

Assistive Technology on the Everyday Desktop



Rori Scherr
University of Maryland
Montgomery County Public Schools



North Chevy Chase (NCC) Elementary School

- NCC is a magnet school for **science, mathematics, gifted and talented, and technology.**
- Grades: 3-6
- Major emphasis on integration of curriculum and technology
- Recognized throughout the community as an outstanding educational institution where students receive a challenging education in a nurturing environment.
- <http://www.mcps.k12.md.us/schools/nchevychasees/>



What is Assistive Technology (AT)?

- Any tool or device used by an individual to complete a task in an easier, faster, or in a better way.
- It can be a “low-tech” device such as a pencil grip or a “high-tech” device such as a computer.

Why is it Important for Educators to be Aware of AT?

- AT has the powerful potential of impacting significantly upon a student by contributing to his/her learning, independence, self-esteem, and quality of life.





Maryland Teacher Technology Standards

- The Maryland State Department of Education (MSDE) is in the process of creating Maryland Technology Literacy Standards for Students (MTLSS). The purpose of these standards is to ensure that students are technologically literate by the end of 8th grade.





Technology Standards

Standard 1 *Basic Operations:*

Students will develop a foundation in the use of technology.

Standard 2 *Responsible Use:*

Students will demonstrate responsible use of technology and an understanding of ethical, legal, and safety issues in using electronic media.

Standard 3 *Productivity Technology:*

Students will use a variety of technologies to increase productivity, enhance learning, promote creativity, and encourage collaboration.



Technology Standards

Standard 4 *Communications Technology:*

Students will use technology effectively to communicate information and ideas using various media and formats for multiple purposes while meeting diverse learning needs, modalities, and styles.

Standard 5 *Information Technology:*

Students will use technology to conduct research, derive new meaning, and report their findings/results.

Standard 6 *Problem-Solving and Decision-Making Technology:*

Students will use technology and develop strategies to solve problems and make informed decisions.



AT Programs

- Type To Learn 3
- The Graph Club 2.0
- Graph Master
- TimeLiner 5.0
- Kidspiration 2
- Inspiration 7.5
- Intel QX3 Microscope
- Microsoft Front Page
- Microsoft Publisher
- Microsoft Word
- Grade Machine





Research Software

- Britannica Online
- Grolier Online
- World Book Online
- New Book of Knowledge
- Newsbank
- Gale History Research Center



Type To Learn



- Ages 8-14
- Award-winning keyboarding program used by more than 15,000,000 students.
- Features a space theme with fun games

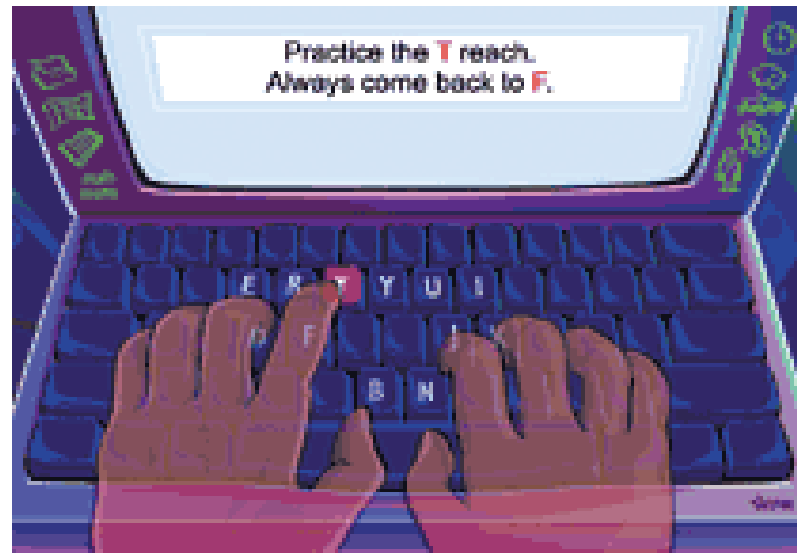


Type To Learn



- Select play/practice mode
- Completely design your students' Mission
- Modify intensity of drill and practice activities
- Choose from beginning, intermediate or advanced vocabulary levels
- Adjust Font Size
- Control sound effects, background music, and voice prompts

