of the s	3 7 8 9								

_____Here's how it works:

- Record 5-10 problems faced during the grading period in a Google Spreadsheet.
- Answer a Google Forms poll (like Assessment 15a).
- Complete 5-10 of these during the grading period.

Class exit ticket: Enter one problem into Google Form.

Extension:

- Volunteer to create Google Form for Problem Solving to track class results.
- If you can't attend class (say, parent's car doesn't start), present your Problem Solving Board via a virtual room like Google Hangout.
- If you finish, start homework preview of the next Unit.

"If a man does his best, what else is there?"

- General George S. Patton (1885-1945)

Assessment 16—Problem Solving presentation rubric

Problem Solving Presentation Assessment

Prob Web ^t Strat	lem solved: tool used: egy used:		Student/Team:				
Pts	Investigate	Design	Plan	Create	Evaluate	Group	
0	Team does not complete investigation to standard discussed in class	Team does not complete design to standard discussed in class	Team does not complete plan to standard discussed in class	Team does not complete work to standard discussed in class	Team does not complete evaluation to standard discussed in class	Team does not work together to standard discussed in class	
1-2	Team states problem but not clearly, vaguely, understanding skills required. Students have difficulty verbalizing steps required to complete	Team addresses some detail about how project will be presented with selected tool, but leaves critical elements out	Team project plan contains some goals for completing project; timeline is not sustainable	Team creates at least part of storyboard, timeline, product/solution	Team evaluates product/solution as they work, but does not adapt plan or project to problems that arise	Team occasionally works well as a group, but has difficulty allocating work and arriving at consensus	
3-4	Team states problem clearly with a strong understanding of skills required. Team shows evidence of researching and describes solution in detail	Team addresses all specifics required to create a how-to and present to class	Team produces a plan that contains a clear and achievable goal for using time wisely during class	Team uses appropriate techniques and equipment, storyboard is effective. Team follows plan, and modifies when required, resulting in good quality project	Team evaluates how-to project and their performance; suggests ways to improve, and tests solution before presenting to class	Team frequently incorporates group member input into project, showing respect for the value of all members	
Tot al				<u> </u>		/20	

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Lesson #6-8 Digital citizenship

Vocabulary	Problem solving	Homework
 Benchmark Cloud Cracker/hacker Creative Commons Cyberbullying Digital citizen Digital footprint Digital native IP address Netiquette Social media 	 How do I share a project ('embed') Why be a good digital citizen if no one knows who I am (note to self: do right thing even when no one's looking) Everyone shares pictures (until they learn their lesson) We were just having fun (does cyberbully victim agree?) Parent won't allow social media If I can't find citation, can I use text/image? (It depends) 	Assigned prior week: Create a Tagxedo with digcit words Review notes to prepare Watch all videos; pre- pare reflections KB 45 min, 15 min/ Review copyright law
What are rights and res Completed blog posts, Completed digcit proje Created original artwo Completed warm-up, [tried to] solve own pro Decisions followed class Higher order thinking a Successfully annotated	ponsibilities of Digital Citizens? commented on classmates' ects rk exit ticket oblems ss rules nd Habits of Mind observed d workbook eat and order(v)	To Do This Week

Step-by-step

Class warm-up: Keyboard on the class typing program.

This lesson may be sprinkled throughout the year.

Required skill level:	Introduction to digital rights
and responsibilities.	

- _____Any questions from homework?
- _____Before beginning, open backchannel device.
- _____Discuss what it means to be a good digital citizen? Why is this important if no one knows who you are? Discuss
 - *Figure 60*—quote by legendary coach, John Wooden.
- _____Goals for this unit include:



- You understand human, cultural, societal issues related to technology.
- You exhibit a positive attitude toward technology.

- You advocate and practice safe, legal, and responsible use of information.
- You understand 'digital footprint'.
- You demonstrate personal responsibility for lifelong learning.
- You understand your part in preventing cyberbullying.
- You use the Internet legally to gather information.
- You use technology and digital media strategically and capably.

Throughout the school year, as a class, you'll discuss the topics listed in *Figure 61* under '8th grade'. If you haven't covered **K-7** topics, you will cover those first. They scaffold learning, making lessons more sensible and relevant. Where possible, volunteer to lead the diagonal act the page and ack questions of each other. Be prepared to show



to lead the discussion, set the pace, and ask questions of each other. Be prepared to share your experiences, listen to classmates, and critically think about topics being discussed.

Digital Citizenship Topics	Κ	1	2	3	4	5	6	7	8
Cyberbullying	x	x	x	x	x	x	x	x	x
Digital commerce					x		x	x	x
Digital communications				x		x	x	x	x
Digital footprint and Online presence			x	x	x	x	x	x	x
Digital law				x			x	x	x
Digital privacy				x	x	x	x	x	x
Digital rights and responsibilities	x	x	x	x	x	x	x	x	x
Digital search and research				x	x	x	x	x	x
Fair use, Public domain			x	x	x	x	x	x	x
Image copyright			x		x	x	x	x	x
Internet safety	x	x	x	x	x	x	x	x	x
Netiquette		x	x	x	x	x	x	x	x
Online Plagiarism				x	x	x	x	x	x
Passwords	x	x	x		x	x		x	x
Social media						x	x	x	x
Stranger Danger	x	x	x						

Figure 61—Digital Citizenship topics

Cyberbullying

- _____Expand last year's discussion on this topic.
- ______What precautions can you take to insure you are kind and supportive online?
- _____If you have blogs, with this discussion fresh, comment on classmate posts. Include a compliment, suggestion, or question. Keep the conversation on topic and relevant. If you don't use blogs, respond to a Discussion question that your teacher posted.

Digital Commerce

What is 'digital commerce' (buying and selling goods online)? Have you bought something online? If so, did you: check with parents first? • verify website was legitimate and secure? feel safe because friends were shopping there? Your teacher will demonstrate what to look for by going through the process of buying something online: You must have money (even on a credit card). You must provide sensitive information (i.e., • credit card number). Website keeps information and might sell it. • Of the characteristics listed below, which are pros and which are cons of digital commerce? It's easy. • It's private. • Products from other countries are available, even those in conflict with host nation • laws and morals, i.e., pornography, illegal music, other illegal downloads. Website keeps your private information—or worse, sells it. • Website could be hacked and your financial and personal information stolen. Website could take your money and provide no product. Website could steal not only your credit card but your identity. •

Consider this scenario: Josie sees a Wii online for \$20. She knows that is too cheap. What should she do?

What is the best way to be good digital citizens and effective consumers?

Digital Communications

Digital communications includes:

- email
- IMs/texting
- cell phones
- chat rooms

_Review email etiquette:

use proper formatting, spelling, grammar •





- CC anyone you mention
- make 'Subject line' topic of email
- answer swiftly
- re-read before sending
- don't use all caps—THIS IS SHOUTING
- don't attach unnecessary files
- don't overuse high priority
- don't email confidential information
- don't email offensive remarks
- don't forward chain letters or spam
- don't open attachments from strangers

____Why is correct grammar/spelling important in email and not so much with texting? Hint: Consider Common Core: *Produce ... writing in which development, organization, and style are appropriate to task and audience.* _____Discuss 'spam':

- It's a free way to find people interested in a product.
- Sender earns money on 'click-throughs' —what are those?
- It gathers personal information.
- It wears you down until you finally order.
- It spreads viruses that hurt computers—why?

_____What should you do when spam shows up in your email?

_____Does school allow cell phones? What are reasons you should have one?

- stay in touch with parents
- for emergencies
- so parents know where you are (via GPS)
- to collaborate and share

_____What are reasons you shouldn't?

_____Do your parents try to control cell phone use by:

- *limiting your time on it*
- limiting the plan
- having you share in the cost
- set up text-free zones, like dinner

____Does this work? What would you suggest instead?

_____Discuss your responsibilities with cell phones. How many from this list do you think are significant to you?

• Don't let them interfere with classwork.



- Don't use them for academic dishonesty or cyberbullying.
- Don't use them to share inappropriate information.

_____What about **chat rooms**? Here are rules for chatting online:

- parents approve
- share nothing private
- agree to leave the site and tell an adult if it becomes uncomfortable
- never meet an online 'friend'
- screen name includes nothing linkable to you

_____Watch and discuss a video on texting provided by your teacher.

- _____Send an email or text to a classmate (if possible) and reply to one you receive.
- _____For more, refer to *Digital Tools—Email*.

Digital footprint

Last year, you Googled your name to discover your digital footprint. Do this again. Has it changed? Do you ever Google someone else's name? Why? Do you find out information they might not want you to know?

_____Watch and discuss videos on digital footprints provided by your teacher.



More on this in the lesson on Search and Research.

Digital privacy

- _____How easy is it to find about anyone through crumbs left online?
- _____Discuss using avatars to protect online privacy. For more, see the lesson on *Digital Tools*.
- Expand discussion into Online Reputations. Watch and discuss a video on this topic provided by your teacher.
- _____Wrap up with a discussion on hacking. Talk about how kids 'hack' game codes. Should you? Is it a victimless crime? What other issues should you consider? What is the difference between 'hacking' and 'cracking'? Black Hat and White Hat?

Digital rights and responsibilities



What are 'digital rights and responsibilities'? The 'rights' are easy to list—access to the Internet, use of information, the creation of documents to be published and shared, freedom of expression—but what are the 'responsibilities' of a digital citizen? How about:

- Don't share personal information. Don't ask others for theirs.
- Be aware of your cyberspace surroundings. Act accordingly.
- As in your neighborhood, be kind to others. Anonymity doesn't protect you.
- If someone is 'flaming' another, help stop it within your abilities.

Digital search and research

_____Discussed in "Internet Search and Research" lesson.

Internet safety

_____Discuss password guidelines and rules. **Never share passwords**. _____Share how you protect your passwords and how you stay safe online.

_____What's the difference between 'http' and 'https'? How important is this?

Netiquette

_____What is **'netiquette'**?

_____Discuss the criteria in *Figure 62a* (zoom in if needed).



Figure 62a—Netiquette Rules; 62b—Digital pyramid

Social Media

____What is '**social media'**?





- ______What should be included on a social media profile?
- ______What is responsible social media? Think about digital rights and responsibilities.
- _____What are long-term consequences of using and/or abusing social media? Think back to cyberbullying.
- _____Discuss **Twitter** and hashtags.
- Break into groups and discuss social media. What are challenges of so much openness? Then discuss as a class and share thoughts via a blog post or class Twitter feed. Thoughts should be objective with domain-specific language appropriate to the task, audience, and purpose.
- _____Volunteer to check off digital citizenship topics listed on the pyramid in *Figure 62b* (posted somewhere in your classroom) when the class discusses it.

Summative Projects

_____Wrap up the unit with a project that encompasses all areas discussed. Select a presentation/ sharing method. Use any tool discussed in last year's *Differentiated Learning* lesson, or one of the web communication tools of this curriculum. *Figures 63a-c* are examples (zoom in if necessary):



Figure 63a-c—Digital Citizenship projects

- Create a map showing where you go digitally on a daily/weekly basis. Connect locations with 'footprints'. At the end of the path, add a Tagxedo with all the words and locations included on the map.
- Create poll on one of this lesson's topics and embed it into your blog. For example, for cell phone use, you might ask classmates to select all that apply:
 - I can use my cell anytime I want.
 - I often use my cell at meals.
 - I often use my cell in the car.
 - I have a limit on how much time I can spend on the phone.
- Track and post where you found sources for the class research project by placemarking on a world map. This will show how diverse we are in collecting information.

- Draw a picture of a digital customer. Make pieces interactive, linked back to products you use and where to find them. Give proper credit. Include IPads, iPhones, clothing bought at an online store.
- Debate social media pros and cons. Tape and upload to class website or blog.
- Follow Common Sense's Digital Passport with units on cyberbullying, Internet search, and digital world.

_____When completed, write a post reflecting on what you understand about digital citizenship, why it is important, and how it has affected your personal outlook on Internet use.

Class exit ticket: Tweet on the class Twitter account (or comment on the class blog) about how you stay safe online.

Extension:

- Volunteer to enter classwork and homework due dates into the class calendar.
- Create a digital poster on what it means to be a good digital citizen with links to resources. Include an avatar, a YouTube video, a Tagxedo of digital citizenship words.
- Blog about a video watched during this lesson. Why is it important to be good digital citizens?
- If you finish, start homework preview of the next Unit.

"In theory, there is no difference between theory and practice. But, in practice, there is."

