Teacher Manual

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1st Grade Technology

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A COMPREHENSIVE CURRICULUM

SIXTH EDITION

by Ask a Tech Teacher

FIRST GRADE TECHNOLOGY

A COMPREHENSIVE CURRICULUM

SIXTH EDITION

Part Two of Nine of the SL Technology Curriculum

Version 6.4 2024

Introduction

The educational paradigm has changed—again. Technology has become granular to learning, blended into educational standards from Kindergarten on, like these rephrased from Common Core:

- *Expect students to demonstrate command of **keyboarding***
- *Expect students to **evaluate different media** [print or digital]*
- *Expect students to **gather relevant information** from print and digital sources*
- *Expect students to integrate and evaluate **information presented in diverse media** and formats*
- *Expect students to **interpret information** presented visually, orally, or quantitatively [such as interactive Web pages]*
- *Expect students to make **strategic use of digital media***
- *Expect students to use **dictionaries, both print and digital** …*
- *Expect students to use information from **illustrations and words in print or digital** text*
- *Expect students to communicate with a **variety of media***
- *Expect students to **use text features and search tools** (e.g., key words, sidebars, **hyperlinks**) to locate information*

But how is this taught?

With the **Structured Learning Technology Curriculum**. Aligned with Common Core State Standards[*] and National Educational Technology Standards, and using a time-proven method honed in

classrooms, students learn the technology that promotes literacy, critical thinking, problem-solving, and decision-making through project-based work. The purpose is not to teach step-by-step tech skills (like adding borders, formatting a document, and creating a blog). There are many fine books for that. What this curriculum does is guide you in providing the **right information at the right time**.

Just as most children can't learn to read at two, or write at four, they shouldn't be required to place hands on home row in kindergarten or use the internet before they understand the digital risks and responsibilities. The Structured Learning curriculum makes sure students get what they need at the right age with proper scaffolding. The end result is a phenomenal amount of learning in a short period of time.

If there are skills you don't know, visit our Help blog AskATechTeacher.com.

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"New technologies have broadened and expanded the role that speaking and listening play in acquiring and sharing knowledge and have tightened their link to other forms of communication. Digital texts confront students with the potential for continually updated content and dynamically changing combinations of words, graphics, images, hyperlinks, and embedded video and audio."

—CCSS

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"Use of technology differentiates for student learning styles by providing an alternative method of achieving conceptual understanding, procedural skill and fluency, and applying this knowledge to authentic circumstances."

—CCSS

• • •

What's in the SL Technology Curriculum?

The SL Tech Curriculum is project-based and collaborative with wide-ranging opportunities to show knowledge as best fits their communication and learning style. Each grade level in the curriculum includes five topics that should be woven into 'most' 21st-century lesson plans:

- *keyboarding—more than typing*
- *digital citizenship*
- *publishing-sharing—collaborative learning*
- *problem-solving--and critical thinking*
- *vocabulary—decode words with tech*

In each grade-level curricula, you will find full lessons devoted to keyboarding, digital citizenship, and problem solving.

Here's a quick overview of what is included in the curriculum:

- *curated list of assessments and images*
- *articles that address tech pedagogy*
- *Certificate of Completion for students*
- *curriculum map of skills taught*

- *monthly homework (3rd-8th only)*
- *posters to visually represent topics*
- *Scope and Sequence of skills taught*
- *step-by-step weekly lessons*

Each weekly lesson includes:

- *assessment strategies*
- *class warmup and exit ticket*
- *Common Core and ISTE Standards*
- *differentiation strategies*
- *educational applications*
- *essential question and big idea*
- *examples, rubrics, images, printables*
- *materials required*

- *pedagogic articles (if any)*
- *problem solving for lesson*
- *skills—new and scaffolded*
- *steps to accomplish goals*
- *suggestions based on digital device*
- *teacher preparation required*
- *time required to complete*
- *vocabulary used*

Programs Used

Programs used in this curriculum focus on skills that serve the fullness of a student's educational career. Free alternatives are noted where available:

General		Specific	
Web tools	*Drawing program*	*Word processing tools*	*Desktop publisher*
Google Earth	*Image editor*	*Spreadsheet tools*	*Presentation tools*
	Keyboarding tool	*Email program*	

What's in the Sixth Edition?

A good tech curriculum is aligned with best practices in technology and education. That means it must be updated every few years. Consider the changes to technology in education since 2013:

- *Windows updated its platform—twice.*
- *Student work is often collaborative and shared.*
- *Student work is done anywhere; it must be synced and available across multiple platforms, devices.*
- *Keyboarding skills are critical, especially to summative year-end testing.*
- *Technology is the norm, but teacher training isn't.*
- *Education is focused on college and career with tech an organic, transformative tool.*
- *Teachers have moved from 'sage on the stage' to 'guide on the side'.*
- *Students have been raised on digital devices. They want to use them as learning tools.*
- *Using technology is no longer what 'geeky' students do. It's what all students want to do.*
- *Printing is being replaced with sharing and publishing.*
- *More teachers want to try technology authentically.*

In response, here is what you'll find in the Sixth Edition:

- *Ideas are provided to deliver lessons on all **popular digital devices**.*
- *The importance of **higher order thinking**— analysis, evaluation and synthesis—is called out**.***
- *The importance of '**habits of mind'—**critical to college and career goals—is included.*
- *It's easy to recognize which **skills are scaffolded** from earlier lessons and which are new.*
- *Each lesson points out **academic applications** of technology.*
- *Students learn to **understand the process**, not just replicate a skill.*
- ***Collaboration and sharing** is often required.*
- ***Differentiation** is encouraged. Teachers learn strategies to meet students where they learn.*
- *Each lesson includes a **warm-up and exit ticket**, to assess and reinforce student learning.*
- *A **Table of Images** and a **Table of Assessments** are included for easy reference.*
- *Updated **Scope and Sequence** includes more references to Common Core.*
- ***Curriculum Maps** shows which month topics are covered as well as which grade.*
- *Each grade-level curriculum includes **student workbooks** (sold separately).*

Who Needs This Book

You are the Tech Specialist, Coordinator for Instructional Technology, IT Coordinator, Technology Facilitator or Director, Curriculum Specialist, or tech teacher—tasked with finding the right project for a classroom. You have a limited budget, less software, and the drive to do it right no matter roadblocks.

Figure 1—Tomorrow's student
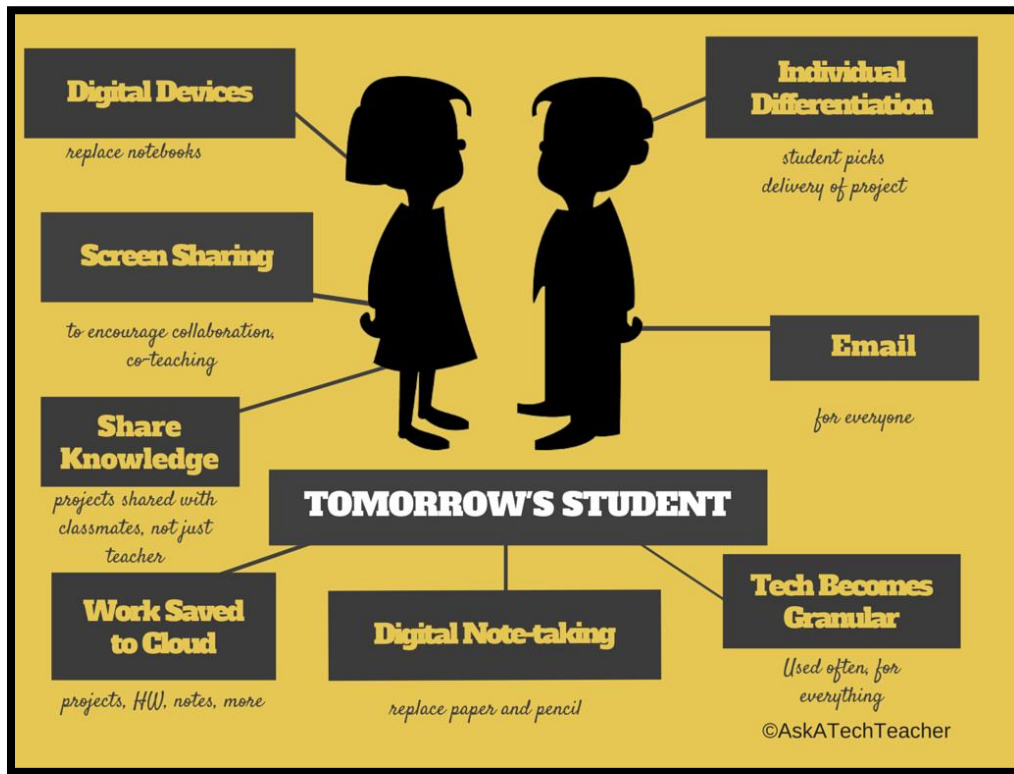
Or you are the classroom teacher, a tech enthusiast with a goal this year—and this time you mean it—to integrate the wonders of technology into lessons. You've seen it work. Others in your PLN are doing it. And significantly, you want to comply with Common Core State Standards, ISTE, your state requirements, and/or IB guidelines that weave technology into the fabric of inquiry.

You are a homeschooler. Even though you're not comfortable with technology, you know your children must be. You are committed to providing the tools s/he needs to succeed. Just as important: Your child WANTS to learn with these tools!

How do you reach your goal? With this curriculum. Teaching children to strategically and safely use technology is a vital part of being a functional member of society—and should be part of every school's curriculum. If not you (the teacher), who will do this? To build Tomorrow's Student requires integration of technology and learning. We show you how.

How to Use This Book

Figure 2a shows what's at the beginning of each lesson. *Figure 2b* shows what you'll find at the end:

- *Academic Applications*
- *Assessment Strategies*
- *Big Idea*
- *Class Warm-up*
- *Essential Question*

- *Material Required*
- *Problem solving*
- *Skills*
- *Standards*
- *Steps*

- *Teacher Prep*
- *Time Required*
- *Vocabulary*

Figure 2a—Beginning of each lesson; Figure 2b—end of each lesson

Week #1—Introduction

Vocabulary — Where to use lesson; Domain-specific vocab

Problem solving
- What's the difference between 'save' and 'save-as'
- ...a quick...
- ...'t use scho...
- ...me... (your hon...
- ...parts, just...