Type To Learn





Type To Learn



Lively social studies content keeps these speed and accuracy challenges fun and exciting with:

- **Key Figures** In this speed building exercise, students type in time-tunnel vortex and are transported to meet 50 historic people.
- **Windshield Typers** Improve left and right coordination by typing the sands of time off the windshield of your time travel machine.
- **Typeline** Use the numbers and the shift keys to straighten out events on a mixed-up timeline!
- **Warpspeed** Practice speed and accuracy skills by typing progressively longer passages.
- **Dictation** From letter keys to words and extended passages, students type exactly what they hear.



Type To Learn



Awards

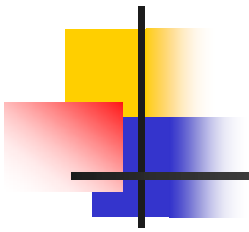
- 2002 Children's Software Revue All Star Awards
- 4 Star Report, Teaching PreK-8
- All Star Award, Children's Software Revue



The Graph Club

&

Graph Master

- 
-
- Five important areas of graphing and data analysis curriculum where elementary students struggle:
 - Transition from concrete to abstract
 - Data representations
 - Classification
 - Scale
 - Graph Interpretation

The Graph Club 2.0



- Grades K-4
- Innovative, easy-to-use instructional tool for creating, exploring, interpreting, and printing graphs

The Graph Club 2.0



- Students can create and compare up to 5 different graph types:
 - Picture graphs
 - Bar graphs
 - Circle graphs
 - Line graphs
 - Tables
- 450 built-in symbols – or import and save your own
- Bilingual – can easily switch from English to Spanish

The Graph Club 2.0



- Over 30 standards-aligned, ready-made activities in math, science, social studies, and language arts
- Reproducible assessment tools including rubrics, checklists, & sample graphs
- Built-in animated tutorial guides teachers and students step-by-step through the program's features

The Graph Club 2.0



- **Meets State and NCTM Standards**
 - Formulate questions that can be addressed with data
 - Collect, organize, and display data to answer questions
 - Describe parts of the data and the set of data as a whole

The Graph Club 2.0



- "The Graph Club 2.0 is a great way to actually teach graphing—the computer is only a tool that facilitates the learning. You can also assess student understanding by printing out their graphs and using the rubrics to grade them."

Bobbie Cunningham

Daniels Run Elementary School - Fairfax, VA

- "It's a complete package of everything you and your students need to know about graphs and graph making and it takes only minutes to learn how to use. This truly is technology integration at the highest level."
- ***Power to Learn.com***

<http://www.tomsnyder.com>

Graph Master



- Grades 4-8
- Graph Master equips students with these essential skills by helping them learn to analyze data, interpret results, and solve problems.

Graph Master



- Custom-designed for the upper-elementary and middle-school classroom, the software gives students the support they need as they create and interpret graphs.
- Accompanying activities and data sets allow teachers to build conceptual understanding within the context of meaningful real-world questions.

Graph Master



■ Product Features

- 9 graph types
- 20 cross-curricular, NCTM-aligned activities
- 10 complete, ready-made data sets on topics from planets to roller coasters
- Enter and import your own data, and compare graphs side by side
- Create formulas, and calculate statistics such as mean, median, mode, and range
- Online glossary explains data analysis and graphing terms
- Write conclusions in the on-screen notebook
- Print up to 4 graphs per page

Graph Master



- **MEETS STATE AND NCTM STANDARDS**
 - **Students will:**
 - **Formulate and answer questions by collecting, organizing, and displaying relevant data**
 - **Compare related data sets and different representations of the same data**
 - **Represent data using graphs and tables**
 - **Find, use, and interpret measures of center and spread**
 - **Develop and evaluate inferences and predictions based on data**