- Jan L.A. van de Snepscheut
Lesson #9-10 Internet Search and Research

Vocabulary	Problem solving	Homework
 Alt+Tab Copyright Creative commons Domain Extension Hits Limiters Plagiarism 	 Browser too small (double click title) Browser text small (Ctrl+) Internet address doesn't work (check spelling) How do I switch between Internet and notes (Alt+Tab) How do I know if a website is reliable (evaluate, analyze) 	Assigned prior week: Keyboard 45 min. 15 min. at a time Review prep material; complete digital drawing; watch 'War of the Worlds'
SpoofToggle	 It's on Google—it must be free Doesn't 'fair use' cover me? 	Practice a search us- ing included hints
How do I research	n online effectively?	
 Worked well in a group of the second completed research Completed drawing Used a wide variety Understood imported Completed warm-utility [tried to] solve own Higher order thinking Successfully annota Left station as it was 	pup h projects g project of sources ince of website selection p, exit ticket problems g, Habits of Mind observed ted workbook (neat and orderly)	o Do This Teek

Step-by-step

Class warm-up: Keyboard on the class typing program.

_____Required skill level: Familiarity with online search and research.

- _____Any questions from preparatory homework?
- _____Before beginning, open backchannel device.
- _____Take ten minutes to comment on classmates' search skills' posts (done for homework).

_____Discuss: Why research? Dig deeper than 'for classwork' or 'to find out something I don't know'. Overarching reasons include **to build and present knowledge**.



____Common Core and many state standards require *the ability to*

compare, contrast, and synthesize information from multiple sources and share evidence used in analysis. Accomplishing this requires you know how to find and evaluate video clips, websites, and more as sources of information.

_____Discuss technology advances with "Did you know?" . Your teacher will provide the link.

_____Discuss a video on Internet search as a class. Your teacher will provide the link. _____Review Internet search/research tips:

- use keywords to generate qualified hits
- have a general understanding of the topic
- use site extensions to categorize results
- pay attention to sidebars, headings, and hyperlinks for relevant information
- use pictures, insets, maps, and article links for more information

_____In this lesson, cover some or all of these activities:

- Internet safety
- Internet search and research
- reliable websites
- copyrights
- hoaxes
- summative project I and II



Internet Safety

_____Review safe Internet use. This is covered in detail in the *Digital Citizenship* lesson.

Internet Search and Research

- Discuss how to use online material safely and legally if you haven't delved into this topic before (see the lesson on *Digital Citizenship*). You'll cover 1) citations, 2) copyrights, 3) plagiarism, and 4) digital rights and responsibilities.
 - _____Watch a video on this topic provided by teacher.
- _____If you use Common Sense's Digital Passport, play Search Shark.
- _____See *Figure 64* for Internet search tips (zoom in if needed).
- _____Try Google's series of 50-minute classes called Power Search:
 - how to search
 - how to interpret results
 - how to find facts faster
 - how to check facts
 - how to put it all together

Figure 64—Steps for Internet research



_____Watch as your teacher models these skills using a class topic—say, "Blood, Toil, Tears and Sweat: Address to Parliament on May 13th, 1940" by Winston Churchill. Your assignment: *Compare and contrast to other WWII documentation.* What keywords would be useful? _Type *Blood Sweat and Tears*—no quotes—into the search bar. Notice there are far too many hits. Add quotes around the term. Notice how many LESS you got (*Figure 65*—zoom in if needed):

Figure 65—Sample search



____Unfortunately, you didn't get results about WWII. Why did a jazz-rock band come up instead of Winston Churchill? Discuss:

- You used "". That was good.
- You knew that the source wasn't a musical group. That was good. Always enter a search with enough knowledge to make informed judgments on the hits.
- You forgot to add 'toil'.
- You mixed up the order of the words—order counts.

_____Now type "Winston Churchill" "British Prime Minister"—adding words to refine hits.
 _____Type "Winston Churchill" – "childhood"—minus skips sites that include words "childhood".
 _____How is research different in Word and Google Docs? What about other tools?
 _____Figure 66 has basic search suggestions:

If you type	You will find pages containing
Hawaii Vacation	Webpages with the words Hawaii and vacation
Maui OR Hawaii	Webpages with the word Maui or Hawaii
"To each his own"	Webpages with the exact phrase "to each his own"
Virus -computer	Webpages with the word virus but NOT computer
"Star Trek" fan	Webpages with the phrase "Star Trek" and word 'fan'
To find info	o, type it as a sentence with an asterisk for the unknown.

Figure 66—Search tips

Identify Reliable Websites

_____Why is website credibility important? Consider:

- How can you use websites to answer a question quickly or to solve a problem efficiently if you don't know the website is reliable?
- How can you explain an author's reasons and evidence if you aren't convinced they're accurate?
- How can you integrate information from several texts knowledgeably if you don't know websites are knowledgeable?

How do you recognize a trustworthy website when you get that long list of hits on a search page. We'll delve into two details in this lesson: 1) website address extensions, and 2) the website itself. Discuss the parts of a website address (see *Figure 67*—zoom in if needed).





_Which popular extension is most reliable?

- .gov—limited to US governmental entities
- .edu—limited to colleges and universities
- .org—used to be non-profit groups.
- .net—used to be Internet service providers
- .com—most common extension

_____What can be inferred about reliability from an extension? Does it matter if you're looking for a place to buy backpacks? How about if you're researching hiking?

_____Discuss a video on this topic as a group (your teacher will provide link). Your teacher will demonstrate on class screen how you make decisions about questions such as:

- Is author(s) knowledgeable on the subject?
- Is website publisher credible?
- Is content accurate based on what you know?
- Does content include depth in the topic?
- Is information up to date?
- Is website unbiased?
- Is website age-appropriate? Can you understand verbiage?

_____Using a website that ties into classroom discussion, your teacher will evaluate it using a checklist like the one above and then have you work in groups to do the same.

Copyrights

_____Review copyright law (*Figure 68* is a rephrasing).



_____When must you credit material that you find online? In general terms, credit the source when using:

- facts not commonly known or accepted
- exact words and/or unique phrase
- reprint of diagrams, illustrations, charts, pictures, or other visual materials
- opinions that support research
- electronically-available media are copy-pasted, including images, audio, video

___Copyrights range from public domain to intensely private.

_What do you remember from last year's discussion on image copyrights? Some are licensed under Creative Commons – *Figures 69a-b*:



Figure 69a-b—Creative Commons licensing

_Many have more restrictive licenses.

_Here are two examples of copyrights applied to materials online (*Figure 70*—zoom in if needed):



Figure 70—Two copyrighted images

____Discuss how artists share material online. What do these terms mean?

- Attribution
- Non-derivative works
- Share alike
- Non-commercial

_____Some want to share work and collaborate with others. Watch and discuss a video about Creative Commons licensing.



_____When searching for images, adjust the search engine to provide only those that are in the public domain. *Figure 71* shows how to do this in Google:

Figure 71—Copyright protections on browsers

Web	Images	Videos	Shopping	Books	More 🔻	Search tools
Size 💌	Color 👻	Type 👻	Time 👻	Labeled f	or reuse wi	th modification 👻

__Find several images online. Your teacher will show how to track them back to the source and then find the copyright protections that are invariably listed on the pages. This is often time-intensive, but necessary: Never assume an image is freely available to use. If you can't find the copyright notice, pick a different image. _Discuss how you can find if an image you created is being used online: Drag-drop it into either of these two websites to show all the online sites where it appears:

- TinEye
- Google Images

____Figure 72a was drawn by a student and posted to her/his public website to share with family and friends. Without her/his knowledge, it was used forty-seven times (*Figure 72b*), not always in places s/he or her/his parents would approve.



Figure 72a-b—Student drawing used without permission

_____What could s/he do in the future? How about add a copyright notice to her/his website, announcing media are protected by copyright laws and cannot be used without permission.

- Consider the drawing you completed for homework. How would you feel if someone stole it? What if the thief posted it online? What if they made ugly comments about it? What if they made money off of it and didn't share it with you. What if you really needed that money to support a family or go to college?
- _____Define '**plagiarism'.** You are familiar with plagiarized text. How does this apply to images, videos, artwork, illustrations, and music?
 - ____Discuss how to cite a website. Visit EasyBib or Citation Machine.

Hoaxes

_____Discuss how easy it is to fake a picture with programs like Photoshop. Have you had this experience? What did you do about that? How did you feel? What were the repercussions?



Figure 73—Real or a hoax?

Look at *Figure 73*. Did President Roosevelt really ride a moose across a river? In *Figures 74a-b:* Was the tree added to or erased from the original photo? What clues help you make that decision?



Figure 74a-b: Add or remove pieces from a photo

_____Visit a website provided by your teacher. Is it real? How do you know?

_____Discuss as a class whether *Figures 75a-c* are real—and how do you know? It's no surprise photos are not accepted as proof in court.





_____Show 'War of the Worlds' — a famous video hoax. Discuss how it confused fiction with reality for listeners who missed the first ten minutes.



____Conclusion: It's a lot easier to create your own graphics than use someone else's.

Summative Project I

You work in groups to research a significant technology advancement of your choice that your teacher has approved (electricity, transportation, communication, computers, the Internet, etc.).

Data must be collected from multiple media (video, oral, textual, and images) and include at least one primary source. Evidence will 1) support hypotheses, 2) be well-rounded, 3) demonstrate an understanding of the topic, and 4) enable you to fully answer the question.

_____Use the class digital notetaking tool and a variety of other methods:

- Copy-paste to a notebook using Word, Google Docs, Notes, or similar. Leave it active on taskbar and toggle (Alt+Tab) between notes and the Internet during research.
- Create audio notes via iPad/smartphone apps.

_____Rephrase saved notes into eighth-grade language or include citations. _____Include five images:

- one from a public domain website
- one from Google images (that is legal to use)
- one you create in MS Word
- one you create in a drawing program
- one you create in Photoshop (or similar)

Consider these as you prepare your project:

- Who is the target audience?
- What is the presentation goal/purpose?
- Is all material specifically permitted?
- Did all team members participate?

_Research done, share/publish information using an option best-suited to your goals. Consider:

- A digital poster Figure 76a
- a magazine using Canva.com Figure 76b
- a website using Google Sites, Weebly, Wiz
- a video published to YouTube, SchoolTube, Vimeo (private channel)
- an Infographic Figure 76c

___Presentation and project should include:

- conclusions based on research
- reflections based on research (group opinion)
- checklist evaluating one website
- timeline with important events and relevant pictures
- people involved in discovery-brief bio, pictures
- problems faced and how they were solved
- at least one primary source
- citations using Easybib or similar

Figure 76a-c—Samples of search projects



_Share/publish in your blog or website. Comment on the posts of at least three classmates.

Summative Project II

- _____Open school's graphic program (Paint, Google Draw, Photoshop, or another). Draw a picture that collaborates with a class discussion (i.e., literature, history, or another). _____When done, take a screenshot and share on your blog or website. Comment on the posts of at least
 - three classmates.

Class exit ticket: Tweet (or comment on the class blog) about how you stay safe online.

Extension: If you finish, start homework preview of the next Unit.



Lesson #11 Word Certification

Vocabulary	Problem solving	Homework
 Attributes Autocorrect Endnote 	 Doc says 'read only' (save under a different name) What is today's date? (Ctrl+;) 	Assigned prior week: Review notes
 Indentation Mail merge Quick Parts Themes Versions Views 	 Can't find doc file (Start-search) Right-click doesn't work (reboot) Don't know answer (Google it; use Help files, provided resources, teammates) How do I add a footer or header? How do I save as a different file name? 	Watch all videos; pre- pare reflections; com- plete compare- contrast table; com- plete pre-test assess- ment
How do I	become expert at word?	

- Worked independently
- Used good keyboarding habits
- Completed warm-up, exit ticket
- Completed MS Certification (whether passed or not)
- [tried to] solve own problems
- Decisions followed class rules
- Higher order thinking and Habits of Mind observed
- Successfully annotated workbook
- Left station as it was (neat and orderly)

Step-by-step

Class warm-up: Keyboard on the class typing program.