Lesson-specific tech tips

Skills — What students learn and/or scaffold

Academic Applications
Tech in life, submitting homework, problem solving

Materials Required
Tech poster, after school tech programs, homework subm...

What you'll need

Standards
CCSS: Anchor...ndards

CC and ISTE

Essential Question
How do I use the computer?

EQ

Big Idea
...ess of computer components, fu...ues, and basic computer operati...

Big idea

Assessment Strategies
- Anecdotal
- ...ioned classroom conversations
- ...cipated with a sense of ...der and excitement
- ...pleted exit ticket
- ...oom as student found it
- Habits of mind observed

Assessment ideas

Teacher Preparation
- Have Te...lips posters on walls or in classroom Tech Corner
- Test...ipment so students aren't frustrated trying to use something that won't work
- ...expected student tech pr... Need help? Here's a thread .../category/tech-tips/) with o...lems and solu-

How do you prepare

Step-by-step

Steps

Time required: 45 minutes
Class warm-up: None

How long you need AND warm-up

- *Class differentiation strategies*
- *Class exit ticket*

Class exit ticket:
Class exit ticket
...they fac... Solving Board with a tech problem ...se can be used for the upcoming *Problem Solving Board.*

Differentiation
- Early finishers: visit class internet start page for websites... article at end of Week 2).
- Take a field trip to school server room to see how data is col...

How to differentiate for student needs

The curriculum map in *Figure 3* shows what's covered in which grade. Where units are taught multiple years, teaching reflects increasingly less scaffolding and more student direction.

Figure 3—Curriculum Map—K-8

	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
K	☺	☺	☺	☺	☺					☺		☺	☺	☺		☺
1	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺		☺	☺	☺		☺
2		☺	☺	☺	☺	☺	☺	☺	☺	☺		☺	☺	☺		☺
3		☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺		☺
4		☺	☺		☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
5		☺	☺		☺	☺		☺	☺	☺	☺	☺	☺	☺		☺
6		☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺		☺
7		☺	☺	☺	☺	☺			☺	☺	☺	☺	☺	☺	☺	☺
8		☺	☺	☺	☺	☺			☺	☺	☺	☺	☺	☺	☺	☺

If you're the grade-level teacher, here's how to use the map:

- Determine skills covered earlier years. Expect students to transfer that knowledge to this year.
- Review the topics and skills, but don't expect to teach.
- Confirm that skills listed for prior years were covered. If they weren't, plan time to teach them.

Figure 4 is a month-by-month curriculum map for this grade level. In the student workbook, students complete this themselves or as a group when they finish each lesson.

Figure 4—Curriculum Map—1st grade, month-to-month

	Sept *Wk1-4*	Oct *Wk5-8*	Nov *Wk9-12*	Dec *Wk13-16*	Jan *Wk17-20*	Feb *Wk21-24*	March *Wk25-28*	April *Wk29-32*
Blogs								
Class mgmt tools	x							
Coding/Programming	x		x					
Communication			x	x	x	x	x	x
Computer etiquette	x							
Critical thinking	x		x	x	x		x	
DTP								
Digital Citizenship	x		x		x	x	x	x
Google Earth				x				

Graphics	x		x	x	x	x	x	
Hardware/Software	x	x			x			
Internet	x		x			x		
Internet privacy			x					
(Pre)Keyboarding	x	x						
Problem solving	x	x	x	x	x	x	x	x
Publishing/sharing								
Research								
Slideshows								x
Speaking and Listening					x	x		x
Spreadsheets				x				
Visual learning					x	x	x	
Vocabulary	x	x	x	x	x	x	x	x
Webtools	x	x	x		x	x		x
Word Processing	x	x	x	x		x		x

Some topics are covered every month. The strategy: spiral and scaffold learning until it's habit.

Use this curriculum on its own—a manual for teaching technology—or in conjunction with student workbooks (sold separately through Structured Learning LLC). Once you've selected the program, contact Zeke Rowe at admin@structuredlearning.net for free start-up training.

Figure 1--Student workbook

If there is a skill students don't get, circle back on it, especially when you see it come up a second time in the curriculum. By the end of 8ᵗʰ grade, students have a well-rounded tech toolkit to serve their learning and prepare them for college/career.

Here are hints on using this curriculum:

- Invest in student workbooks:

  o *Full-color projects with examples and directions (licensing varies depending upon the plan).*
  o *Can be viewed and annotated.*
 o *Students work at their own pace.*

- If you want to use student workbooks, here's how:

  o *buy a multi-user license (room, school, or district) to install eworkbooks on multiple devices (even at student's home with some licenses)*
  o *provide a weekly preview by reviewing the lesson on the class screen*

- Teach lessons in the order presented in the book (grades K-5). Lessons introduce, reinforce, and circle back on skills and concepts. Certain skills scaffold others so you want them solid before moving on. Resist the urge to mix up lessons, even if your perfect time for a particular project comes earlier/later than placement in the book. **Exception: Coding/Programming**. Teach this lesson when it works best for you.
- Don't expect to get through all of these lessons the first time you teach the curriculum. Lessons rely on scaffolded knowledge from prior years. Until students have built that foundation, they will move more slowly through assigned activities. Adapt each lesson for the skill level of your student group. As they become more accomplished, expect more out of them.
- Some lessons are to be taught throughout the year, circling back often on content. These include keyboarding, digital citizenship, and problem solving.
- Some lessons offer several activities that will meet the lesson goals outlined in the Essential Question and the Big Idea. Pick the activity (or activities) that work well for your student group. Alternatively, you can let students pick the one they like best.
- Lessons expect students to develop 'habits of mind'. You can read more about Art Costa and Bena Kallick's discussion of these principles in the article at the end of Lesson #1. In a sentence: Habits of Mind ask students to engage in their learning, not simply memorize.

Figure 6—Habits of Mind
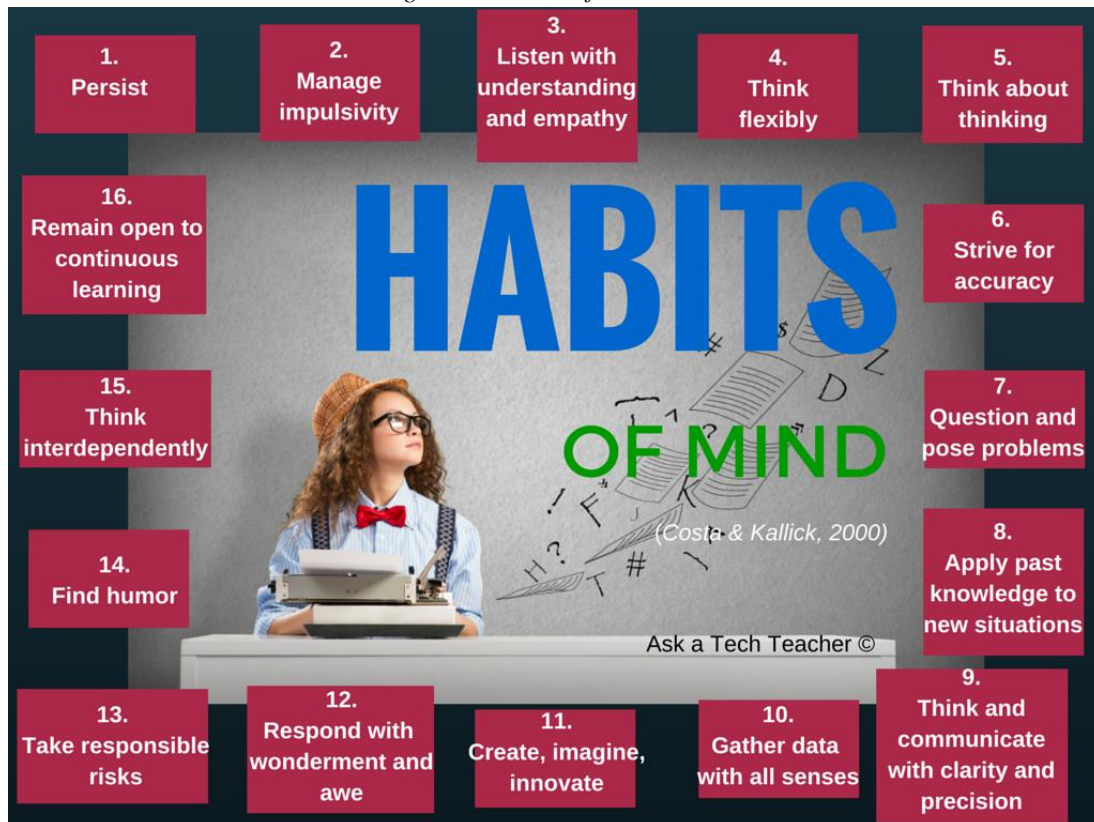
- Personalize the skills taught in each lesson to your needs with 'Academic Applications'. These are suggestions for blending learning into your school curriculum.
- Each lesson starts with a warm-up to get students back into tech and give you time to finish up a previous class. This is especially useful to the tech teacher and the LMS.

- 'Teacher Preparation' often includes chatting with the grade-level team. Why?

  - *tie tech into their inquiry*
  - *offer websites for early-finishers that address their topics*

- Check off completed items on the line preceding the activity so you know what to get back to when you have time. If you have the ebook, use an annotation tool.
- Sometimes the class is too excited about what they're learning to move on. Take an extra week. Most schools run 35-40 weeks. This book includes 32 lessons.
- Expect students to be risk takers. Don't rush to solve their problems. Ask them to think how it was done in the past. Focus on problems listed in the lesson but embrace all that come your way. These are important for critical thinking and troubleshooting when you won't be there to help.
- Expect students to direct their own learning. You are a 'guide on the side', a facilitator not lecturer. Learning is accomplished by both success and failure.
- Encourage student-directed differentiation. If the Big Idea and Essential Question can be accommodated in other ways, embrace those.
- If you have the digital book, zoom in on posters, rubrics, lessons to enlarge as needed.
- Always use lesson vocabulary. Students gain authentic understanding of word use by your example. A complete glossary of lesson vocabulary can be found at the resource website. Here, you'll find several hundred easy-to-understand definitions of domain-specific tech words.
- For more resources, visit Ask a Tech Teacher online.