Graph Master



- Instructional Focus
- Math
 - Organizing data in a graph
 - Interpreting data
 - Mean, median, mode, range
 - Fractions, decimals, and percentages
- Social Studies
 - Collecting data through surveys
 - Interpreting data on historical trends

Graph Master



- Science
 - Collecting data through observation
 - Interpreting data from experiments
 - Comparing data and patterns

TimeLiner 5.0



- Grades K-12
 - Can be used across all curriculum and grade levels.
- Presenting information in a way that's easy to understand and remember is critical to classroom learning.
- Visually organizes information on a time line or number line.
- Airplanes/Airport Unit

TimeLiner 5.0

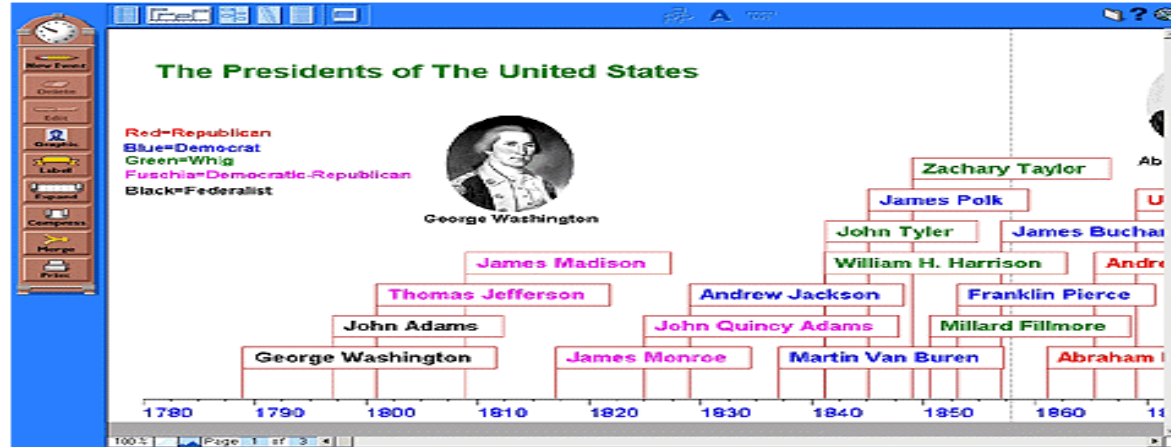


- Program Features:
 - Automatically organize any type of sequential information – from hourly to yearly to geologic, or create a custom number line
 - Multiple vertical and horizontal display formats