____Required skill level: Solid familiarity with MS Word; completed 5-10 projects using this tool.

- _____Any questions from homework? Open backchannel.
- _____Define 'word processing'? Name several programs such as Word, Word Perfect, Google Docs, Open Office, Notes, and Text. Why is it important to be able to use them to:
 - communicate with a variety of media
 - produce/publish writing and present relationships between ideas
 - integrate different media to understand a topic
 - write for a range of tasks, purposes, and audiences

Assessment 17 is a sample of the major differences between slideshows, word processing, spreadsheets and 'desktop publishing'. Be aware: Word processing' includes not just traditional tools like MS Word and Google Docs but forums, Discussion Boards, blogs, and any tool that delivers the message primarily with text.







_Using your annotation tool and working with a partner, fill in as many of the cells under the 'Word processing' column as you can.

Element	Presentation	Word processing	Spreadsheets	DTP
Purpose				
Basics				
Sentences				
Content				
Use				
Presentation				
What else				

Assessment 17—Compare-contrast tools

_____When done, compare it to *Figure 77* (zoom in to see better):

Element	Presentation	Presentation Word processing		DTP		
Purpose	Share a presentation	Share words	Turn numbers into information	Share information using a variety of media		
Basics	Graphics-based Design is important to content Layout communicates Few words, lots of images	Text-based Design is secondary to content Layout may detract from words Primarily words communicate	Number-based Focus on tables, graphs Little text; lots of statistics and date Almost no words	Mix of media—equal emphasis on text, images, layout, color		
Sentences	Bulleted, phrases	Full sentences with proper conventions	None	Full sentences, bullets,		
Content	Slides cover basics, to remind presenter what to say	Thorough discussion of a topic. Meant to be complete document	Statistics, data, charts, graphs	To draw an audience in;		
Use	As a back-up to presentation	As complete resource	To support other presentation methods	Good way to group information for easy consumption		
Presentation	Speaker presents with their back to the slideshow	Speaker reads from document	Speakers uses it in a presentation or 1:1	Speaker passes out as a handout or take- way		
What else						

Figure 77—Compare/contrast B

_____Any questions on preparing for the MS Word Certification? The lesson is self-directed. The test will be scheduled at your convenience.

____Primary skills addressed are:

- attributes
- auto-correct
- comments

- endnotes
- fonts
- footers

- footnotes
- headers
- hyperlinks

8th Grade Technology Curriculum: Student Workbook

- images
- save
- indentation/tabs
- mail merge
- navigate/search
- page su settings
- protection
- Quick Parts

- shapes,
- share documents
- SmartArt
- spacing settings
- *spell/grammar check*
- table of contents

- tables
- templates
- text boxes
- themes
- versions
- Views
- WordArt

___Before taking certification, design and take a practice test using a digital tool, such as (links provided by your teacher):

- Flippity-create Jeopardy-style quiz
- PuzzleMaker—crosswords and more (Assessment 18)
- Kahoot—compete in teams

Assessment 18—MS Word certification study guide



_Here are test-taking hints: *Tests are skills-based and take place in a simulated application environment.* Most questions have multiple tasks; the exam is assessed on outcome and clicks. • *Users should be able to locate and utilize key features.* • *Questions are not worded to be tricky or misleading.* • • *Be well versed in MS Word, persistent in finding answers.* Test takes about 90 minutes. • Skip questions you are not sure of. Return to them at the end of the test. • Keep track of time. Do not over-think questions. • Stick to the literal. Use as much class time as your teacher makes available as well as your own out-of-school time to prepare for test using an MSapproved prep website. Training takes about five hours. Study in groups. Best practices include: use time wisely relate certification to college and career opportunities be self-motivated **Class exit ticket:** Complete as much as possible of Assessment 18 (or similar) in the three-five minutes available before leaving class. Take a screenshot and send it to your teacher. **Extension:** *Practice on MS 360 if available to get used to taking tests online.* Reflect in your blog on taking the exam. Did you learn a lot? If you didn't pass, what happened? You are not graded on whether you got certified, rather the process followed in pursuing it.

If you finish, start homework preview of the next Unit.

Lesson #12 Gradebook and Budget

Vocabulary	Problem solving	Homework
 Absolute reference Amortize Discretionary Format 	 Formula doesn't work (start with =) Formula, it grabs wrong cells (consider relative or absolute references) Legn't figure it out (try Help Google) 	Assigned prior week: Keyboard 45 min,, 15 minutes at a time
Formula	search, ask a neighbor)	Review spreadsheet
 Hashtags If-then Relative reference Screencast 	 This is impossible (use problem-solving strategies discussed earlier) Spreadsheets are confusing (work with lesson videos) 	Compare-contrast spreadsheets to other tools
ScreenshareShortkey	 I don't know what job I want (research and make a choice) 	Bring questions to class
How do I use	tech to draw conclusions?	
 Worked independe Completed projec Completed warm- [tried to] solve owr Higher order thinkir 	ently t; formulas worked up n problems ng, Habits of Mind observed	To Do This

- Successfully annotated workbook
- Joined class conversations
- Left station as it was (neat and orderly)

Step-by-step

Class warm-up: Keyboard on the class typing program, paying attention to posture, finger placement.

Required skill level: Solid familiarity with spreadsheets; completed 4-8 projects between 1st grade and 7th grade.

- _____Opened backchannel suggested by your teacher. If you don't know how, try to solve your problem before asking for help. Any questions from preparatory homework?
- _____What is a spreadsheet? Name some spreadsheet programs. Why is it important to be able to use them? How about to:
 - communicate information and ideas effectively
 - present relationships clearly and efficiently (from Common Core)
 - develop a coherent understanding of a topic or issue (from Common Core)

_____What tasks are better suited to spreadsheets than word processing? Slideshows? DTP? Using your annotation tool and working with a partner, fill in as many of the cells below under the 'Spreadsheets' column as you can.

Element	Presentation	Word processing	Spreadsheets	DTP
Purpose				
Basics				
Sentences				
Content				
Use				
Presentation				
What else				

Assessment 19—Compare-contrast tools

_____When done, compare it to *Figure 78* (zoom in to see better):



Figure	78—Compare/contrast B	
--------	-----------------------	--

Element	Presentation	Word processing	Spread sheets	DTP
Purpose	Share a presentation	Share words	Turn numbers into information	Share information using a variety of media
Basics	Graphics-based Design is important to content Layout communicates Few words, lots of images	Text-based Design is secondary to content Layoutmay detract from words Primarily words communicate	Number-based Focus on tables, graphs Little text; lots of statistics and date Almost no words	Mix of media—equal emphasis on text, images, layout, color
Sentences	Bulleted, phrases	Full sentences with proper conventions	None	Full sentences, bullets,
Content	Slides cover basics, to remind presenter what to say	Thorough discussion of a topic. Meant to be complete document	Statistics, data, charts, graphs	To draw an audience in;
Use	As a back-up to presentation	As complete resource	To support other presentation methods	Good way to group information for easy consumption
Presentation	Speaker presents with their back to the slideshow	Speaker reads from document	Speakers uses it in a presentation or 1:1	Speaker passes out as a handout or take- way
What else			©Aska	Tech Teacher

_____ Discuss how spreadsheet programs are uniquely qualified to assist in the following:

- Make sense of problems and persevere in solving them (charts/graphs) Figure 79a.
- Reason abstractly and quantitatively (sorting is pivotal to spreadsheets) Figure 79b.

				$() \circ () \circ ()$		fx =SUI	V(D13:D14)	
Alpha	oetize nai	mes	5 d	Parer	С	1	E	tells Excel what cell range
Yr.Na nevou mary	ob Description Coll	ege li come	Range Pajo	or Employer≤ Arith	_			
Art Jesus Vivian Xaviar	Sort	\$24 \$15 \$20 \$50	,000.00 ,000.00 ,000.00		Tell to d	s Excel o a	Tells Excel which function	on
Zena	data Chart Di			Enter new in cell		Iula	(+,-,*,/)	

Figure 79a—Excel formula breakdown; 79b—spreadsheet formulas

• Use appropriate tools strategically (spreadsheet is the right tool to share data) Fig.80:



Figure 80—Spreadsheet chart

• Construct viable arguments and critique reasoning of others (quantifiable arguments are defensible and convincing). Based on the formula, what conclusion does Figure 81a reach (Spoiler: Many keyboard faster than handwrite):

EIF(DI 74>=DP74 "KB" "HndWr"	1					A	В	с	D	E
	4					1 M	ONT	HLY	BUDGET	
	P DQ	DR	DS	DT	DU	2	Y	our I	name	
Skill Spe	ed (B Thou	Date	Unit	Grade	Date	3 4 Selected career		Data		
000	ou to mou		Unit	Grado	Duto	5 Annual income		s -		
This forwards						6 Years of education				
H This formula	dWr	4/30	AprilHW		5/16	7 Student loans total				
H	dWr	4/30	AprilHW		5/16	8 Amortize student loan over years				
HandwrittenEromThoughts 21	1 HodWr	4/30	AprilH\A/		5/16	10 HOUSEHOLD			% of Total Expenses	% of Total Income
Trandwritten Torrinoddints 2	indivi	4/30	Aprilitive		5/10	11 Rent/Mortgage	ş -		#DIV/01	#DIV/01
And the second state of the	кв	4/30	AprilHVV		5/16	12 Utilities (gas, electric, cable)	ş .		#DIV/01	#DIV/01
takes this	HndWr	4/30	AprilHW	10	5/16	13 Insurance	5 -		#DIV/01	#DIV/01
	КВ	4/30	AprilHW		5/16	14 Phones	ş -		#DIV/01	#DIV/01
data column	HadMir	4/20	Aprilli	10	E/16	15 Student loan payment	s .	1	#DIV/0!	#DIV/0!
	Induvi	4/30	Aprilliv	10	5/10				#DIV/0!	#DIV/0!
Tranownittenii Tommoognits 12	e KB	4/30	AprilHW		5/16	18	5 .	-		
HandwrittenFromThoughts 13	3 KB	4/30	AprilHW		5/16	19 FOOD				
HandwrittenFromThoughts 12	2 HndWr	4/30	AprilHW		5/16	20 Groceries	s -		WDIV/01	#DIV/01
HandwrittenEromThoughts 18	R KB	4/30	AprilH\W	10	5/16	21 Restaurants			#DIV/01	#DIV/01
Thandwritteni Torrinoughts Te		4/00	A	10	5/10	22 TOTAL	s -		#DIV/01	#DIV/01
	KB	4/30	AprilHVV		5/16	23				
and draws	KB	4/30	AprilHW		5/16	25 Car payment			#DIV/01	#DIV/01
	dWr	4/30	AprilHW	10	5/16	26 Insurance			#DIV/0!	#DIV/01
this conclusion	KB	4/30	AprilHW		5/16	27 Gasoline			#DIV/0!	#DIV/0!
this conclusion		4/30	Cipril IVV		5/10	28 Maintenance and Repairs		_	MDIV/01	#DIV/0!
	KB	4/30	AprilHW		5/16	29 TOTAL	ş -		#DIV/0!	#DIV/0!
HandwrittenFromThoughs 19	KB	4/30	AprilHW	10	5/16					
HandwrittenFromThoughts 20) KB	4/30	AprilHW		5/16	32 Savings	ş -		#DIV/01	#DIV/01
HandwrittenFromThoughts	HndWr	4/30	AprilHW/		5/16	33			#DIV/0!	#DIV/01
15	6 KB	1,30	, sprill IVV		3/10	34 TOTAL EXPENSES	s -			

Figure 81a—Formulas in decisions; 81b—model with mathematics with formulas

- Model with mathematics (i.e., a monthly budget) Figure 81b.
- Attend to precision (with a spreadsheet's mathematical properties)—Figure 82:

Figure 82—Spreadsheet list of formulas



• Look for and make use of structure (formulas, charts, graphs-Figure 83):

T2 S	PEED	QUIZ
	WPM	Grade
1	22	9
2	21	10
3	19	6
4	14	8
5	21	8
6	24	8
7	29	10
8	28	10
9	19	9
10	21	10
11	15	8
12	17	10
13	16	10
14	19	10
15	20	10
16	18	10
17	14	10
18	20	10
average	19.83333	9.222222
count	18	18
max	29	10
min	14	6

Figure 83—Spreadsheet data

_____Open spreadsheet program (Excel, Spreadsheets, Numbers, or another). Volunteer to review layout for class, how to insert date and create formulae. You are prepared to do this because you reviewed it for homework.