  - *indicates video*

  - *indicates work with a partner*

  - *indicates an article*

  - *indicates a topical poster*

  - *material in workbooks*

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- Use as much technology as possible in your class—authentically. Encourage students to do the same whether it's a smartphone timing a quiz, a video of activities posted to the class website, or an audio file with student input. If you treat tech as a tool in daily activities, so will students.
- Every effort has been made to accommodate most digital devices. If the activity is impossible in a particular digital device (i.e., iPads don't have mouses; software doesn't run in Chromebooks), focus on the **Big Idea and Essential Question**—the skill taught and its application to inquiry. Adapt instructions to the tool you use as you work through the steps.

Figure 7—Compatible digital devices
A desktop PC, iMac, laptop, MacBook, Chromebook, iPad, or smartphone

- Throughout the year, circle back on concepts. It takes five times to get a skill (*Figure 8*)—

  - ***First****:*   *They barely hear you*
  - ***Second****: They try it*
  - ***Third****:*   *They remember it*

  - ***Fourth****:*   *They use it outside of class*
  - ***Fifth****:*   *They tell a friend*

- **Need more help?** Go to Ask a Tech Teacher© online, or email askatechteacher@gmail.com.

Typical Lesson

Each lesson requires about 45 minutes a week, either in one sitting or spread throughout the week, and can be unpacked:

- *in the grade-level classroom*
- *in the school's tech lab*

Figure 2--It takes 5 times...

Both are covered in each lesson. In general terms, here's how to run a lesson in **the tech lab**:

- Post a **written schedule** for the day on the class screen:

  - *Warm up*
  - *Main activity*
  - *Exit ticket*

  Add it to your blog or website for students not present. Expect students to start when they arrive to class.
- **Warm up about 10 minutes,** often with typing practice.
- Complete student **Board presentations** (grades 3-8).
- If it's the end of a grading period, review skills accomplished with **Scope and Sequence**.
- If starting a **new project, review it**. If in the middle of one, students use the balance of class to complete. Monitor, answer questions, and help as needed.
- **Class exit ticket** might include lining up in arrays, answering a poll on the class screen, or classmates verify that neighbors left their stations as they found it.
- Always **use tech wherever possible.** Model what you ask of them.
- List age-appropriate websites on class internet start page that **tie into inquiry** for students who complete the current project. Students know these websites can be used during free time.
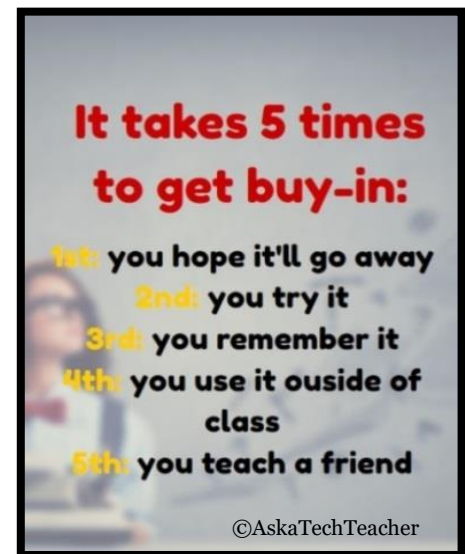
- As often as possible, give **younger students two weeks** to finish a project—one to practice, one to save/export/share/print. This redundancy reinforces new skills and mitigates stress. If it's week two, start with the project and finish with typing so students have ample time to work.

Here's how to run the lesson in **the grade-level classroom**:

- Take the lesson pieces mentioned above and scatter them throughout the week. For example:

  - *3-10 minutes for the class warm-up—at the start of the week*
  - *10-15 minutes keyboarding practice—any day*
  - *10-15 minutes Board presentations—any day*
  - *15-35 minutes for the project—any day*
  - *2-3 minutes for class exit ticket—to reinforce learning*

- **Check off accomplished activities** so you know what remains each week.
- In every class, **use tech wherever possible.**

Here are useful pieces to extend this curriculum:

- *Teacher manual—the roadmap. That's this book.*
- *Student workbooks—allow students to be self-paced*
- *Digital Citizenship curriculum (available through SL LLC)— if this is a focus of your school*
- *Keyboarding Curriculum (available through SL LLC)—if this is a focus of your school*

Figure 9a—Start page using Protopage; 9b—LiveBinders; 9c—Symbaloo
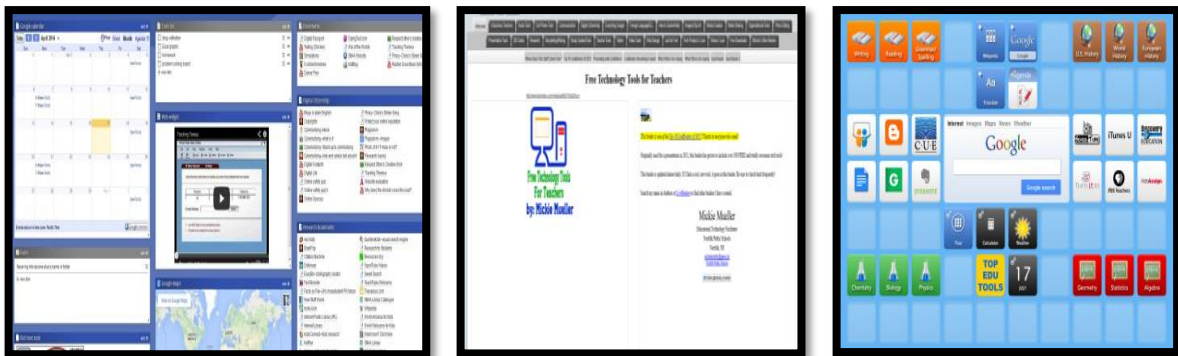
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About the Authors

Ask a Tech Teacher *is a group of tech 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 articles help thousands of teachers, homeschoolers, and those serious about finding the best way to maneuver the minefields of technology in education.*

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Intentionally deleted

K-5 TECHNOLOGY SCOPE AND SEQUENCE©

Aligned with ISTE (International Society for Technology in Education) and Common Core State Standards
Check each skill off with I (Introduced), W (Working on), or M (Mastered)
Organized by ISTE Standards 1-7

Intentionally deleted

Lesson #1 Introduction

Vocabulary	Problem solving	Skills
• *Back button* • *Digital citizenship* • *Digital student* • *Habits of Mind* • *Internet start page* • *Landscape* • *Poll* • *Portrait* • *Select-do* • *Shortkey* • *Tech-infused* • *Website*	• *I got off assigned website (click start page tab)* • *Why do we need rules?* • *Why can't I eat at the computer? I can at home* • *I can't find the class internet start page (do you remember instructions?)* • *I can't find the suggested websites (where did teacher say they were?)* • *What's the difference between learning to draw and communicating with drawings?*	**New** *Shortkeys* *Digital tools* *Server room (if taking field trip)* **Scaffolded** *Class internet start page* *Tech rules* *Digital citizenship* *Visiting websites*
Academic Applications *General overview*	**Materials Required** *Computer safety websites, class internet start page, posters on walls*	**Standards** *CCSS: Anchor Standards* *NETS: 1a, 1b*

Essential Question

How do I use the computer?

Big Idea

Students develop an awareness of computer components, fundamental hardware issues, and basic computer operations

Teacher Preparation

- Have a list of class rules that worked in past years.
- Have class internet start page set up.
- Have parent helpers (if possible) on early lessons.
- Test equipment so no students are frustrated trying to get something to work.

Assessment Strategies

- *Anecdotal observation*
- *Joined class conversations*
- *Transferred knowledge from kindergarten*
- *Decisions followed class rules*
- *Left room as s/he found it*
- *Higher order thinking: analysis, evaluation, synthesis*
- *Habits of mind observed*

Steps

Time required: **45 minutes in one sitting or spread throughout the week**
Class warm-up: **None**

_____Start class with your expectations. Keep in mind framework discussed in the ***21st Century Tech-infused Lesson Plan*** and ***Habits of Mind*** (at the end of the lesson)—that you expect persistence, thoughtful work, independence.

_____Discuss tech goals in terms of blended learning. How does tech support student education and life goals? What are student goals? Help them phrase goals organically, as authentic tasks:

> *Not:*   *I want to learn to draw online.*
> *Rather:*   *I want to communicate better with tech tools.*

_____Clarify technology in student lives by drawing a silhouette of a student on the class screen and ask students what they use technology for in their lives. As they mention activities, add them to your drawing. It may look like *Figure 10:*

Figure 10—Digital student

_____Tour classroom. Show students where everything is. Review important posters, i.e., the difference between 'save' and 'save-as' (*Figure 11a*), between 'backspace' and 'delete' (*Figure 11b*), between portrait and landscape orientation of documents (*Figures 11c* and *11d*). Full-size posters for *Figures 11a-d* and *12a-c* are in Appendix.

Figure 11a-d—Posters: save and save-as; delete; portrait; landscape

_____Point out the Undo shortkey (*Figure 12a*).
_____Point out 'save early save often' (*Figure 12b*). What's this mean? Why is it a good idea? More on that later.
_____Review 'Select-Do' (*Figure 12c*). What does that mean? (Hint: You must select something before you can do to it).

Figure 12a—Undo; 12b—Save early; 12c—Select-do

_____As these topics come up organically in lessons, point out the posters as reference.
_____Collect rules from students to guide classroom actions, including:

- *no excuses; don't blame others; don't blame the digital device*
- *save early, save often—about every ten minutes*
- *no food or drink around digital devices*
- *respect the work of others and yourself*
- *keep hands to yourself; help neighbors, but with words only*
- *listen politely to classmates*
- *don't interrupt classmates*
- *arrive to class prepared for activities*
- *take turns while speaking*

_____You may start with a list like *Figure 13* from the prior year:

Figure 13—Computer lab rules
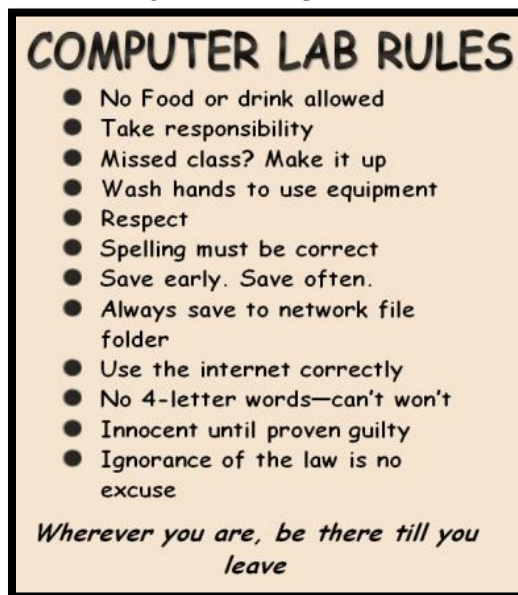
_____Discuss **digital citizenship**. You'll cover it later this year and discuss it every time students use the internet. If you want more depth, see K-8 Digital Citizenship curriculum (available from Structured Learning LLC), a companion to this curriculum. Remind students any time they visit the internet, they do so safely and legally.