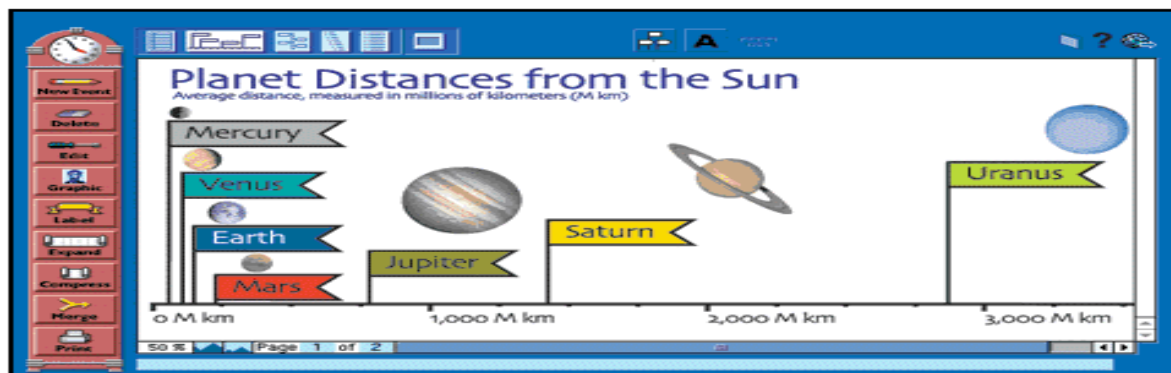
TimeLiner 5.0



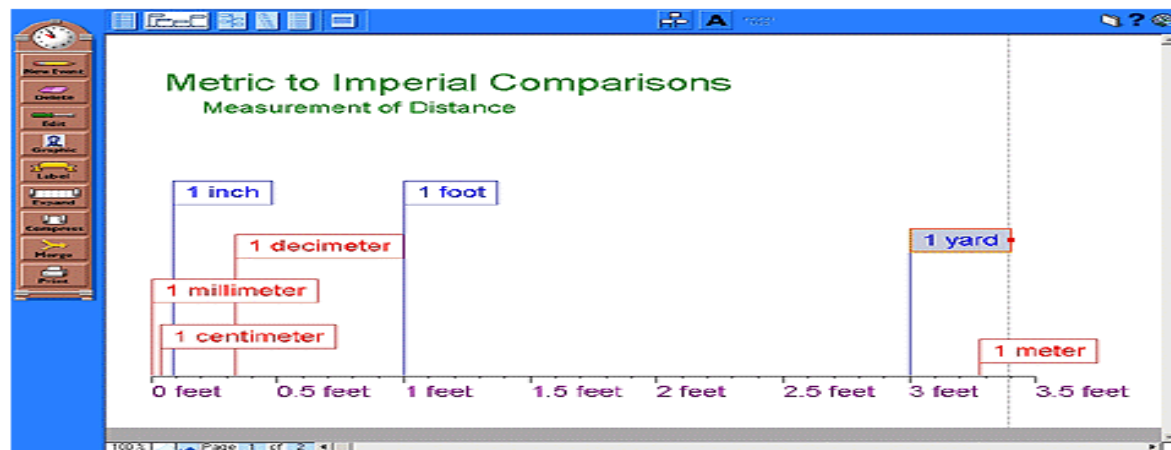
- A variety of publishing options: print as banners or handouts, present as a slideshow, or post on the web
- Different colors to distinguish information
- Merge multiple timelines to compare and contrast events



Use TimeLiner 5.0 in social studies to show the sequence of events.



Use TimeLiner 5.0 in science to show relative distance



Use TimeLiner 5.0 in math to create number lines.

TimeLiner 5.0



- Social Studies:
 - Historical Chronology
 - Time, Continuity, and Change
 - Family History
- Math:
 - Distance, Scale, and Proportion
 - Measurement

TimeLiner 5.0



- Science
 - Time, Size, Weight, Distance, and Temperature Comparisons
- Language Arts
 - Plot/Sequence
 - Cause & Effect

TimeLiner 5.0



- Create multimedia time lines – link any event to sounds, graphics, movies, notes, or websites
- Includes 400 historical and more recent photographs and clip art images, plus movies and sounds to insert with dates

TimeLiner 5.0



- 32 sample time lines from across the curriculum
- 25 standards-aligned lesson ideas
- Assessment Rubric
- Bilingual – switch easily between English and Spanish

TimeLiner 5.0



- EdPress Distinguished Achievement Award
- Software & Information Industry Association
- Codie Award Finalist - Best Secondary Education Instructional Solution
- Choosing Children's Software - Best Pick
- Parents' Choice Award Winner
- Technology & Learning Award of Excellence
- Media & Methods Excellence in Education Award



Kidspiration
&
Inspiration



Graphic Organizers

- Expository Text
- Narrative Text



Graphic Organizers

- Students with and without learning disabilities have improved in reading comprehension and planning for writing when they have been provided visual models of text organization
 - (Guastello, 2000)



Graphic Organizers

- Poor readers, especially those having difficulty comprehending new material, may need to be shown:
 - How to make connections between known and new information
 - How ideas are logically connected in text
 - (Guastello, 2000)

Kidspiration 2



- Grades K-5
- Students build graphic organizers by combining pictures, text, and spoken words to represent thoughts and information.
- Provides an easy way to apply the proven principles of visual learning.
- Young learners develop early literacy skills, and more advanced students improve comprehension skills and organize their ideas for writing.