_____This lesson includes two projects:

- create a grading sheet
- create a budget of monthly expenses

_____If you have been following the SL curriculum since 2nd grade, you are prepared. *Figures 84a-c* are examples of what you completed:

	NUMBER SQUARE										
1	2	3				7			10		
	12			15	16				20		
		23		25		27		29			
	32		34	35		37			40		
41	42	43			46		48	49			
51	52				56	57			60		
				65				69	70		
71		73			76						
	82	83					88				
91			94						100		

Figure 84a-c—	_Spreadsheet	projects	in	2nd-7th
i iguic o iu c	Spreadsheet	projects	in	21100 7111

Your Name		
	Adults	Children
Turn off your lights	25	21
Unplug things	5	10
Use solar or wind energy	3	1
Pay attention to electricity use	33	21
None	1	5



Create a grading sheet

- _____Create a grading sheet with formulae that update class grades. Format to suit your needs (fonts, colors, sizes, fills, classes, borders). All formulas must work.
 - _____Use knowledge from prior spreadsheet training to intuit how to create the chart, similar to *Assessment 20*. Your teacher will provide videos on how to create a gradebook if needed.

	Assessment 20—Gradebook spreadsheet																			
	A	В	С	D	E	F	G	Н	1	J	К	L	М	N	0	Р	Q	R	S	
1								Gra	deboo	k										
2								Υοι	ır Nam	е										
3																				
4		Extra credit	Lost points	Joined Class Discussion	Prepared for class	Problem- solving	Used tech knowledge	Updated Portfolio	Class Presenta	Project #1	Total	Average								
5	Class #1																			
6	Class #2																			
7	Class #3																			
8	Class #4																			
9																				
10 11																				

_____Watch one video as a group (they're not long), then discuss: What should be changed to adapt the video instructions to your particular needs?

- _____When gradebook is completed, add your class scores and watch it calculate the final grade.
- _____How would you create a formula that would weight the grade?
 - _____Updated spreadsheet will be submitted weekly via Homework dropbox (which is private)—see *'Digital Tools'* Unit for directions on creating a Homework dropbox.

Create a budget

_____Create a budget for life after high school graduation. This will include:

- Conclusions
- Data analysis
- Formatting
- Formulas
- Grammar and spelling
- Headings
- Income and expense categories
- Personalized information
- Relative and absolute addresses (within formulas)
- Research
- Totals and subtotals

_Your teacher will provide videos on how to create a budget if needed.

_First: Choose a career that fits your interests. Take the Holland Code Quiz (link provided by your teacher) and see what it recommends. There will be several choices. Follow links, read about careers, and record 1) job title, 2) annual income, and 3) years of education.

_Second: Virtually visit the college you are interested in attending. Determine its annual costs. Use the State College as a default if you have no opinion. Multiply that annual cost by the number of years required for selected job. For example, if 'Chaplain' (which requires five years of college) and 'University of San Diego' were selected, multiply annual education cost at USD times five for a total. This total will be amortized over ten years on spreadsheet (or whatever amortization number class agrees on). Divide by twelve (for monthly number) and plug that answer into budget. For this exercise, consider the college loan cost interest-free.

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- Amortize total value of loan over 10 years. That requires a formulae in c8 and b16 (maybe more). Expect to figure this out with minimal help.
- If that is too much of an expense every month, re-evaluate college choice.
- If parents are paying for part of college, plug in only costs that you will be responsible for.

_Here's a sample template (*Assessment 21*):

	A	В	С	D	E	
1	M	DNT	THLY	BUDGET		
2		5	′our n	name		
3			Data			
4	Selected career					
5	Annual income		\$ -			
6	Years of education					
7	Student loans total					
8	Amortize student loan over years					
э						
10	HOUSEHOLD			% of Total Expenses	% of Total Income	
11	Rent/Mortgage	\$ -	_	#DIV/0!	#DIV/0!	
12	Utilities (gas, electric, cable)	<u>s</u> -	_	#DIV/0!	#DIV/0!	
13	Insurance	ş -		#DIV/0!	#DIV/0!	
14	Phones	\$ -	_	#DIV/0!	#DIV/0!	
15	Other Household Expenses	\$ -		#DIV/0!	#DIV/0!	
16	Student loan payment	\$ -		#DIV/0!	#DIV/0!	
17	TOTAL	s -		#DIV/0!	#DIV/0!	
18		•				
19	FOOD					
20	Groceries	s -		#DIV/0!	#DIV/0!	
21	Restaurants			#DIV/0!	#DIV/0!	
22	τοται	ς		#DIV/0!	#DIV/0!	
23		ý				
24	Car					
25	Car payment			#DIV/0!	#DIV/0!	
26	Insurance			#DIV/0!	#DIV/0!	
27	Gasoline			#DIV/0!	#DIV/0!	
28	Maintenance and Repairs			#DIV/0!	#DIV/0!	
29	TOTAL	\$ -		#DIV/0!	#DIV/0!	
30						
31	RETIREMENT					
32	Savings	\$ -		#DIV/0!	#DIV/0!	
33				#DIV/0!	#DIV/0!	
34	TOTAL EXPENSES	\$ -	_			
35						

Assessment 21—Budget spreadsheet

_Third: Plug costs of purchasing a home into spreadsheet. To do this, go to a website like Realtor.com that provides information on real estate in your area. Enter zip code of desired location (use your current zip as a default), and evaluate houses. Calculate monthly mortgage payment on a mortgage calculator like <u>https://www.mortgagecalculator.org/</u>. Plug cost into spreadsheet. Notice when mortgage is plugged in, *#DIV/O!* changes to a number.

• Under '% of Total Income' and '% of Total Expenses', what does '#DIV/O!' mean?

- Click cell D11 and discuss what the formula =B11/B34 means (it divides number you came up with for mortgage cost by 'Total Expenses'). Arrive at other formulas by yourself.
- To come up with the formula, pay attention to what EXACTLY you are asking the spreadsheet to calculate.
- Budget experts recommend that house payment should be no more than 28% of gross monthly income. If this is not the case in cell for '% of Total Income' allocated to Rent/Mortgage, choose a more affordable house by plugging numbers into spreadsheet until it gives them 28%.
- If you can't afford to buy, go to Apartments.com, find an apartment in preferred zip code and plug rate into budget.



____Fourth: Choose the car you would like in your budget by evaluating choices on http://www.autotrader.com/ or http://www.carmax.com/. Calculate monthly car payment and plug number into budget. Budget experts recommend car payment should be no more than 12% of gross monthly income. If car payment exceeds this, choose a more affordable car. Record numbers on spreadsheet.

__Fifth: Calculate and record remainder of expenses—utilities, phones, groceries, restaurants, insurance, gasoline, other household expenses, and retirement. Double check all of your calculations.

____Sixth: Divide Annual Income by 12 to get monthly income. This will enable you to evaluate whether you are in the 'black' or 'red' for the month.

_Notice when calculating *% of Total Revenue*, two adaptations must be made to reflect reality. Any thoughts on what that is? How about:

- Annual income must be divided by 12.
- Annual income is not the same as take-home pay. Discuss. This can be adjusted by multiplying income by 65% (an approximate of the 35% that goes for taxes). Or research how much money goes out in taxes. Use real pay stubs if available.
- A working formula might look like:

=B11/(\$C\$5/12*0.65)

• Discuss what the dollar sign means, the parentheses, and the .65.

_Format worksheet so *money* and *% cells* are reflected with *\$* and *%* (use ribbon tools). If you have trouble doing this, check with classmates for help.

_____If your completed budget is in the red, that means you're spending more than you're earning. Adjust expenses to get a workable budget.

- _____Share work with several classmates. Discuss each other's budgets. What are their thoughts on yours? Or their questions?
- _____Submit completed spreadsheet via homework dropbox.
- _____Here's a sample budget:

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	Figure 85—Sample budget									
	A39 • (= f_x =IF(B36>=B34, "Yes", "no")									
-16	A		В	С	D	E				
1		M	онтн	LY BU	DGET					
			You	ur name	2					
2				Data						
4	Selected career			Chaplain						
5	Annual income			\$ 45,000.00						
6	Years of education			5						
7	Student loans total			\$ 100,000.00						
8	Amortize student loan over months			120						
10	HOUSEHOLD				% of Total Expenses	% of Total Income				
11	Rent/Mortgage	\$	400.00		18%	16%				
12	Utilities (gas, electric, cable)	\$	75.00		3%	3%				
13	Insurance	\$	25.00		1%.	1%				
14	Phones	\$	100.00		4%	4%				
15	Other Household Expenses	\$	50.00		2%	2%				
16	Student loan payment	\$	833.33		36%	34%				
17	TOTAL	\$	1,483.33		65%	61%				
18										
19	FOOD									
20	Groceries	\$	100.00		4%	4%				
21	Restaurants	\$	100.00		4%	4%				
22	TOTAL	\$	200.00		9%	8%				
23	Car									
24	Car Car payment	\$	200.00		3%	8%				
26	Insurance	\$	100.00		4%	4%				
27	Gasoline	\$	100.00		4%	4%				
28	Maintenance and Repairs	\$	100.00		4%	4%				
29	TOTAL	\$	500.00		22%	21%				
30										
31	RETIREMENT									
32	Savings	\$	100.00		4%	4%				
33			0.000.00		0%	0%				
34	TOTAL EXPENSES	\$	2,283.33							
36		\$	3 750 00							
37		Ŷ	3,750.00							
38	DISCRETIONARY INCOME	\$	1,466.67							
39	Yes									
40										

_Reflect on what you learned about usefulness of spreadsheets for evaluating quantitative data. Post to your blog or tweet to class Twitter account. Include:

- Spreadsheets facilitate reasoning abstractly and quantitatively. •
- Spreadsheets facilitate construction of viable arguments. •
- Spreadsheets aid in making sense of problems and identifying a solution. ٠
- Spreadsheets allow you to model problems. •
- Spreadsheets use repeated reasoning to solve problems. ٠

Additionally, reflect on:

- What did you think of the budget process?
- Any surprises?
- How did a spreadsheet program make evaluative process simpler? ٠

_Remember to 'save early save often' if not in Google Sheets—about every ten minutes.

Class exit ticket: None

Extension:

- Set up an if-then formula for spreadsheet: **If revenue exceeds expenses, then 'yes' appears in cell. If not, 'no' appears.** How would this be structured? Use Help, Google 'if-then formula in spreadsheet, or trial-and-error. [Hint: =IF(B36>=B34, "Yes", "no")].
- If doing both spreadsheet problems, use the same workbook.
- Prepare for and test for Excel certification (see MS Word certification plan).
- If you finish, start homework preview of the next Unit.



Lesson #13-15 Engineering and Design

Vocabulary	Problem solving	Homework
 Abutment Compression 	 How do I share in Google? This is hard (did you go through tutorial) 	Assigned prior week:
 Cross section 	first? Are you working with group?)	how-to videos—
DeckDynamic load	 The program froze (look around the screen—is there a dialogue box open?) 	become familiar with simulation
ElevationJointsLoad test	 Can I use the program at home? (with parent permission) Link doesn't work (Google for address or 	Know what group you'll build with
 Magnitude Members Racking Span 	 an alternative) Teacher isn't around—I need help (use problem-solving strategies) I don't like science—or engineering (think 	Watch bridge and bridge building videos
Static loadStructuralTruss	of it as an online game) • My bridge costs too much (check out the \$175K bridge video)	Keyboard 45 minutes, 15 at a time

How do I use tech to solve problems?

- Submitted bridge project
- Used domain-specific terms in blog posts, tweets
- Completed warm-up, exit ticket
- [tried to] solve own problems
- Decisions followed class rules
- Higher order thinking, Habits of Mind observed
- Worked well in a group, joined class conversations
- Left station as it was (neat and orderly)



Step-by-step

Class warm-up: Keyboard on the class typing program.

_____Required skill level: Familiarity with online simulations and screenshots/screencasts.

- _____Opened backchannel program.
- _____Any questions from homework?
- Bridge building is an excellent way to update traditional 8th-grade toothpick bridge projects. You will apply theoretical knowledge (from research done for homework) to build a sample bridge (the practical application of knowledge). When done, you will reflect on the importance of both processes (theoretical and practical).



_Divide into groups. Take five minutes to prepare a

five-minute presentation on what goes into creating an effective bridge, based on



homework done to prepare for this unit. Your teacher will provide you with links for research and evaluation.

_Discussions include bridge size, length, longevity, alternatives, samples, materials, requirements, and cost.



Figure 86—Sample bridge blueprint

_When presentations are completed, each group will open the Bridge Designer software or app being used in your class and begin. This is student-directed. Your teacher supports, but doesn't teach. S/he may make a tutorial video available, or provide a demonstration for you to watch. If s/he doesn't, ask.