_____Have students sit at their stations as though they were using the computer. Review posture and position (*Figure 14a* and *Figure 14b*):

Figure 14a—Keyboarding posture; 14b—position
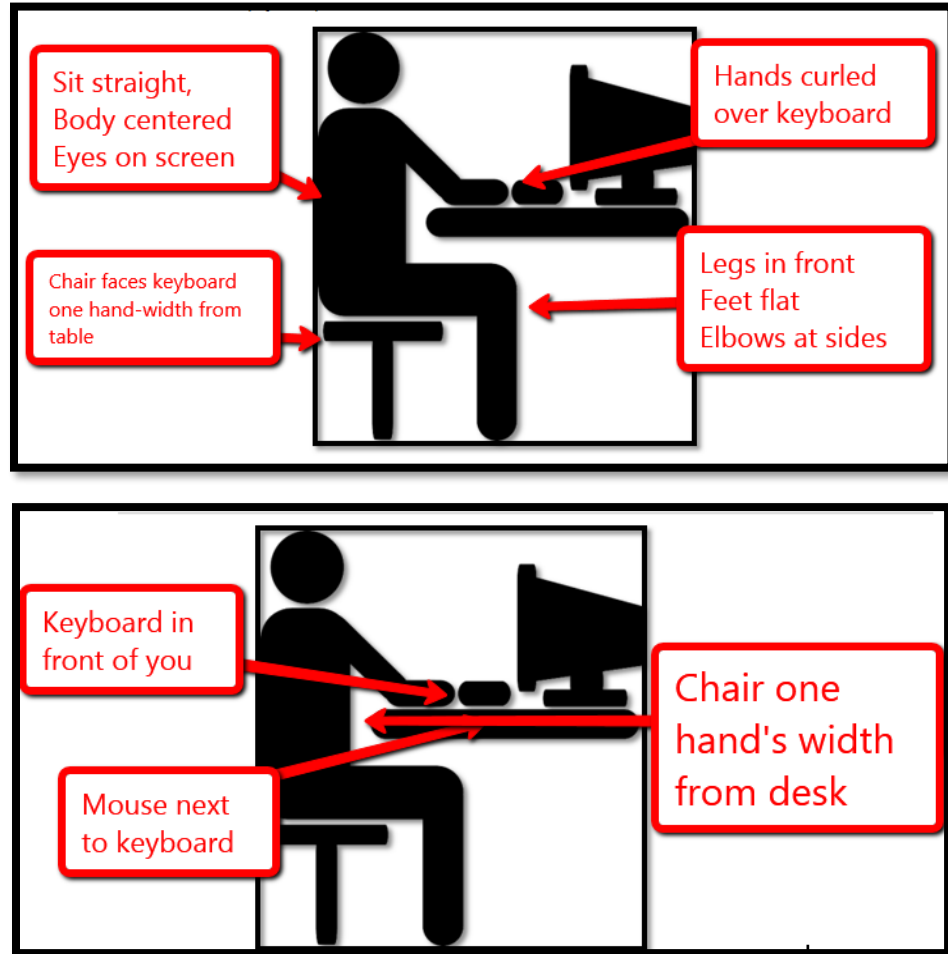
_____Open the class internet start page on the class screen (read "***Which Class Internet Start Page is Best***" article at the end of the lesson). This is where students find websites to be used during the current week, bundles of themed websites, and more. Do students remember it from last year?

_____With whatever time is left, have students visit these websites (search the Internet, YouTube, or visit Ask a Tech Teacher resource pages for these resources):

- *ABCYa Computer basics*
- *JigZone's Computer Parts Jigsaw Puzzle*

_____For more on teaching tech, see the articles at the end of the lesson, "***6 Tech Best Practices for New Teachers***" and "***Do You Make These 9 Mistakes?***"

Class exit ticket: **Load a poll on the class screen where students click their answer to 'How I used tech this summer' as they leave class. You can use Google Forms.**

Differentiation

- *Add a field trip to the server room-- open up the ceiling and track all the cables from various classrooms back to the switches and servers, and then to the modem.*
- *We often suggest discussing issues with students. This is part of an inquiry-based classroom. For more on that, check "10 Ways to be an Inquiry-based Teacher" at the end of this lesson.*
- *Consider parents full-fledged stakeholders in 1st graders' tech education. For more on that, read "What Parents Should Know About Computers and the Internet" at end of this lesson.*
- *If this lesson doesn't work for students, use one from Structured Learning's "Inquiry-based Teaching with PBL". It has 5 projects aligned with curriculum.*

Computing—the art of calculating how much time you wasted and money you spent in a doomed attempt to master a machine with a mind of its own.

NOTES:

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21ˢᵗ Century Lesson Plan

Technology and the connected world put a fork in the old model of teaching—teacher in front of the class, sage on the stage, students madly taking notes, textbooks opened to a particular chapter being reviewed, homework as worksheets based on the text, tests regurgitating important facts. Did I miss anything? This model is outdated **not because it didn't work** (many statistics show students ranked higher on global testing years ago than they do now), **but because the environment changed.** Our classrooms are more diverse. Students are digital natives, already in the habit of learning via technology. The 'college and career' students are preparing for is different so the education model must be different.

Preparing for this new environment requires radical changes in teacher lesson plans. Here are seventeen concepts you'll want to include in your preparation:

1. Students are graduating from high school unable to work in the jobs that are available. It's the teacher's responsibility to insure students **learn over-arching concepts** such as how to speak to a group, how to listen effectively, how to think critically, and how to solve problems. The vehicle for teaching these ideas is history, science, literature, but they aren't the goal.
2. To focus on the over-arching concepts above, make earning **platform-neutral**. For example, when teaching spreadsheets, make the software or online tools a vehicle for practicing critical thinking, data analysis, and evidence-based learning, not for learning one brand of software or a particular spreadsheet tool. Besides, what you use at school may not be what students have at home. You don't want students to conflate your lessons with 'something done at school'. You want them to apply them to their life.
3. **Morph the purpose from 'knowing' to 'understanding'**. Teach the process, not a skill. Students should understand why they select a particular tool, not just how to use it. Why use a slideshow instead of a word processing program? Or a spreadsheet instead of a slideshow? Expect students to be critical thinkers, not passive learners.
4. **Transfer of knowledge is critical.** What students learn in one class is applied to all classes (where relevant). For example, *word study* is no longer about memorizing vocabulary, but knowing how to decode unknown academic and domain-specific words using affixes, roots, and context.
5. **Collaboration and sharing** is part of what students learn. They help each other by reviewing and commenting on projects before submittal to the teacher (GAFE makes that easy). The definition of 'project' itself has changed from 'shiny perfect student work' to *review-edit-rewrite-submit*. You grade them on all four steps, not just the last one. This makes a lot of sense—who gets it right the first time? I rewrote this article at least three times before submitting. Why expect differently from students? **Plus:** No longer do students submit a project that only the teacher sees (and then a few are posted on classroom bulletin boards). Now, it is shared with all classmates, so all benefit from every student's work.
6. **Self-help methods** are provided and you expect students to use them. This includes online dictionaries and thesauruses, how-to videos, and access to teacher assistance outside of class. These are available

24/7 for students, not just during classroom hours. This happens via online videos, taped class sessions, the class website, and downloadable materials so students don't worry that they 'left it in their desk'.

7. **Teachers are transparent** with parents. You let them know what's going on in the classroom, welcome their questions and visits, communicate often via email or blogs when it's convenient for them. That doesn't mean you're on duty around the clock. It means you differentiate for the needs of your parents. Your Admin understands that change by providing extended lunch hours, compensatory time off, or subs when you're fulfilling this responsibility.

8. **Failure is a learning tool.** Assessments aren't about 'getting everything right' but about making progress toward the goal of preparing for life

9. **Differentiation is the norm.** You allow different approaches as long as students achieve the Big Idea or answer the Essential Question. You aren't the only one to come up with these varied approaches—students know what works best for their learning and present it to you as an option.

10. The **textbook is a resource**, supplemented by a panoply of books, primary documents, online sites, experts, Skype chats, and anything else that supports the topic. This information doesn't always agree on a conclusion. Students use habits of mind like critical thinking, deep learning, and evidence-based decisions to decide on the right answers.

11. The **lesson plan changes from the first day to the last**—and that's OK. It is adapted to student needs, interests, and hurdles that arise as it unfolds, while staying true to its essential question and big idea.

12. **Assessment** includes a quiz or test, but it also judges the student's transfer of knowledge from other classes, their tenacity in digging into the topic, their participation in classroom discussions, and more.

13. **Vocabulary is integrated into lessons,** not a stand-alone topic. Students are expected to decode words in class materials that they don't understand by using quickly-accessed online vocabulary tools, or deriving meaning from affixes, roots, and context.

14. **Problem solving is integral** to learning, not a stressful event. It's viewed as a life skill. Who doesn't have problems every day that must be solved? Students are expected to attempt a solution using tools at their disposal (such as prior knowledge, classmates, and classroom resources) before asking for help.

15. **Digital citizenship is taught,** modeled and enforced in every lesson, every day, and every classroom. It's no longer something covered in the 'tech lab' because every class has as much potential for working online as offline. Every time the lesson plan calls for an online tool or research using a search engine or a YouTube video, teachers review/remind/teach how to visit the online neighborhood safely. It's frightening how students blithely follow weblinks to places most parents wouldn't allow their child to visit in their neighborhood. Just as students have learned how to survive in a physical community of strangers, they must learn to do the same in a digital neighborhood.

16. **Keyboarding skills are granular.** They aren't used only in the computer lab, but in every class students take. If students are using iPads, Chromebooks, laptops, or desktops for learning, they are using keyboarding—which means they must know how to do so efficiently, quickly, and stresslessly. Since keyboarding benefits all classes, all teachers–including the librarian–become partners in this effort. I go into classrooms and show students the broad strokes; the teacher reinforces it every time the student sits down at the computer.

17. **Play is the new teaching.** It is a well-accepted concept for preschoolers and has made a successful leap to the classroom, relabeled as 'gamification'. Use the power of games to draw students into learning and encourage them to build on their own interests. Popular games in the classroom include Minecraft, Mission US, Scratch. If your school is new to this concept, clear it with admin first and be prepared to support your case.

<u>Habits of Mind vs. Common Core vs. IB</u>

Pedagogic experts have spent an enormous amount of time attempting to unravel the definition of 'educated'. It used to be the 3 R's—reading, writing, and 'rithmetic. The problem with that metric is that, in the fullness of time, those who excelled in the three areas weren't necessarily the ones who succeeded. As long ago as the early 1900's, Teddy Roosevelt warned:

> *"C students rule the world."*

It's the kids without their nose in a book that notice the world around them, make connections, and learn natively. They excel at activities that aren't the result of a GPA and an Ivy League college. Their motivation is often failure, and taking the wrong path again and again. As Thomas Edison said:

> *"I have not failed. I've just found 10,000 ways that won't work."*

Microsoft founder, Bill Gates, and Albert Einstein are poster children for that approach. Both became change agents in their fields despite following a non-traditional path.

In the face of mounting evidence, education experts accepted a prescriptive fact: student success is not measured by milestones like 'took a foreign language in fifth grade' or 'passed Algebra in high school' but by how s/he thinks. One curated list of cerebral skills that has become an education buzz word is Arthur L. Costa and Bena Kallick's list of sixteen what they call Habits of Mind (Copyright ©2000):

1. *Persisting*
2. *Managing impulsivity*
3. *Thinking Flexibly*
4. *Thinking about Thinking*
5. *Striving for Accuracy*
6. *Finding Humor*
7. *Thinking Interdependently*
8. *Questioning and Posing Problems*
9. *Taking Responsible Risks*
10. *Creating, Imagining, Innovating*
11. *Applying Past Knowledge to New Situations*
12. *Thinking and Communicating with Clarity and Precision*
13. *Gathering Data through All Senses*
14. *Responding with Wonderment and Awe*
15. *Listening with Understanding and Empathy*
16. *Remaining Open to Continuous Learning*

Together, these promote strategic reasoning, insightfulness, perseverance, creativity and craftsmanship.

But they're not new. They share the same goals with at least three other widely-used education systems: 1) Common Core (as close as America gets to national standards), 2) the International Baccalaureate (IB) program (a well-regarded international curriculum, much more popular outside the
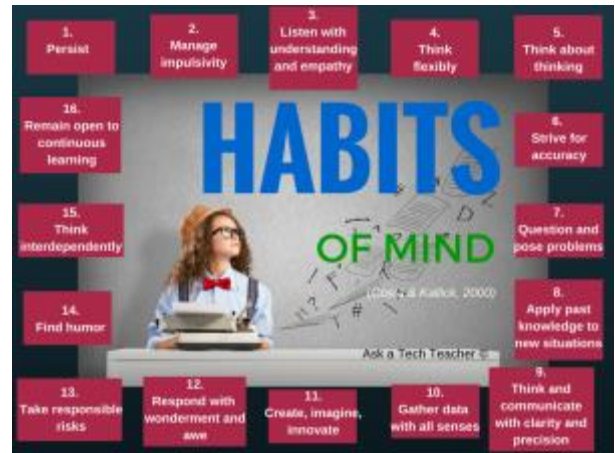
US than within), and 3) good ol' common sense. Below, I've listed each Habit of Mind with a brief explanation of what that means (in italics). I then point out connections to Common Core, the IB Program, and the common sense your grandma shared with you. The result is a compelling argument that education is less a data download and more a fitness program for our brains.

Persisting

Stick with a problem, even when it's difficult and seems hopeless.

Winston Churchill said, "Never, never, in nothing great or small, large or petty, never give in..." The same decade, Albert Einstein said:

> *"It's not that I'm so smart, it's just that I stay with problems longer."*

The Common Core is not a curriculum, rather a collection of forty-one overarching Standards in reading, writing, language, math, and speaking/listening that shape a student's quest for college and career. Sprinkled throughout are fundamental traits that go beyond the 3R's and delve deeply into the ability of a student to think. The math standards require students learn to 'persevere in solving problems*'.*

The IB Program has twelve attitudes that are fundamental to every learner: *appreciation, empathy, commitment, enthusiasm, confidence, independence, cooperation, integrity, creativity, respect, curiosity, and tolerance.* Students exhibiting the attitude of commitment persist in their own learning, persevere no matter the difficulties.

Managing Impulsivity

Consider options. Think before speaking.

Among his endless words of wisdom, Benjamin Franklin said:

> *"It is easier to suppress the first desire than to satisfy all that follow it."*

Common Core Standards tell us to *'*Use appropriate tools strategically'.

Besides the twelve attitudes listed above, the IB Program names ten traits that profile a learner: *inquirer, knowledgeable, thinker, communicator, principle, open-minded, caring, a risk-taker, balanced, and reflective.* Students who are reflective give thoughtful consideration before acting.

For the rest of the article, visit Ask a Tech Teacher
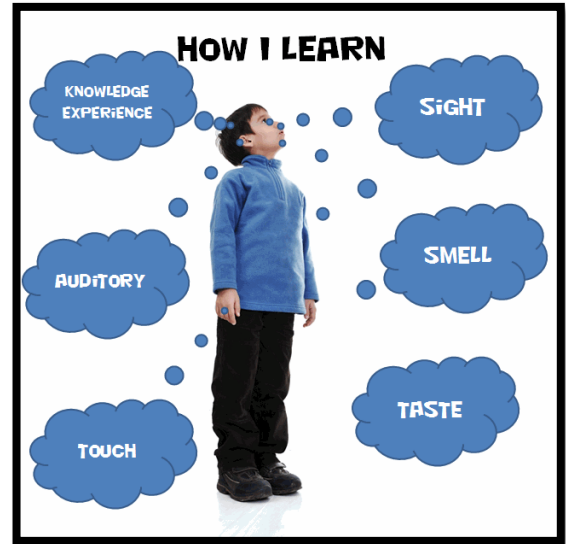
Which Class Internet Start Page is Best?

The internet is unavoidable in education. Students go there to research, access homework, check grades, and a whole lot more. As a teacher, you do your best to make it a friendly, intuitive, and safe place to visit, but it's challenging. Students arrive there by iPads, smartphones, links from classroom teachers, suggestions from friends—the routes are endless. The best way to keep the internet experience safe is to catch users right at the front door, on that first click.

How do you do that? By creating a **class internet start page**. Clicking the internet icon opens the World Wide Web to a default page. Never take your device's default because there's no guarantee it's G-rated enough for a typical classroom environment. Through the 'settings' function on your browser, enter the address of a page you've designed as a portal to all school internet activity, called an 'internet start page'. Sure, this takes some time to set-up and maintain, but it saves more than that in student frustration, lesson prep time, and the angst parents feel about their children entering the virtual world by themselves. They aren't. You're there, through this page. Parents can save the link to their home digital device and let students access any resources on it, with the confidence of knowing you've curated everything.

In searching for the perfect internet start page, I wanted one that:

- *quickly differentiates for different grades*
- *is intuitive for even the youngest to find their page*
- *is customizable across tabbed pages to satisfy changing needs*
- *presents a visual and playful interface to make students want to go there rather than find work-arounds (a favorite hobby of older students)*
- *includes an immediately visible calendar of events*
- *hosts videos of class events*
- *provides collaborative walls like Padlet*
- *includes other interactive widgets to excite students about technology*

Here are four I looked at:

Symbaloo
A logo-based website curation tool with surprising flexibility in how links are collected and displayed. It's hugely popular with educators because collections are highly-visual and easy to access and use. Plus, Symbaloo collections made by one teacher can be shared with the community, making link collections that much easier to curate.

The downside: Links are about all you can collect on Symbaloo.

Only2Clicks

Great for youngers with their big bold buttons, colorful interface.

The downside: Too often, I have technical glitches as I try to set up collections. Maybe it's just me. Another downside: Like Symbaloo, Only2Clicks is focused mostly on link curation. If I want to add widgets, I have to select from their list. With kids, no matter how comprehensive the list, it misses the one I really really need.

Ustart

Offers a good collection of useful webtools for students including links, news, calendar, notes, even weather. It provides tabs for arranging themed collections (like classes) and is intuitive to set up and use. It even includes options for embeddable widgets like Padlet. This is the closest to what I needed of all three.

Overall: This is a good alternative to the one I selected.

Protopage

Protopage did everything on my list. It's flexible, customizable, intuitive, and quick to use with a scalable interface that can be adjusted to my needs (2-5 columns, resize boxes, drag widgets between tabs—that sort). I set up a separate tab for each grade (or you can set up tabs for subjects). The amount of tabs is limited only by space on the top toolbar. Resources included on each tab can be curated exactly as you need. Mine includes:

* *oft-used websites*
* *themed collections of websites*
* *a To Do list*
* *an interactive map*
* *a calculator*
* *a calendar of events*

* *edit-in-place sticky notes*
* *pictures of interest*
* *rss feeds of interest*
* *weather*
* *news*
* *widget for polling the class (Padlet)*

In addition, the Protopage folks are helpful. Whenever I have a problem (which is rare), they fix it quickly.