_As you build your bridge, Tweet daily about progress, problems, solutions. These are quick, concise, and pithy. Accept difficulties as an opportunity to learn. Use strategies from the problemsolving unit and from Common Core such as these:

- Use appropriate tools strategically.
- Attend to precision.
- Make sense of problems and persevere in solving them.
- Value evidence; comprehend as well as critique.
- Demonstrate independence.

_After bridge is successfully built, save to homework dropbox.

_Submit contest entry (if there is a contest) in appropriate category. If you need help submitting your entry, ask for it after trying it yourself.

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_____Use Google Sites, Weebly, Wix, or another website creator to build a project website. Include:

- explanatory text on design choice and how it worked
- o screenshots and screencasts of work
- o insights and analysis
- \circ guidance to teach others
- o facts, definitions, examples, and details
- o domain specific language. If readers won't know a word, include a glossary
- headings, illustrations, charts, graphs, and multimedia useful in understanding the material. This should orient the reader to what is being shared.

_____With your group, complete the rubric at the end of this lesson.

Class exit ticket: Evaluate the design of a neighbor using the project rubric.



Extension:

• If you finish, start homework preview of the next Unit.

Image credit: <u>https://www.flickr.com/photos/foolfillment/382998650</u>

Assessment 22—Bridge building rubric

Engineering/Design Assessment roject: Bridge Building Student/Team:

	Project: Bridge B	suilding	Student/ leam:			
Pts	Investigate	Design	Plan	Create	Evaluate	Group
0	Team does not complete work to standard discussed in class	Team does not complete work to standard discussed in class	Team does not complete work to standard discussed in class	Team does not complete work to standard discussed in class	Team does not complete work to standard discussed in class	Team does not complete work to standard discussed in class
1-2	Team states problem/challen ge in general terms. Students have difficulty solving building problems.	Team creates a basic bridge design, but it does not satisfy all requirements.	Team struggles to define a plan, understand bridge building concepts that result in a successful bridge.	Team has difficulty building bridge to requirements; is unable to solve all/most problems independently	Team sometimes evaluates problems resulting from original plan and sometimes cannot solve problems without assistance	Team has difficulty working as a group and remaining positive about problem solving.
3-4	Team states problem/challen ge clearly. Team shows evidence of researching topic to solve bridge building problems independently.	Team creates a successful bridge design that is affordable and competitive in the competition. Additionally, they defend in well in blog and tweets.	Team produces a solid bridge building plan that results in a successful bridge and a good contest entry. Adapts theory of bridge building well to practical aspects	Team bridge plan results in a successful bridge that is competitive in the competition. Able to solve all problems using strategies discussed in earlier unit	Team successfully evaluates problems in bridge building design, adapts design to practical applications, and does required research to solve problems.	Team works well as a group, differentiates for team member strengths, and seems to revel in solving problems.
Tot al						/20

Lesson #16-18 Learn Through Service

Vocabulary	Problem solving	Homework
 Digital immigrants Digital natives Intergenerational Learning styles 	 I explained it, but Seniors didn't understand (try another way) Not many in class (doesn't matter) Didn't cover all material (doesn't 	Assigned prior week: Review all notes; know what topics to teach Seniors
 Mash-up Online meeting Upload Virtual Visual learner 	 matter) What should I teach (ask Seniors) Can't make my group virtual meeting The senior center won't let us upload to their website (find another solution) 	Keyboard 45 min., 15 minutes at a time

How can I teach tech skills?

- Used good keyboarding habits
- Completed warm-up
- Joined group conversations, virtual meetings
- Completed how-to videos
- Received feedback from Center personnel
- [tried to] solve own problems
- Decisions followed class rules
- Higher order thinking, Habits of Mind observed
- Left station as it was (neat and orderly)



Step-by-step

Class warm-up: Keyboard on the class typing program.

Required skill level: Willing to be a risk-taker; basic knowledge of tech problems and solutions; interest in sharing knowledge with others.

- _____Opened backchannel program. Any questions from homework?
- _____Any tech problems to share with class?
- Important parts of 8th grade education include knowing how to speak to a group, listen to feedback, adapt a presentation to the audience learning style, and communicate so listeners understand. Nothing makes knowledge more authentic than being able to teach others. This is purposeful learning with realworld application.
- In this unit, you teach a group of Seniors how to use technology, "emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid

reasoning, and well-chosen details, while using appropriate eye contact, adequate volume, and clear pronunciation" (from Common Core).

_____Learning expectations for this unit include:

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- \circ develop and hone ability to analyze, interpret, and synthesize information
- \circ collaborate with others
- utilize language skills to present information with the support of technology

____Discuss how this supports Common Core "Capacities for the Literate Individual":

- o *demonstrate independence*
- $\circ \quad build\ strong\ content\ knowledge$
- respond to varying demands of audience, task, purpose, and discipline
- comprehend as well as critique
- \circ value evidence
- \circ use technology strategically and capably
- understand other perspectives and cultures

You'll kick this unit off with a guest presentation

from a social worker to discuss ways of connecting with an elderly population likely to be somewhat physically infirm. You learn physical, mental, and emotional characteristics of an aging person and familiarize yourself with expected communication problems.

____This intergenerational project also focuses on building and exploring community by getting to know elder members. You become aware of the important roles played by older adults in the community and develop skills in making connections.

- _____Separate into groups. This is your team. Together, you'll teach weekly classes at a local senior center on how to accomplish specific skills using computers, laptops, iPads, smartphones, digital cameras, and/or other digital devices. Each group includes an adult supervisor.
 - ___Classes last 4-6 weeks.

___Know ahead of time if the center has laptops, iPads, and/or a computer lab for your use. If not, determine how you can bring your own devices. In either case, bring some digital devices for back-up.

_Start first Senior class by introducing yourselves and discussing class goals. Spend time getting to know each other and establishing trust. Set a tone that is friendly, open, positive, and enthusiastic.

_Ask who has tech problems or subjects they'd like help with. Topics may include how to:

- use computers—in general terms
- use email
- use the Internet
- play online games with grandchildren or each other
- use Skype to stay in touch with family
- download favorite songs
- digitize photos to use on phones/desktops/ a desktop slideshow

Figure 89—Service learning and CC





"Linking Service-Learning and Common Core" by Guilfoile and Ryan, 2013

- create blogs to share with each other •
- create a webcam video to share with family members
- read ebooks from an iPad
- search for information on areas of interest
- solve computer problems (i.e., taskbar disappeared, can't find a program, and Internet window is too small)
- use tech equipment at senior center
- understand domain-specific associated language with technology, i.e., 'cloud'

Start with an overview of the device being discussed—iPad, laptop, computer. Slowly, carefully. One group member presents and the others walk around to help. Always be completely available to Seniors-no chatting in student groups.

Go over computer basics such as mouse skills. Make sure Seniors understand left/right button, drag-drop, and double click. Have online programs available to help them conquer these skills.

- Remember: Olders aren't digital natives, may never have used anything techie, but want to or they wouldn't be in the class.
 - Ask Seniors to come to class with a photo they'd like on their computer. Make an iPad app that scans in photo available.
- Always demonstrate slowly and then let Seniors do it. Importantly, during classes, talk with Seniors, share ideas, and listen to their thoughts.
- Throughout classes, encourage Seniors to help each other with problem-solving rather than wait for you. The more they 'do', the more confidence they have they can 'do'.
- Also throughout class, encourage Seniors to share early memories of technology-

microwave-whatever comes to mind.

How to teach me Be clear Help me with the mouse Help me understand the computer Help me understand the internet I don't always remember from one lesson to next I can't practice because I don't have digital devices I want lessons I can use right away ©AskATechTeacher

Figure 91—Student helping elder



cars, kitchen appliances, TVs, their first computer, radios, how to make food without a

- During last class, invite family and friends for a graduation ceremony where Seniors perform skills they learned. For example: 1) call a family member on Skype, 2) hang out with family members on Google Hangouts, 3) upload videos to the Senior center website, create an online resource site to teach others who couldn't attend class, 4) edit and format a digital photo, and 5) download an ebook to an iPad.
- Twice-weekly school time will be to plan lessons, debrief, and ask about Senior issues. As needed, meet with your group virtually, on your own time. Why virtual meetings?
 - personalized learning experience
 - more effective use of time 0

Figure 90—How to teach Seniors

- \circ prepares for high school and college
- focuses on group rather than class
- taped sessions can be viewed/reviewed by team members

_____Once a week, meet with teacher to debrief on questions or class preparation.

_____Final Unit project will be two-fold: **First**: a mashup video of classes, narrated, subtitled, professionally arranged by you, and then posted to class website. You can use MovieMaker, YouTube video editing, a screencast app, or another video creator your school has. You can also use online tools you're familiar with like Animoto and Prezi. Include:

- information on preparation, process, and product
- concrete details, quotes, and examples
- quotes from Seniors, classmates, and care center management
- your reflection on what went right and wrong
- your reflection on similarities between your peers and Seniors
- domain-specific language
- incites for the next 8th grade group to help them understand project

You shoot video, write copy, and edit yourself. **Second**: create a how-to library of class videos for the senior center and upload to their website.

Class exit ticket: None

Extension: If you finish, start homework preview of the next Unit.

Image credit: Knowledge Volunteers Project and European Lifelong Learning Magazine

How do I tech-infuse myself?

Figure 92—Tech infuse yourself



Lesson #19-21 Visual Learning

Vocabulary	Problem solving	Homework
 Easel.ly Evernote Font Gardner Infoactive 	 Browser toolbar disappeared (try F11) My browser window is too small (double click title bar) My browser text is too small (push Ctrl+ to zoom in) 	Assigned prior week: Keyboard 45 minutes, 15 minutes at a time
 Infogr.am Infographic Layout Multiple intelligence 	 I only want part of webpage (highlight, right-click, print) How do I search Internet (type into search or address bar) 	Review preparatory material; watch all videos; take poll
 Piktochart Tweeple Tweets Type 	 How do I fine tune keywords (use + or – to add or delete words/phrases) Can't find copyright (try bottom of website) 	Review Gardner's Intelligence—be prepared to discuss
Visual appealVisual learnerVisual.ly	 It's difficult toggling between two sources (Alt+Tab) How do I select a visual 	Take learning style quizzes
How can tech co	ommunicate visually?	

- Created infographic that met requirements
- Created blog post and commented on others
- Used good keyboarding habits
- Completed warm-up, exit ticket
- [tried to] solve own problems
- Decisions followed class rules
- Higher order thinking, Habits of Mind observed
- Participated well in group
- Left station as it was (neat and orderly)

Step-by-step

Class warm-up: Keyboard on the class typing program for about ten-fifteen minutes.

_____Required skill level: Completed at least five graphic organizers.

- Any questions from preparatory homework? Always come to class having reviewed materials, prepared to participate in class project. Open backchannel.
- _____What does it mean to organize ideas visually rather than textually? Hint: It's more than pictures. Think of examples completed in the past if you've used the SL tech curriculum since 2nd grade (*Figures 94a-d*):



Image credit: http://jess3.com/geosocial-universe/



____What's the difference between sharing via 'text' and 'visually'? Can they be blended to make a more effective message?



Figure 95a-c—Thinglink hotspots

There was once a dog named Casey. He loved to run. leap play and sniff the world around him. Though no ined Casey was one of the cutest dogs that ever graced the Earth, he never failed to cause havoe in his owner's backyard. Flowers were shredded. New plants upended. Shrubs trampled down. But whenever it came time to reprimand the Playful Puppy, all his owner could see was the love that sparked between the two of them. And once again. Casey avoided punishment.

_____This lesson includes four sections:

- background on learning styles
- background on visual learning
- infographics
- summative project

Background on learning styles

_____Divide into groups. Take five minutes to organize thoughts on one of the topics below:

- Discuss learning styles—logical (mathematical), visual, linguistic, kinesthetic, musical, interpersonal intrapersonal, naturalistic, and existential. Personal experiences are fine.
- How might a visual organizer:
 - build content knowledge
 - use digital media strategically
 - help explain other perspectives and cultures
- What does Gardner's Multiple Intelligences (which you reviewed for homework) mean (Figure 96)?

8th Grade Technology Curriculum: Student Workbook



Figure 96—Learning styles

_____Each group presents their thoughts to classmates, using agreed-upon rules for speaking and listening. You'll take questions.