6 Tech Best Practices for New Teachers

A study released last year by the National Council on Teacher Quality found that nearly half of the nation's teacher training programs failed to insure that their candidates were STEM-capable. That means new teachers must learn how to teach science, technology, engineering and math on-the-job. Knowing that, there are six Best Practices teachers in the trenches suggest for integrating technology into classroom instruction:

Digital Citizenship

Many schools now provide digital devices for students, often a Chromebook or an iPad. Both are great devices, but represent a sea change from the Macs and PCs that have traditionally been the device-of-choice in education. While I could spend this entire article on that topic, one seminal difference stands out: Where PCs and Macs could be used as a closed system via software, materials saved to the local drive, and native tools, Chromebooks and iPads access the internet for everything (with a few exceptions) be it learning, publishing, sharing, collaborating, or grading. There's no longer an option to hide students from the online world, what is considered by many parents a dangerous place their children should avoid. In cyberspace, students are confronted often—if not daily—with questions regarding cyberbullying, digital privacy, digital footprints, plagiarism, and more.

The question is: **Who's teaching students how to thrive in this brave new world?** Before you move on to the next paragraph, think about that in your circumstance. Can you point to the person responsible for turning your students into good digital citizens? When second grade students use the internet to research a topic, do they know how to do that safely and legally?

When asked, most educators shrug and point at someone else. But it turns out too often, no one is tasked with providing that knowledge.

The answer to *who's responsible*: Everyone's responsible, starting with you, the New Teacher. Adopt this topic as your own, blend it into your teaching. Don't assume students know until they provide evidence of that.

Problem Solving

Lots of new teachers are intimidated by technology in their classrooms. Besides so many digital tools—how does anyone stay up to date on them—there's a worse problem: What happens when something doesn't work? Waiting for the school's IT folks can quickly derail a tech-infused lesson.

New teachers need to learn rudimentary tech troubleshooting like these 25 common problems, and then teach them to students. It shouldn't be a stand-alone lesson, rather teach it organically as it arises in class. When a student's headphones don't work, figure out how to solve it as a class. When a website freezes, show how to unfreeze and then move on with the lesson. Once a problem is solved, ask students to retain that knowledge, transfer it to other classes, and teach their friends. Surprisingly quickly, students will no longer be slowed down by tech problems. Sure, they'll happen, but everyone will know the solution.

Keyboarding

PARCC and SBAC may have convinced many educators that keyboarding is a critical, granular skill, but it can't be taught by a once-a-week tech lab session of 10-15 minutes. Think how often keyboarding is part of student

work—entering website addresses, adding comments to blogs, typing docs into GAFE, and taking online assessments. All of these require keyboarding skills, yet no one is responsible for teaching them.

Students who can keyboard well blossom. Those who can't—well, you know. Teaching keyboarding requires two steps: 1) an overarching curriculum map of what to teach when, and 2) reinforcement every time students sit at the computer. No matter the class, that teacher—be s/he history, literacy, social studies, math, reading, writing, or tech—reminds students of the right way to keyboard. It adds minutes to her teaching and saves students hours as practice and skill eventually (by about 4th grade) allows their typing fingers to keep pace with their thinking brain.

As the New Teacher, set the example. Blend keyboarding training into your lesson plans.

Vocabulary

An important part of succeeding in core classes is understanding the language. Common Core has three levels of vocabulary:

- *basic*
- *academic*
- *domain-specific*

Current best practices embrace students **learning by using**. This isn't accomplished with memorized word lists. Instead, when students uncover unknown words, they decode them and then use them throughout the lesson. This is accomplished by addressing basic and academic vocabulary across all subjects, whether students are in history, science, math, or reading. Every digital device should be preloaded with instantly-available age-appropriate dictionaries that allow students to quickly research a word almost without leaving the academic topic.

Tenacity

Try, fail, try again. A lot of learning is accomplished by failure. Make this a strategy in the classroom. No longer have students submit a final project and get a grade. Instead, recognize Common Core's plan-revise-edit-rewrite as a flexible learning path that is both practical and transformative. This isn't just for writing, though. Use it for all projects—a science poster, a history magazine, and math homework. Always give students the opportunity to edit and resubmit work that's granular to their learning.

Student Choice

You teach the Big Idea; let students pick how they share their learning. You make an effort to teach using as many of the multiple intelligences as possible—audio, visual, tactile, kinesthetic, logical, or linguistic. Let students pick which approach best serves them in conveying what they've learned. They might write a report, share a movie, add music and color, draw a picture, or build an infographic. Introduce this wide variety of options early in the school year and make them available for as many assessments as possible.

These six topics integrate technology—a tool students want to use—into everything, making your teaching authentic, scalable, motivating, and rigorous.

10 Ways to be an Inquiry-based Teacher

It's hard to run an inquiry-based classroom. Don't go into this teaching style thinking all you do is ask questions and observe answers. You have to listen with all of your senses, pause and respond to what you heard (not what you wanted to hear), keep your eye on the Big Ideas as you facilitate learning, value everyone's contribution, be aware of the energy of the class and step in when needed, step aside when required. You aren't a Teacher, rather a guide. You and the class move from question to knowledge together.

Because everyone learns differently.

Where your teacher credential classes taught you to use a textbook, now it's one of many resources. Sure, it nicely organizes knowledge week-by-week, but in an inquiry-based classroom, you may know where you're going, but not quite how you'll get there—and that's a good thing. You are no longer your mother's teacher who stood in front of rows of students and pointed to the blackboard. You operate well outside your teaching comfort zone as you try out a flipped classroom and the gamification of education and are thrilled with the results.

And then there's the issue of assessment. What students accomplish can no longer neatly be summed up by a multiple choice test. When you review what you thought would assess learning (back when you designed the unit), none measure the organic conversations the class had about deep subjects, the risk-taking they engaged in to arrive at answers, the authentic knowledge transfer that popped up independently of your class time. You realize you must open your mind to learning that occurred that you never taught—never saw coming in the weeks you stood amongst your students guiding their education.

Let me digress. I visited the Soviet Union (back when it was one nation) and dropped in on a classroom where students were inculcated with how things must be done. It was a polite, respectful, ordered experience, but without cerebral energy, replete of enthusiasm for the joy of learning, and lacking the wow factor of students independently figuring out how to do something. Seeing the end of that powerful nation, I arrived at different conclusions than the politicians and the economists. I saw a nation starved to death for creativity. Without that ethereal trait, learning didn't transfer. Without transfer, life required increasingly more scaffolding and prompting until it collapsed in on itself like a hollowed out orange.

So how do you create the inquiry-based classroom? Here's advice from a few of my efriend teachers:

1. *ask open-ended questions and be open-minded about conclusions*
2. *provide hands-on experiences*
3. *use groups to foster learning*
4. *encourage self-paced learning. Be open to the student who learns less but deeper as much as the student who learns a wider breadth*
5. *differentiate instruction. Everyone learns in their own way*
6. *look for evidence of learning in unusual places. It may be from the child with his/her hand up, but it may also be from the learner who teaches mom how to use email*
7. *understand 'assessment' comes in many shapes. It may be a summative quiz, a formative simulation, a rubric, or a game that requires knowledge to succeed. It may be anecdotal or peer-to-peer. Whatever approach shows students are transferring knowledge from your classroom to life is a legitimate assessment*
8. *be flexible. Class won't always (probably never) go as your mind's eye saw it. That's OK. Learn with students. Observe their progress and adapt to their path.*
9. *give up the idea that teaching requires control. Refer to #8—Be flexible*
10. *facilitate student learning in a way that works for them. Trust that they will come up with the questions required to reach the Big Ideas*

In the end, know that inquiry-based teaching is not about learning for the moment. You're creating life-long learners, the individuals who will solve the world's problems in ten years. Your job is to ensure they are ready.

What Parents Should Know About Computers and Internet

After fifteen years teaching tech in a classroom and online, I can tell you without a doubt that educating your child can be done more efficiently and with better results by **using technology to extend their scholastic reach**. Why?

- *Research is more productive. Students find information they want from home or the library on the topic being covered.*
- *Communication is easier using collaborative tools like wikis, Google Tools. Multiple students can work on a project at once, and then embed the result into a digital portfolio.*
- *Web tools like X/Twitter can teach writing skills in ways kids will hear.*
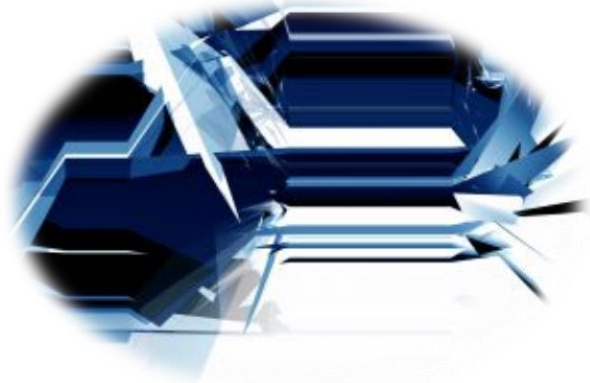
So how do you make sure your child's internet experience is positive? Here are a few simple rules to help you maneuver that minefield:

- Youngsters should go on the internet only around you until they're mature enough to understand the concept of pulsing, sparkly ads. That's fifth grade, maybe Middle School. When they get distracted, be there to rein them in. Explain what happened and how to not let it repeat in the future. Show them the Back button that will return them to the screen they came from. Show them what ads look like on their favorite pages so they know what to avoid.
- Have a collection of ad-free child-friendly websites like Starfall for reading, and Zoopz and Game Goo for logical thinking. I try to offer only ad-free sites in the classroom, but they're hard to find. These three are exceptional.
- Filter internet sites. I never recommend unlimited internet access for any age.
- If your child has been online without you (because you considered them mature enough), don't be afraid to check history to see where they went. You're not spying; you're making sure everything is OK.
- Don't worry that your child will physically break the computer or delete an important program. It's harder than you think to mess up a computer. I have twenty-six in my lab and it's rare that students have forced me to reformat a drive (what you must do if the computer gets really messed up).
- As you see which sites your child likes to visit, put them on Favorites or an internet start page. At some point, you can allow them to access any websites on either. They'll appreciate knowing these websites are safe. Do continue to supervise. They still could have pop-ups or links to dangerous locations.

Do You Make These 9 Mistakes?

...with your students/child's computer education?