_____Why discuss learning styles?

____Discuss the learning style surveys you took for homework.

Assessment 23a-b	Learning	style	quizzes
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_____Take a poll to share what type of learner you are (based on Gardner's Multiple Intelligences and learning style quizzes):



Figure 97—Learning style poll in Google Forms; 97b—PollDaddy

Background on visual learning

____Figures 98a-e are examples of visual learning projects created between kindergarten and 7th grade (if you've followed the SL technology curriculum):

Figure 98a—Visual organizers in 2nd grade; 98b—3rd; 98c—4th; 98d—6th; 98e—7th



_____Discuss the concept of organizing ideas visually rather than textually. What's the difference? Why is a blend of both more effective?

_____Visual learning includes desktop publishing, art, graphic organizers, and infographics. This year, you focus on infographics.

Infographics

_____Discuss infographics (a visual and linguistic representation of data) and how they:

- build strong content knowledge via visual media
- respond to varying demands of audiences
- use technology and digital media strategically and capably
- help understanding of other perspectives and cultures
- address the needs of different audiences
- are appropriate to varied audience, task, and purpose
- encourage interaction and collaboration

_____Why are they NOT like the graphic organizers you created in *Figures 98a* and *98c*?

Infographics are popular because they sum up great volumes of information that would take a reader hours to process. Layout and visual appeal are as important as information summarized. If you used this SL curriculum in 6th grade, you have experience creating an infographic.
In *Figures 99a-c*, how does the layout make you want to look closer?



Figure 99a-b—Sample infographics in Hubspot; 99c—Piktochart

Credit for Figures 99a-b: <u>Hubspot</u> — <u>http://www.hubspot.com/</u>

_____Before continuing, review use of internet images (in-depth discussion in lessons on *Digital Citizenship* and *Internet Search and Research*). Discuss how you can make your own graphics (in Paint, Photoshop, GIMP, KidPix, or another art program) rather than risk infringing someone else's rights.

Summative Project

_____Working in groups, select a topic and create three infographics. Data must include:

- facts and figures
- essential opinions
- organic information and primary sources

_____The three infographics will share information in three different ways. As important as the data is layout, fonts, graphics, spacing, color, and size.

_____Pick from these options or others suggested by your teacher:
• Infographic—free templates, customized with colors, fonts, icons, and charts (Fig.100):



Figure 100—Piktochart

• Easel.ly—drag and drop pre-made design elements or upload personal images. Completed infographic can be exported as PNG, JPG, PDG, SVG files (Figure 101):



Figure 101—Easel.ly

• Infogr.am (free)—add videos, maps, charts, xls and csv files; 30 different templates. Publish or embed (Figure 103):



Figure 102—Infogr.am

Canva (free)—sign-in, select a concept and a template, and design (Figure 104):



Figure 103—Canva

___Remember to save early/save often.

•

_____Data will include information you already know on the topic—you will not research. This is an opportunity to share knowledge. Exception: You can take 'a few' minutes to verify data you wish to include.

____When done, share infographic with class and discuss:

- attractiveness of the display
- use of color, fonts, and layout to share information
- accuracy and relevance of information
- use of multiple sources
- selection of credible sources
- use of academic and domain-specific language, in words understood by 8th graders
- citations where needed



Figure 104a-c—Infographics

Figure 105c: Credit—<u>http://writing.rocks/how-to-write-a-sentence-infographic/</u>

____Insert all three into a blog post and explain why you feel one does the best job representing the topic.

_Comment on the posts of three other groups and discuss where you feel the infographic of that group fulfills/fails to fulfill requirements. Remember agreed-upon rules of discussion (which also apply in a social media forum like blogging):

- be respectful
- comment to build the conversation, not judge
- express ideas clearly
- build on ideas of others
- make relevant observations
- keep the discussion on topic
- acknowledge new information
- use domain-specific language

_____Evaluate classmate comments. Did they agree with your choice of the most effective infographic?

Class exit ticket: Review the results of the learning style poll. Tweet (or post a comment to a class Discussion Board) what learning style is most prevalent among your classmates.

Extension:

- Discuss body language. Show how much you can tell about classmates by their hands, facial expressions, and body movements. Provide concrete examples, such as:
 - What does it mean when you are quick to giggle?
 - What does it mean when you look up and to the left?
 - What does it mean when you fidget as you talk?
 - Present completed infographics to class via the class screen.
 - Instead of an Infographic, create a digital poster.



Figure 105a-b—Digital posters

• If you finish, start homework preview of the next Unit.

Lesson #22-24 Robotics

Vocabulary	Problem solving	Homework
 Angle beams Bevel gear Block Clutch gear Crown gear Debug Driver gear Follower gear Forever loops Gear teeth Idler gear Input axle Loops Output axle Pegs Rack gear Rigid construction Robotics Spur gear Ultrasonic sensor Worm gear 	 Website address won't link (push spacebar after address). Still won't work (does it start with 'http://'?) What does 'Save early-save often' mean? (Ctrl+S often to save data) How do I *** (try different strategies) Program doesn't work. (debug. Go through all steps to find mistake) I like building robots, but not other stuff (this unit's more about 'other stuff' than 'building') My teammates aren't working as hard as I am (review agreed-upon rules for working in groups) I have to run back-and-forth to computer and robot for instructions (use iPad) I've tried all year and still don't type fast (use all fingers, eyes on screen) Why do I have to learn robotics? I don't like Legos (think problem-solving, critical thinking) 	Assigned prior week: Be prepared to discuss robotics Review notes on pro- ject; watch all vide- os; prepare reflec- tions Be prepared to dis- cuss robotics Review Asimov's Laws of Robotics; know your favorite robots Keyboard 45 minutes, 15 minutes at a time
How does • Teacher signed of • Checked points o and problem iden	tech improve life? f on challenges f reflection on each challenge tification.	Po
 and problem iden Updated blog with Solved most probl Final project, journ 	tification. In progress reports, reflections ems without teacher assistance. Inal and video.	his

- Completed warm-up, exit ticket •
- Higher order thinking and Habits of Mind observed •
- Left station as it was (neat and orderly)



Step-by-step

Keyboard on the class typing program. Class warm-up:

Required skill level: Familiarity with screenshots/screencasts; completed	several
coding projects in the past.	
Any questions from homework? Any tech problems to share?	
Opened backchannel.	

_Why learn 'robotics? Consider what you learned in the 7thgrade robotics unit. If you didn't do that project, discuss this question from personal experience. Include:

- thinking skills
- problem-solving skills
- critical thinking
- application of learned math

_____How does robotics contribute to these areas?

_Anyone used 'gears' in robotics? Discuss that experience. What are the different gears (see 'vocabulary') and what purpose does each have?

_In this lesson, evaluate how different Lego gears work. Grading is based on **blog posts**, tweets, and labeled drawings.

___Pre-assessment: Working in groups, create a quick sketch (small details are not needed) then describe possible functions of different gears. Post this as an image to class Twitter account or your blog.

__Common Core Standards for Mathematical Practice lists traits necessary to succeed in math—but these are fundamental to daily decisions—to evaluate new circumstances and determine a direction, to consider possible paths to an end and select the most likely to succeed, to mull over new ideas and fit them into accepted constructs.





_____Discuss the meaning of:

- *Make sense of problems and persevere in solving them*—robot does what it is told. You must identify problem and fix.
- **Reason abstractly and quantitatively**—robot program is based on symbols and the ability to visualize results as well as an abstract understanding of what occurs.



Figure 106—Reason abstractly and quantitatively

- Construct viable arguments and critique reasoning of others—'Garbage in garbage out—GIGO' remains the motto of programming. If a script fails to achieve desired results, work as a team to critique process. Help neighbors if they are stuck.
- Model with mathematics—debugging scripts is not unlike decoding a math formula.



• Use appropriate tools strategically—most programming offers a plethora of scripts, blocks, tools. Adapt them strategically to unique needs.



Figure 108—Use appropriate tools strategically

• Attend to precision—again, GIGO. For the program to accomplish what you want requires patience and precision.



Figure 109—Attend to precision

• Look for and make use of structure—look at available tools, scripts, blocks, options, and select those that facilitate your needs.



Figure 110—Look for and make use of structure

• Look for and express regularity in repeated reasoning—notice when a formula/program/script repeats itself and use something like the Forever Loop.

Figure 111—Regularity in repeated reasoning



_Specific goals of this unit build off of the understanding of robotics learned in 7th grade:

- How do gears help the work of a robot?
- How do we program the robot to do what is needed?
- How do we problem-solve if/when robot doesn't work correctly?
- How do we work collaboratively in accomplishing a common goal?

____Your teacher may provide you with videos on gear basics. ____Tasks you will be expected to accomplish:

- complete a series of challenges
- document and reflect on findings, problems, and resolutions

____Don't be surprised if you come up with questions your teacher doesn't know. Or if you must:

- improvise
- change the rules
- try things you don't know the answer to

Figure 112—What's a '404'?



- _____In fact, you want this to happen.
- _____By the way: What's a '404', in *Figure 113*?
- _____Discuss Asimov's Laws of Robotics:
 - A robot may not injure a human being, or through inaction, allow a human being to come to harm.
 - A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.
 - A robot must protect its own existence as long as such protection does not conflict with the First or Second Law

_____Before beginning, brainstorm: What are robots? What are their uses? Your teacher will write the answers on class screen as you come up with them (see *Figure 114*):



Figure 113—Brainstorming on class screen

_Discuss popular robots like:

- 7 of 9 (Borg in Star Trek)
- Bomb Disposal robots
- C-3PO and R2-D2
- Daleks (from Dr. Who)
- Data (from StarTrek)
- Consumer robots
- I, Robot (Asimov)

- Industrial robots
- Lost in Space robot
- Mars Curiosity
- Marvin the Paranoid Android
- *Mining robots*
- Tin Man (Oz)
- Transformers

_____Discuss how robot knows what to do. How do humans know what to do? Animals? The TV at home? The computer? What's the difference between a 'sentient' being and one that is 'non-sentient'? Anyone see Matrix?

___Your teacher will show a sample robot you will build. Main parts include:

- movable physical structure
- sensors
- gears
- power supply
- brain

____Your teacher will pass out parts boxes to groups (see *Figure 115b*). After s/he reviews them, you'll get time to play. Don't mix up the parts!

Figure 114a-b—Robotic pieces



- _____Review robotics user guide. If you have iPads, load guide into iBooks or Kindle (or similar reading app). Review intro, software, technology, parts list, building guide.
- _____Follow along as your teacher demonstrates how to build a basic robot by reading directions and identifying required parts.
- _____This robot isn't sentient, so will only do what it's told. You 'tell' by programming.
- _____Take time to review programming software. Test all menu items, try simple programs to see what happens, and read help files.



Figure 115a-b—Robotics programming

_____Create a sample program along with your teacher. Compare it to algebraic expressions you work with in math.

_Follow along as your teacher demonstrates how to upload the program to the robot (see *Figures 117a-b*).

____Work in groups to accomplish six tasks:

- o reverse directions
- accelerate
- o turn
- o climb various ramps quickly
- detect sound
- o detect touch



Figure 116a-b—Finding robot program

_These tasks use parts such as:

- o forklift arm
- \circ karate arm and chopping block
- o kicker and long arm
- \circ pusher

Figure 117a-b—Completed robots



- _____Throughout robotics, use digital notetaking to capture data, screenshots and screencasts of work, and videos.
 - Throughout this unit, blog about your efforts. What works? What problems did you encounter? Take pictures and videos of what you're doing and share. Include labeled drawings to clarify work. Use poster and drawing webtools you are familiar with. Comment on posts of others. Answer questions. Applaud successes. Follow class discussion rules.
 - ___Throughout this unit, tweet out your progress with #hashtags, i.e., #robotgears, #hillclimbing, and #botbattles.
- ______When your group completes a task, you have three tries to demonstrate this to the teacher.
- _____Two Final Challenges. Pick one: **First**: Bot Battles. Watch videos on bot battles suggested by your teacher.
- _____Create a program for the sole purpose of pushing an opponent out of a ring. Use tools practiced so far such as climbing, reversing directions, and accelerating. Place two robots inside the ring. Start programs and see what happens.



Figure 118a-b—Bot Battles

- **_____Second**: Your teacher may provide you with videos on Climbing Battles. If s/he doesn't ask if s/he has any available.
- _____Write a hill-climbing program. Put two bots programmed for hill climbing at the base of a ramp or other inclined surface and see which can get to the top first. *Figure 120a* is from the US Navy and *Figure 120b* is from NASA. Do they give you ideas?





- __In both Final Challenges, success is highly dependent upon the robot's construction. Discuss what elements might make a robot more/less successful. When a team's bot races and loses, observe what caused it, and adjust bot to be better and smarter.
- _Volunteer to create a Tournament Elimination poster to track Challenges for your class or grade level. It's created in a spreadsheet (column/row designations are included so you can reproduce it).

___Best practices for robotics include:

- Don't share robots. Each group has your own. You are responsible for maintaining it.
- If a robot doesn't do what you thought it would, re-evaluate the programming and try again.
- Clean up as you work.



Figure 120—Tournament elimination poster

©AskaTechTeacher

Class exit ticket: Review the program created by a neighbor. Is it like yours? Did s/he get to the same result in a different way?

Extension:

- Design a drawbridge using gears and a robot.
- Complete one of 14 options on NASA's Mars Education website. A few favorites: 1) create a Mars community, and 2) Rover Races.
- Enter a robotics competition as a school team.
- Analyze how robots know what to do. How do they know where they are? How do they know where to go? How do they control their 'bodies'? How might they see the world? (from Carnegie Mellon grad student David S. Touretzky's paper, "Seven Big Ideas in Robotics, and How to Teach Them").
- Watch a video provided by your teacher on using robotics to create an artificial hand. This is the story of an individual with nothing more than a belief that he could solve problems.
- If you finish, start homework preview of the next Unit.

**Image Credit: Dave at NxtPrograms.com

*** Lesson collaboration: Thanks to Rich Linville at Teachers Ask

Lesson #25-27 Programming with Alice

Vocabulary	Problem solving	Homework
ArraysBillboardsClass	 I can't understand how to *** (check resources, Help, neighbors before asking teacher) 	Assigned prior week: Watch all videos included in lesson
ColorDebugEvents	 I can't remember how I *** (how did you do this before) How do I add objects? 	Review project prep and Alice rubric
MethodObjectOpacity	 How do I move the camera around? I tried—and failed—to install Alice at home (check to be sure you have 	Test Alice on class com- puter or at home
 Parameters Poses Programming	 minimum hardware specifications) My Alice world wouldn't load (where did you save it? Did you back it up?) 	Keyboard 45 minutes, 15 minutes at a time
 Properties Variables World	 My audio file won't play (see if Alice will play another audio file of that type, i.e., .wav) 	

How can math be collaborative?

- Completed tutorial
- Completed Alice world, summative rubric
- Used good keyboarding habits
- Completed warm-up
- [tried to] solve own problems
- Decisions followed class rules
- Higher order thinking and Habits of Mind observed
- Left station as it was (neat and orderly)



Step-by-step

Class warm-up:

Keyboard on the class typing program.

Required skill level: Created projects in Scratch; comfortable with formulae; algebra helpful.

- _____Any questions from homework? Any tech issues to share? Open backchannel.
- _____Your teacher may share esources useful in unpacking Alice.
 - _____Discuss 'I Like Programming'. This is a wildly-popular video (over 15 million viewers) about why people love programming. Your teacher will share the link.
 - _____Join class groups. Take five minutes to collaborate, and then (as a group) share a summary, analysis, and your collaborative thoughts about one video you watched. Take questions.





Figure 121a-b—Class using Alice

______'Programming' is the buzzword among middle school students. You either want to do it or are afraid of it. What does 'programming' mean? Do you have your own website? Do you want to write programs and/or apps? Discuss how programming promotes problem-solving, critical thinking, and computational thought.

_What is Alice? It is a free programming game to teach basics to 8th grade and above without the intimidating techie-ness. With it, you create interactive stories, animations, and games.



Figure 122a—Student using Alice; 123b—first world

World.my first method	No parameters	create new pa
No variables		create new
(Do Nothing		

_Common Core Standards for Mathematical Practice can be tied into Alice:

- Make sense of problems and persevere in solving them—The Alice worlds you create do only what they are told to. You must know where you made a programming error and fix it.
- **Reason abstractly and quantitatively**—Alice programming is two-dimensional. To visualize the process requires an abstract understanding of what is occurring (Figure 124b):



• **Construct viable arguments and critique the reasoning of others**—Be open to criticism and work collaboratively to accomplish goals (Figure 125):



Figure 124—Construct viable arguments (in Alice)

• *Model with mathematics*—*Translate scripts. This is not unlike decoding a math formula. Figure 126a's script (outlined in red) becomes Figure 126b's picture:*



Figure 125a—The model; 126b—the result in Alice



• Use appropriate tools strategically—Alice does exactly what you tell it to do, which often isn't the same thing as what you wish it would do. Be careful, logical and precise when programming (Figure 127):



Figure 126—Use appropriate tools (Alice)

• **Attend to precision**—to get Alice to do what you want requires patience and precision. Watch carefully when your teacher demonstrates on the classroom screen or when you watch videos that define actions (Figure 128a). • Look for and express regularity in repeated reasoning—notice when a formula/program/script accomplishes a particular task and use it for that purpose (Figure 128b):

		And in case of the local division of the loc	World.my first method
			World.my first method No parameters create new parameters
1233	Territoria e Martine		No variables create new variat
A Shad	++1=		Do in order
Matrices R. Managerone Managerone Managerone Managerone A Course -	Conservations Conservation Conservation Conservation Conservation Conservation Conservation		
and an area	And addition from the loss from the loss for the loss	-	
	Tanan Balanta dan Kalanta Salah Sa		Do in order Do together Differe Loop While For all in order For all together
THE PARTY		annia ann	Wait print W

Figure 127a—Attend to precision (in Alice); 128b—look for and express regularity

• Look for and make use of structure—look at available tools on the varied Alice toolbars and select those best suited for the task.

Besides Math Standards, Alice supports writing skills:

- W.8.3a Engage and orient the Alice world viewer by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.
- *W.8.3b Use narrative techniques in the Alice World, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters.*
- W.8.3c In Alice world dialogue and action, use a variety of transitions to convey sequence, signal shifts from one-time frame or setting to another, and show relationships among experiences and events.
- *W.8.3d Use precision and appropriate tools throughout to convey events.*
- *W.8.3e* Provide a conclusion to the Alice world story that follows events.

_Go through the Alice tutorial _Done? Create an animated avatar:



- Choose "room" template, then "Setup Scene."
- Choose "class Biped," "class Person," then child, female, light, and avatar that is shown.
- Push OK until avatar appears in the room.
- Using circle at avatar's feet, turn him/her until s/he faces right, then press "edit code."
- In tab that says "this child/person," click on heavy black arrow facing down. Then click arrow facing right to reach individual body parts. Choose a body part and give it direction by moving instruction to method box. Run program to see results.
- Debug program if it doesn't work.

_Stuck? Go through Alice online documentation, use Help files, and work with group mates. Do not give up. Do not get frustrated. Keep making changes. It will work.



Figure 128a-b—Alice programming

___When you are comfortable in the Alice world, open a new Alice world and place a toy ball on the screen. The goal: Make the ball realistically roll. When done, articulate in your blog why this is harder than it sounds. What are suggestions for solving this?

- distance traveled by ball = circumference X number of revolutions toy ball makes
- algebraic equation is $t = \pi d \times v$, where *t* is distance traveled, πd is circle circumference, *v* is number of complete revolutions toy ball makes
- rewrite equation to be used in Alice, $v = t \div (\pi d)$
- use formula to make toy ball roll realistically

Figure 129a-c—Math programming in Alice

p = .move(FORWARD = , 1 meter =); more =	world.main	world.main
1/2 meter • 1 meter 5 meters 10 meters	public vold main () (Namber [123] A = 5 - ; Namber [123] B = 2 - ; Boolean [17] C = trae ; // Illustrate the "equals" expenses	public void main () { Number [123]a] = 5 - ; Number [23]b] = 2 - ;
interim 1 + y other 1 - x 1' + 1' +	0.25 0.5 1 2 0.5 1 2 0.5 1 2 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	$p \leftarrow move(UP \leftarrow, ((a \leftarrow + b \leftarrow)) \leftarrow * 3 \leftarrow) \leftarrow);$ $p \leftarrow move(UP \leftarrow, (a \leftarrow + (b \leftarrow * 3 \leftarrow) \leftarrow) \leftarrow);$
	2 other	p = .move(UP = , (a = + (b = * 3 =

___This activity is self-paced and student-directed. Work as fast as you can, but no faster. Sure, there are deadlines, but it's more important to problem solve and critically think. Share that in your blog.

_Alternative task: In groups, watch movie trailer of *Despicable Me* (or similar). Analyze how avatars move their limbs, mouths, and how they walk. As a class, compare to humans. For example, which leg moves first? How do joints move? How do arms and legs move in relation to each other? Does body bob up-down as avatar moves? List movements and then construct a walking avatar.

_____Wrap up lesson by completing rubric. It will include all of the skills you were expected to complete and might look like *Assessment 24* (zoom in as needed):

Alice Project					
Name	Name Teacher: Date: Class				
Objects	4	3	2	1	
Objects	in world.	world.	world.	has one object in world.	
Parameter/ Variable	Has good use of parameter or variable in world.	Has a parameter or variable which is meaningless.	Has a parameter or variable but did not	Does not have any pararmeters or variables.	
Function	Has useful functions in world	Uses functions with little meaning	Function does not make sense.	No functions found in world.	
Events	Created an event and gave the user directions	Created an event and did not give user	Created an event that did not work.	Did not create an event.	
File Name	File was named the name of the project and your name.	Only had one of the requirements for naming; either your	Project was named randomly.	Project was not named.	
Purpose	World met the theme and had a purpose and audience in	World met the criteria but did not have an audience in mind.	World did not meet the criteria but had an audience in	World did not meet the criteria and did not have an	
Reflection	Refected on Blog with at least three sentences using propper grammer.	Reflected at least three sentences, but did not post on Blog, but were shared with teacher.	Reflections were less than three sentences and were not shared	Did not reflect.	
Sharing	Final Project was shared through Google Docs DropBox	Final Project was shared via jump drive.	Final Project was emailed.	Final Project was not shared with teacher.	

Assessment 24—Alice rubric

Class exit ticket: None

Extension:

- Use Alice to create a PSA.
- *Try Storytelling Alice_with a focus on 3D animated movies.*
- If you finish, start homework preview of the next Unit.
- Instead of Alice, try one of these (teacher will provide links):
 - Code Monster 58 self-directed lessons
 - Hakitzu
 - Khan Academy Computer Science
 - Gamemaker

Image credit: <u>Duke University</u> Image credit: <u>Dick Baldwin</u> Image credit: <u>Andres Moreno</u> Image credit: <u>Ferguson Jones</u> Image credit: North Central NC Tech

Vocabulary	Problem solving	Homework			
 Arcs Bounding edges Component Entity Face Icosahedron Layer Modeling Offset Path Bolygops 	 My screen froze (clear a dialogue box) I'm stuck (think creatively, critically) I don't understand (be an explorer and risk-taker) Someone on my team doesn't like this program (help him/her) I can't find the right tools (use shortkeys) My text label won't move with my model (consider annotation tool instead of text) I can't find the orbit, pan, zoom tools to move (the move wheel) 	Assigned prior week: Watch Sketch Up videos. Be prepared to discuss Review notes; be famil- iar with Warehouse; know project you'd like to do Watch all videos; pre-			
 Primitives Scale Walk 	 I want to explore my model at eye level (use Walk tool) My computer froze (save early, often?) 	pare reflections Keyboard 45 minutes, 15 minutes at a time			
How can games become learning?					
 Completed Ske Submitted refle Completed wc 	etchUp tasks ection arm-up	To Po			

- [tried to] solve own problems
- Decisions followed class rules
- Higher order thinking, Habits of Mind observed
- Joined class conversations
- Left station as it was (neat and orderly)



Step-by-step

Class warm-up:

Keyboard on the class typing program.

- _____Required skill level: Experience with programming—at least two projects.
- _____Any tech problems you'd like help with? Keyboarding Questions?
- _____Open backchannel.
- _____This lesson is student-directed. Expect to learn by exploring and sharing knowledge.
- _____Divide into groups. Select a how-to video to learn how to use SketchUp (which you watched for homework). Your teacher will provide the links.
- _____Discuss the following questions among yourselves and then present your thoughts to the class:



Image credit: https://commons.wikimedia.org/wiki/File:Sketchup2013_scre enshot.jpg

- What is SketchUp and when/why is it used?
- How can it support math, science, history, or another academic subject?
- What class project (outside of tech class) might use SketchUp and why?