1. Show how to do something rather than allowing her/him to discover
2. Do for them rather than let them do it
3. Say 'no' too often (or the other enthusiasm-killer, Don't touch!)
4. Don't take them seriously
5. Take technology too seriously. It's a tool, meant to make life easier. Nothing more.
6. Underestimate their abilities
7. Over-estimate their abilities
8. Give up too quickly
9. Think there's only one way to do stuff on the computer

I promise—none of these are necessary to thrive in technology. Children walk in the classroom loving learning. They can't break most computer parts. They *want* to try things out and do it themselves.

Let them. They may discover a Better Mousetrap.

After fifteen years, I still learn from my students. Children are serious about having fun. It's one of their jobs. Technology is how they do this. Feel free to join them. You'll be surprised how much they know.

But, sometimes, they need help. Offer it with a guiding hand.

Intentionally deleted

Lesson #4 Symbols

Vocabulary	Problem solving	Skills
• *'X'* • *Click* • *Double-click* • *File folder* • *Monitor* • *Network* • *Power button* • *Right-click* • *Shift key* • *Symbol*	• *Double-click doesn't work (try enter)* • *I can't read (can you identify the symbol?)* • *Why must my name be in file name?* • *Greeting didn't fit? Discuss the importance of layout and planning with students—map out a drawing before committing.* • *Drawing program won't allow saving? Take a screen shot and save*	**New** *Symbols* *Pre-word processing* **Scaffolded** *Hardware problems* *Problem solving* *Computer care* *Drawing program* *Pre-keyboarding*
Academic Applications *Math, art*	**Materials Required** *Internet, drawing software, keyboarding program, student workbooks (if using)*	**Standards** *CCSS: St. for Math.Pr #2* *NETS: 1d, 5c*

Essential Question

How do symbols help share ideas faster and more efficiently?

Big Idea

Communicate information and ideas effectively to multiple audiences using symbols and texts

Teacher Preparation

- Check with grade team on math symbols students know.
- Have parent helpers (if possible) on early tech lessons.
- Know which tasks weren't completed last week and whether they are necessary to move forward.
- Integrate domain-specific tech vocabulary into lesson.
- Know if you need extra time to complete this lesson.

Assessment Strategies

- *Anecdotal observation*
- *Completed warm-up and exit ticket*
- *Completed project*
- *Understood purpose of symbols*
- *Joined class conversations*
- *[tried to] solve own problems*
- *Made decisions that followed class rules*
- *Left room as s/he found it*
- *Higher order thinking: analysis, evaluation, synthesis*
- *Habits of mind observed*

Steps

Time required: ***45 minutes in one sitting or spread throughout the week***
Class warm-up: ***Keyboard on typing tool used in class. Use good habits.***

_____Review hardware. Students should feel comfortable with basic hardware problem solving.
_____Review care and feeding of computer:

- *No food or drink around the digital device.*
- *No banging on the keyboard.*
- *No touching other students' mouse, keyboard, or screen. Help them with words.*

_____Students do much digital drawing in first grade and get better at it each time.

_____Open your school drawing program (KidPix, Pixie, TuxPaint, or an online program like ABCYaPaint—Google names for website addresses). Assist students as needed. Since this is the program students used last year, expect them to transfer that knowledge to this year.

_____If you're an iPad class, try KidPix Deluxe (fee) or any drawing app that allows text and drawing (like Wixie if you use Pixie).

_____Refrain from jumping in to help when they seem stuck. A lot of learning is accomplished by trying-failing-trying again. If you have parent helpers, let them know this strategy.

_____Remind students of the pictures they drew in Kindergarten—(if you used the SL curriculum) (*Figures 32a-b*).

Figure 32a-b—Kindergarten drawings with text

_____What symbols are represented in these? Discuss the idea a picture is worth a thousand words. What does that mean? How does a picture symbolize words and thoughts?

_____Discuss some 'symbols' students are familiar with—icons, tools, signs, etc. Look at *Figures 33a-c*. Which puppy looks happy? Sad? Why?

Figure 33a-c—Symbols to be interpreted

- *color*
- *setting*
- *eyes*
- *the ears and tail*
- *cocked head*
- *stance*
- *tears*

_____Does a dog wagging his tail symbolize *happy*? Does an animal hanging its head symbolize *sad*?

_____If you add text (*Figure 33c*), does that make it clearer? Is it necessary?

_____What do the pictures in *Figures 34a-c* symbolize?
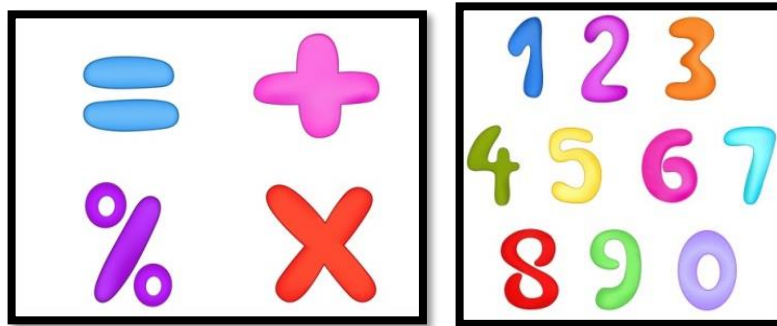
Figure 34a-c—Varied symbols

_____Discuss the tools on digital toolbars that symbolize the action to be taken (*Figure 35a* in ABCYaPaint and *Figure 35b* in KidPix):

Figure 35a—ABCYaPaint toolbar; 35b—KidPix toolbar

_____Discuss math signs (*Figure 36a*) and numbers (*Figure 36b*). How are these symbols? Why are 'numbers' symbols?

Figure 36a—Math symbols; 36b—numbers symbols

_____Students will draw a symbol that represents a theme you've suggested. Brainstorm for a list students can use. If necessary, students can practice one week, redo the next.

_____Open the drawing tool students use. Draw a symbol using paint or pencil tools. Use five colors.

_____Add student name.

_____Add a sentence or phrase (early word processing) explaining what the picture represents. Use CAPS LOCK to avoid worry about Shift+letter (or not—whatever fits best your student group). See *Figures 37a-b* for two examples.

Figure 37a-b—Drawing symbols
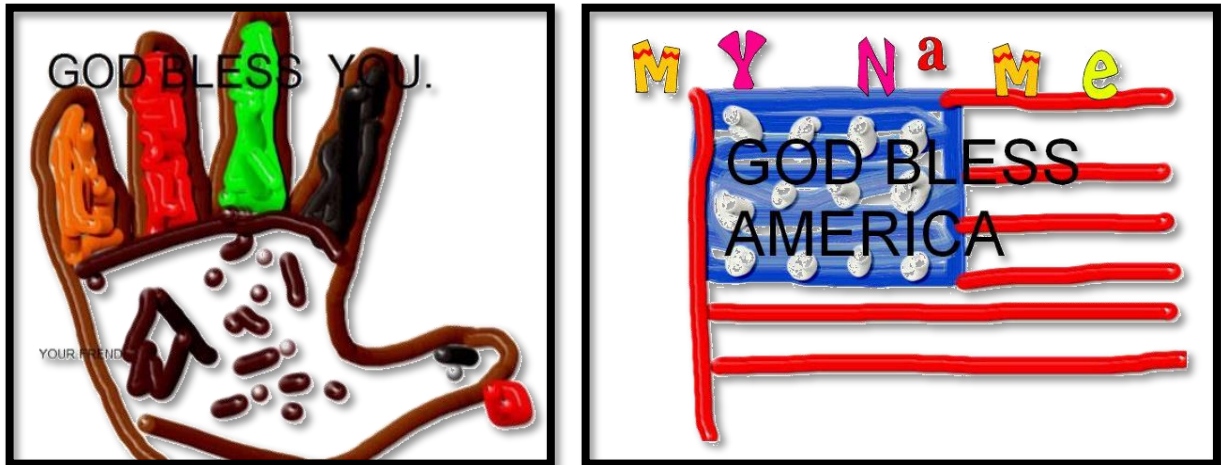
_____Print/publish/share with assistance as needed. Save to the student digital portfolio with student last name and project name.

_____Why is it important to put the student name in the file name? Demonstrate a search for student name. See how their files show up even if not saved right (i.e., under *My Documents* instead of digital portfolio)—as long as student saved it to a network-accessible location or a cloud-based folder. Putting a last name in file name makes it harder to lose their work.

_____Continually throughout class, check for understanding.

Class exit ticket: **Have neighbor verify student left their station as they found it.**

Differentiation

- *Add stamps and/or stickers themed to the symbol.*

_____

_____

_____

_____

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Lesson #18 Habitats

Vocabulary	Problem solving	Skills
• *Annotate* • *Background* • *Desktop* • *Export* • *Mashup* • *Screen* • *Screenshot* • *Simulation* • *Stamps* • *Text tool* • *Thumbnail* • *Toolbars* • *Tools*	• *My monitor doesn't work (wake up mouse, check power)* • *My computer doesn't work (check power, plug)* • *My volume doesn't work (check headphones and connection)* • *I can't find my file folder (are you logged in correctly)* • *I can't save picture (take screenshot)* • *I pushed 'print screen' but it didn't work (ask for help)* • *I can't do selected option (try a different one)*	**New** *Annotate websites (if doing this option)* *Screenshot (if not done before)* **Scaffolded** *Online art* *Keyboarding* *Digital citizenship*
Academic Applications *Science, writing, critical thinking*	**Materials Required** *drawing program with backgrounds and stickers, habitat thumbnails in a file folder*	**Standards** *CCSS: W.1.8* *NETS: 3c, 3d, 4b*

Essential Question

What kinds of plants and animals live in a habitat?

Big Idea

Many different species of animals make homes in varied habitats

Teacher Preparation
- Integrate domain-specific tech vocabulary into lesson.
- Know which tasks weren't completed last week.
- Know if you need extra time to complete this lesson.
- Talk with grade team to tie into inquiry (say, habitats).
- Have a folder of thumbnails that fit the inquiry you're connecting with available for students.

Assessment Strategies

- *Anecdotal observation*
- *Completed warm-up, exit ticket*
- *Completed project*
- *Recalled information*
- *Joined class conversations*
- *[tried to] solve own problems*
- *Decisions followed class rules*
- *Left room as s/he found it*
- *Higher order thinking: analysis, evaluation, synthesis*
- *Habits of mind observed*

Steps

Time required: **45 minutes in one sitting or spread throughout the week with 30 minutes set aside for rainforest project**

Class warm-up: **Keyboard with class typing tool. Observe posture (elbows at sides, feet flat on floor, both hands on keyboard). Check neighbor mouse skills.**

_____Discuss life in the planet's varied habitats (or a topic that works well for your grade-level inquiry). What are these habitats? Why is life so different in each?

_____Pick one of the three options below that works with a mashup of images, text, and webtools. Or pick several—whatever works best for your student group:
- *a drawing tool*
- *annotate a website*

- *a habitat simulation/game/website*

_____These may be done individually or in small groups.

Use a Drawing Tool

_____Students open drawing program as independently as possible (KidPix, TuxPaint, ABCYa Paint, or another option used in your school) or find them on Ask a Tech Teacher's resources pages.
_____If you're a Chromebook school, use a website that allows a mix of text, backgrounds, images, and stickers. This will vary with your unique needs. Some like ABCYa Paint you might like.
_____Open the class drawing tool, either a habitat background or the habitat student is using.
_____Add title and student name with a text tool, similar to *Figures 105a-b*. Use a large font.

Figure 105a-b—Use background and images

_____Demonstrate how to add stamps and stickers from a collection or file folders you provide. Put these where students can access them from their digital device (for example, *Figure 106a* is a folders on the school server; *Figure 106b* is one of the folders opened, so students can view the thumbnails). Show students how these are added to the background/image already in place.

Figure 106a—Folders for thumbnails: 106b—exploded folder

_____If inserting images from a different program, discuss this with students as a 'mashup' of digital tools. What's a 'mashup' (using multiple digital tools to complete a project)?
_____When you demo placement of animals around the selected habitat, place several in the wrong place. Ask students to help you move them to their correct home. How do they know where

these animals belong (learned it in class, read a book, watched a video)? Resize the stamp/sticker/image as needed. Don't have more than five to a picture.

_____Observe student work and ask authentic questions about selections. Do they live where the student has put them? How do they know this?

_____When finished, export or save as is appropriate to the tool being used. Why would you export (if the file is saved in a format native only to the drawing tool)?

_____You might also take a screenshot of the completed image and save it to the student digital portfolio. This could work around the need for students to create website accounts, save to the website server, or get only a link to the completed image rather than the full project.

_____If students haven't before used screenshots, take this opportunity to show them how to perform this skill and expect them to use it for this project.

_____Screenshot options depend upon your digital device:

- *Windows: Snipping Tool*
- *Chromebook: hold down control key and press window switcher key*
- *Mac: Command Shift 3 for a full screenshot; Command Shift 4 for a partial*
- *iPad: hold Home button and power button at same time*
- *Online: a screenshot tool like Jing, Nimbus, or Snagit*

_____Note: Any time you use the internet in your class, remind students how to do that safely and privately.

Annotate a website

_____This option is well-suited to Chromebooks.

Figure 107—Annotate a website

_____Here's what you do:

- *Have students find an image of their habitat.*
- *Take a screenshot. We use Nimbus for that (see Figure 107).*
- *Annotate image with text, notes, arrows—whatever available with the screenshot tool.*

_____Students learn about habitats while using screenshots and annotation as an education tool. *Figure 107* is from PBS' Jungle Journey.

_____When students finish the annotation, save to the student digital portfolio.

_____Note: Any time you use the internet, remind how to do that safely and privately.

Use a Habitat Simulation/Game/Website

_____Rather than drawing a habitat, students can construct one using a website simulation.

_____There are a variety of websites that enable students to build a habitat, and by doing that, learn the characteristics of that environ. Here are examples:

Figure 108a-c—Habitat websites

- *SwitchZoo's Build a Habitat – Figure 108a*
- *Wildscreen's Design a habitat for a specific animal — Figure 108b*
- *Wolves changed the rivers–video on how re-introducing wolves to Yellowstone Park changed the rivers (available on YouTube)*

_____When done, take a screenshot of the completed image and save it to the student digital portfolio using one of the tools mentioned above.

_____Note: Any time you use the internet, remind students how to do that safely and privately.

_____Continually throughout class, check for understanding.

_____Those who finish can visit websites from this lesson's three activities.

_____**Note about end-of-class**: Do students turn monitors off so they don't have to figure out how to close down programs? Have them learn the shut-down procedure.

Class exit ticket: ***Neighbor checks to ensure rainforest animals are in proper position.***

Differentiation

- *Let students pick the activity that works best for their learning style.*
- *Anytime you can inject tech into the class, do it! Students love seeing gadgets in action. For example—take a video of students completing a skill and upload to class website/blog/wiki.*

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CLASSROOM POSTERS

1. **10 Steps to Become a Better Geek**
2. **15 Ways to Get Your Geek On**
3. **Assume the Position**
4. **Backspace-Delete**
5. **Digital neighborhood**
6. **Digital online image law (reworded)**
7. **Here's what we've done**
8. **How to solve a problem**
9. **How to use an iPad**
10. **I can't find my file**
11. **Important keys**
12. **It takes 5 times…**
13. **K-5 Keyboarding Stages**
14. **Keyboarding Hints**
15. **Landscape**
16. **Mouse Control**
17. **Netiquette rules**
18. **Portrait**
19. **Save and save-as**
20. **Select-Do**
21. **Undo is your friend**
22. **Use keyboard shortcuts**
23. **Want to use this image?**

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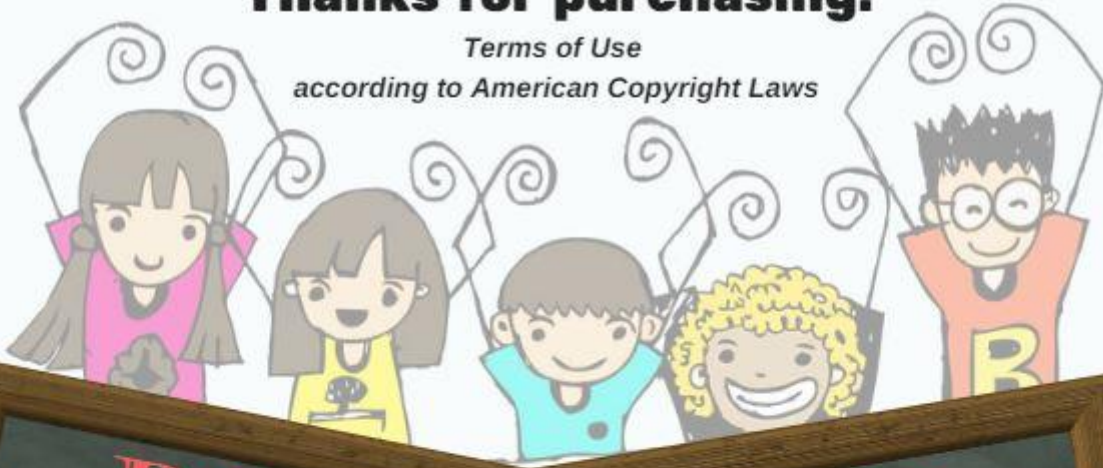
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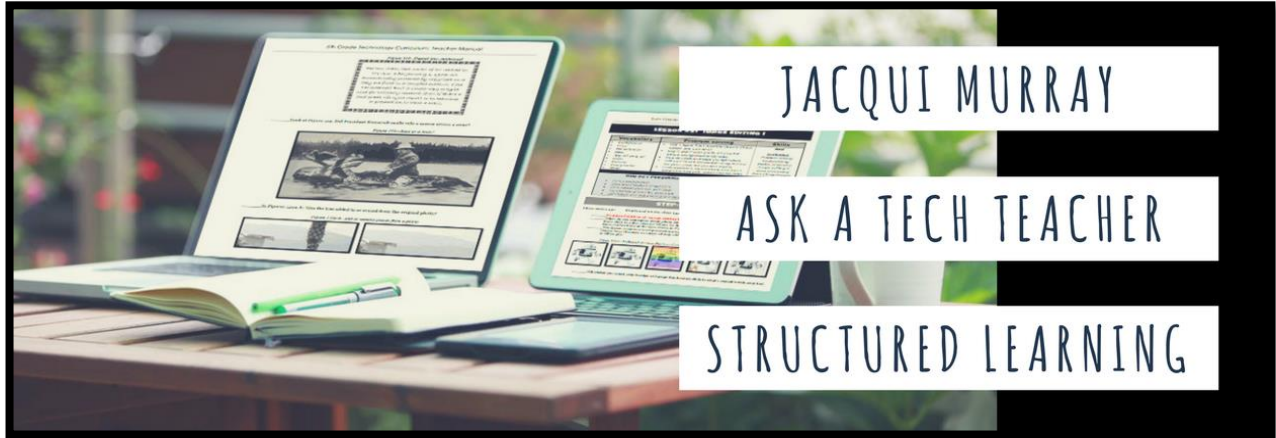- Buy additional licenses

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K-8 Combo (all 9 textbooks)	$248-450 + p&h
K-8 Student workbooks (per grade—tech/kb)	$199/550/1500 (room/school/district)
35 K-6 Inquiry-based Projects	$31.99/25.99/52.18 + p&h
55 Tech Projects—Vol I,II, Combo	$18.99 /$35.38–digital only (free S&H)
K-8 Keyboard Curriculum—3 options	$20 and up + p&h
K-8 Digital Citizenship Curriculum	$29.95/25.99/50.38 + p&h
CCSS—Math, Language, Reading, Writing	$26.99 ea/80 for 4–digital (free S&H)
K-5 Common Core Projects	$29.95/23.99/48.55 + p&h
Themed webinars	$8-30
Weekly tech webinars	Free or $99 per year for 180+ per year
Summer PD classes (online—for groups)	$795
Summer tech camp for kids	$179 + p&h
College credit classes (online)	$497 and up
Digital Citizenship certificate class	Starts at $29.99
Classroom tech poster bundles	Start at $9.99
PBL lessons--singles	$1.99 and up
Bundles of lesson plans	$4.99 and up (digital only)
Tech Ed Scope and Sequence (K-6 and 6-8)	$9.99 and up (digital only)
New Teacher Survival Kit	$285-620+ p&h
Homeschool Tech Survival Kit	$99 + p&h
Mentoring (30 min. at a time)	$50/session
169 Tech Tips From Classroom	$9.99 (digital only)
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