__Open SketchUp. Browse online documentation and videos. Think back to the videos you watched for homework and in class when you have a question. Replay those videos as needed to be self-directed and self-motivated.



Visit the SketchUp Warehouse. Browse to see what has been created.

Figure 130a-c—Designs from SketchUp Warehouse



____In groups, create 3D geometric shapes like *Figures 131a-d* (from SketchUp Warehouse):



Figure 131a-d—Geometric shapes in SketchUp



____Next: In groups, create a building to scale:

Figure 132—House in SketchUp



_____Start the house building by watching a video on how to do it in SketchUp. Your teacher will provide the link.

_____Next: Complete one of the following tasks that integrate SketchUp with math, geography, or science:

• Find a SketchUp of a real building in the SketchUp Warehouse. Reproduce it. Then, compare your design to the pros. In Figures 134a-b, which is real and which is SketchUp:



Figure 133a-b: Which is real? Which is SketchUp?

- Create icosahedron (<u>https://www.youtube.com/watch?v=3TWRvqVgCEI</u>).
- Design a building on your campus and upload to Google Earth (or Warehouse). Figure 134b is the Eliot School in St. Louis Missouri.





____Once completed, submit project through class dropbox, place a screenshot in a blog post with a reflection, and/or place a screenshot in a Tweet with a reflection.

____Knowing what you now know about SketchUp, where do you see it fitting into your educational landscape? A model of ancient Rome? Science? Math?

Figure 135a—Ancient Rome; 135b—molecules; 135c—math shapes



_All of these drawings are from the SketchUp 3D Warehouse.

Class exit ticket: None

Extension:

- *History*: Create period furniture or buildings.
- **Literacy**: Create setting in a book including houses and buildings.
- **Science**: Build simple machines.
- *Earth Science*: Design volcanoes, horizon layers, and plates.
- If you finish, start homework preview of the next Unit.

Lesson #31-32 Web Communication Tools

Vocabulary	Problem solving	Homework
 Brainstorm Embed GIF Mindmap Screencast Screenshot Share Widget 	 I don't know how to embed a tool Where's embed code? (search screen) I see 'share' not embed (click 'share') I like the tool, but it charges a fee (look around for free version) Login doesn't work (any typos?) I don't like the tool (try a different one) I don't understand tool (ask teammates) 	Assigned prior week: Be prepared to discuss three tools Review project notes Watch all videos; prepare reflections KB 45 min, 15 min/
How can tec Used good keyboc Completed warm- Completed projec	h differentiate sharing? arding habits up, exit ticket t and rubric	to Do This

- Followed agreed-upon rules for speaking, listening
- [tried to] solve own problems
- Higher order thinking and Habits of Mind observed
- Joined class conversations
- Left station as it was (neat and orderly)

Weel

Step-by-step

Class warm-up: Keyboard on the class typing program.

Required skill level: completed at least five projects using webtools; familiarity with screenshots/screencasts.

- _____Any questions from homework?
- _____Open backchannel.
 - _____For this project, select a web communication tool from a list provided by your teacher (or one of your choice—with approval), teach yourself how to use it, and then teach classmates.
 - _____The sample list will represent various learning styles—textual, visual, auditory, art, music, color. _____Discuss 'online communication'. It:
 - enables you to contribute as a team
 - is a way to collaborate and publish in digital environments with varied media
 - is a way to communicate information and ideas to multiple audiences
 - develops cultural understanding and global awareness
 - includes email, forums, blogs, and social media
 - is a way to integrate new information into views



__The lesson goal is to broaden understanding of communication tools. What you use (word processing, slideshows, DTP to name a few) is but a fraction of what is available. The good news is—many tools are intuitive to learn, free, and require nominal login information.

_____This lesson supports a final project that requires you to collaboratively investigate, draw conclusions, share, and publish.

___Your teacher will share a list of webtools that communicate in differentiated, personal ways. They:

- include tools you will need in 8th grade
- include tools you are interested in

_Here's a sample list. Your teacher will provide links to the list you'll work off of:

• Assessment Puzzles—such as crosswords:



Figure 136a-b--Puzzle Maker

• BatchGeo – data entered (intentionally blurred) gives the map:

Figure 137a-b—BatchGeo



• Code Monster:

Figure 138—Build with Chrome

You can use fillRect() to that to 150?	draw a box. See the number 50? Can you change
1 c.fillRect(20, 20, 50, 75);	

• Comics (free)—use comics to tell a story:



Figure 139a-b—Storytelling with comics

- Diagrams Online
- GIMP

Figure 140a-b—Diagrams; GIMP



• Animation tools



Figure 141--Animation

• Hakitzu

• Jeopardy Labs

			Enter Title		
	Enter Category				
ITEKE E	100	100	100	100	100
	200	200	200	200	200
robot hackers	300	300	300	300	300
	400	400	400	400	400
Code your way to victory and become the ultimate code warrior!	500	500	500	500	500
			Cottinue		



• Poll tool— class polls:





- Infographic tools
- Publish Magazines online



Figure 144a-b—Infographic; DTP

• Screencast tool and Slideshow tool:



Figure 145a-b—Screencast; HaikuDeck

- <u>Stock Market Game</u>
- Flashcard app create flash cards as study aids:

Marker GAME.		Website assessment	Resarce. B (<u>u</u> T E A ⁰ A ₀ 0	Metching Cards Hore
The Stock Market Game!	BACK (75.4 5.4 (75.4 5.4 (75.4) (75.4	Embed To copy and paste source data into a + folkinee	Embed	With a term on this card, then browse or borrow similar cards.
	C	 deviait wratali wrataliadent subliminal perseption MGA attention defineriait bisebold cautionary seductionistic 	To copy and paste source data into a new file	
Welcome Students1			\sim	

Figure 146a-b—Stock Market Game; Flashcard app

- Desktop publishing create online fliers
- <u>Wolfram Alpha widgets</u> create a widget:

Figure 147a-b—Canva and Wolfram Alpha



- _____For more ideas: Look back at options in the word processing lesson.
- _____Your teacher will review the project rubric (*Assessment* at the end of the lesson). Ask questions about any parts you don't understand.
- _____Add your presentation date to class calendar.

- Take the rest of class to prepare with your group. Presentations begin next week.
- _____During presentation, one group member will teach while others walk around and help classmates. The teacher will observe.
 - _Follow speaking/listening rules discussed in class:
 - Come to your presentation prepared.
 - Present information in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details.
 - Integrate multimedia to clarify, strengthen claims, and add interest.
 - Pay attention to specific needs of this audience, this task, and this purpose.
 - Use appropriate eye contact, adequate volume, and clear pronunciation.

_During presentation, cover:

- how to use tool
- how tool communicates ideas
- how to troubleshoot
- how to embed project into blogs
- what you learned from the tool

_____Audience will:

- Be critical thinkers.
- Follow rules for collegial discussions displaying a respect for all opinions.
- Pose questions that connect ideas and/or respond to others' questions and comments.

Each presentation will take about fifteen minutes. When the group is done, embed an example (or screenshot if embed is not available) and directions for completing the project in your blog. Include a reflection on your experience.

Class exit ticket: None

Extension: Upload projects to a class wiki page as a resource tool for other students interested in using these online tools.

Studen	tname			_
Teacher name Points (see reverse side for comments				
CATEGORY	Exemplary-4 points	Developing-2 points	Unsatisfactory-0 points	RATING
Knowledge of selected tool 8 points	Descontrates clear understanding of how to use tool anduling terminology and tool website. Skowa revidence of perparation for both group teaching and classmate problem-software. Understanding is student-unitiated with minimal assistance from teacher. Displays enthusism for tool and appreciation for its part tob land appreciation for its part.	Demonstrates mixed understanding of tool. Shows some evidence of preparation for both teaching and problem- solving. Requires teacher assistance more than once. Displays some confidence in knowledge, enthusiant for tool, and appreciation for its part in the learning experience.	Demonstrates a marky understanding of selected tool with little evidence of preparation for naching or problem-solving. Requires substantial assistance from others to complete presentation. Displays lack of confidence in ability to make tool part in learning experience.	/8
	When applicable, can show class how to embed completed tool into class blog. Knows which 'widget' to use and is able to help when classmates have difficulties.	Has some difficulty showing class how to embed completed tool into class blog or wiki page. Hasn't sufficiently prepared prior to teaching.	Unable to show class how to embed tool into class blog and/or wiki page.	
Ability to teach students 4 points	Demonstrates how to use tool in an authentic, personal, and enthusiastic manner. Uses terms class understrands. Speaks slowly and clearly so class can complete steps. Provides trouble shooting and problem-solving tips (discovered as student learned to use tool).	Has some difficulty teaching students to use tool. Teaching lacks confidence and doesn't always engage students. Sometimes speaks too quickly for class to follow and some students are unable to complete project. Occasionally unable to trouble-shoot or problem-scive.	Has considerable difficulty teaching students. Teaching lacks confidence and doesn't engage students. Unable to trouble-shoot and problem-solve when asked. Students are unable to complete project.	/4
Reflection on tool's usefulness 4 points	Reminds students how tool can be used to communicate the theme with examples. Fully addresses student questions about how to accomplish this. Reflection on blog is authentic and original, displays thoughtful analysis, and includes goals for commund learning.	Doesn't remind students of tool's usefulness, but provides examples. Is able to address some questions. Blog reflection shows insufficient original thought and incomplete itemization of goals for continued learning.	Reflection doesn't describe tool's use for class theme, shows little original thought, and does not include goals for continued learning.	/4
Group Work 4 points	Consistently works toward group goals. Display sensitivity to feelings of others and values all members.	Sometimes works toward group goals. Is at times insensitive to the feelings of others.	Never works toward group goals or contributes. Is not sensitive to the feelings and needs of others in the group.	/4

Figure 148—Webtool assessment

Assessment 25—Webtool Assessment

Webtool Assessment

CATEGORY	Exemplary—4 points	Developing-2 points	Unsatisfactory-0 points	RATING
Knowledge of selected tool 8 points	Demonstrates clear understanding of how to use tool including terminology and tool website. Shows evidence of preparation for both group teaching and classmate problem-solving. Understanding is student-initiated with minimal assistance from teacher. Displays enthusiasm for tool and appreciation for its part in the learning experience.	Demonstrates mixed understanding of tool. Shows some evidence of preparation for both teaching and problem- solving. Requires teacher assistance more than once. Displays some confidence in knowledge, enthusiasm for tool, and appreciation for its part in the learning experience.	Demonstrates a murky understanding of selected tool with little evidence of preparation for teaching or problem-solving. Requires substantial assistance from others to complete presentation. Displays lack of confidence in ability to make tool part in learning experience.	/8
	When applicable, can show class how to embed completed tool into class blog. Knows which 'widget' to use and is able to help when classmates have difficulties.	Has some difficulty showing class how to embed completed tool into class blog or wiki page. Hasn't sufficiently prepared prior to teaching.	Unable to show class how to embed tool into class blog and/or wiki page.	
Ability to teach students 4 points	Demonstrates how to use tool in an authentic, personal, and enthusiastic manner. Uses terms class understands. Provides trouble shooting and problem- solving tips (discovered as student learned to use tool).	Has some difficulty teaching use of tool. Lacks confidence and doesn't always engage students. Sometimes speaks too quickly for class to follow. Occasionally unable to trouble- shoot or problem-solve.	Has considerable difficulty teaching students. Teaching lacks confidence and doesn't engage students. Unable to trouble-shoot and problem-solve when asked. Students are unable to complete project.	/4
Reflection on tool's usefulness 4 points	Reminds students how tool can be used to communicate the theme with examples. Fully addresses student questions about how to accomplish this. Reflection on blog is authentic and original, displays thoughtful analysis, and includes goals for continued learning.	Doesn't remind students of tool's usefulness, but provides examples. Blog reflection shows insufficient original thought and incomplete itemization of goals for continued learning. Completed project not embedded as an example.	Reflection doesn't describe tool's use, shows little original thought, and does not include goals for continued learning. Blog includes inadequate reflection on usefulness of tool and no example of the tool itself.	/4
Group Work 4 points	Consistently works toward group goals. Display sensitivity to feelings of others and values all members.	Sometimes works toward group goals. Is at times insensitive to the feelings of others.	Never works toward group goals or contributes. Is not sensitive to the feelings and needs of others in the group.	/4
Student i Teacher	names		©AskaTech	Teacher

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