Kidspiration 2



Brainstorm ideas with pictures and words.

Math

Drag pictures that use these shapes into the empty box.

square

oval

rectangle

triangle

cylinder

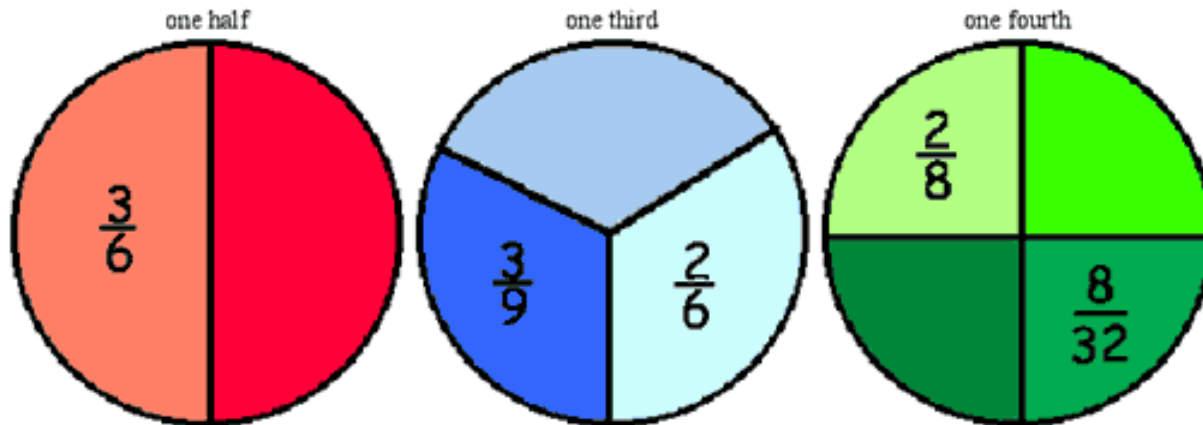
circle

The image shows a collection of real-world objects that can be identified using the shapes listed on the left. The objects are: a green chalkboard (rectangle), three colorful buttons (circle), a black camera (rectangle), a green Christmas tree (triangle), a glass of orange juice (cylinder), and a round pizza (circle).

Math

Move these fractions to the correct category.

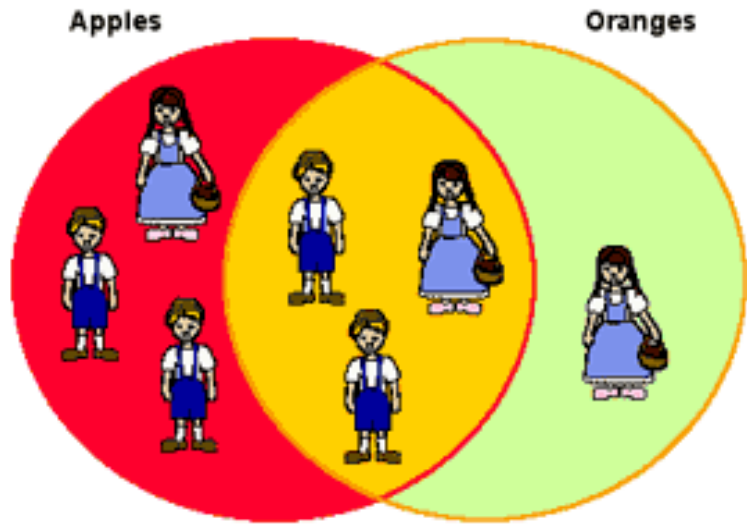
$$\frac{7}{21} \quad \frac{2}{4} \quad \frac{4}{16} \quad \frac{3}{12}$$



Math

Apples and oranges story problem

There are 12 people in a room. 6 people are eating apples, 4 people are eating oranges and 3 people are eating both. How many people are not eating?




final answer

There are 5 people not eating.



Reading/Language Arts


Rhyming words




dog

↓


rhymes with




jog



log




frog




cat

↓


rhymes with



hat

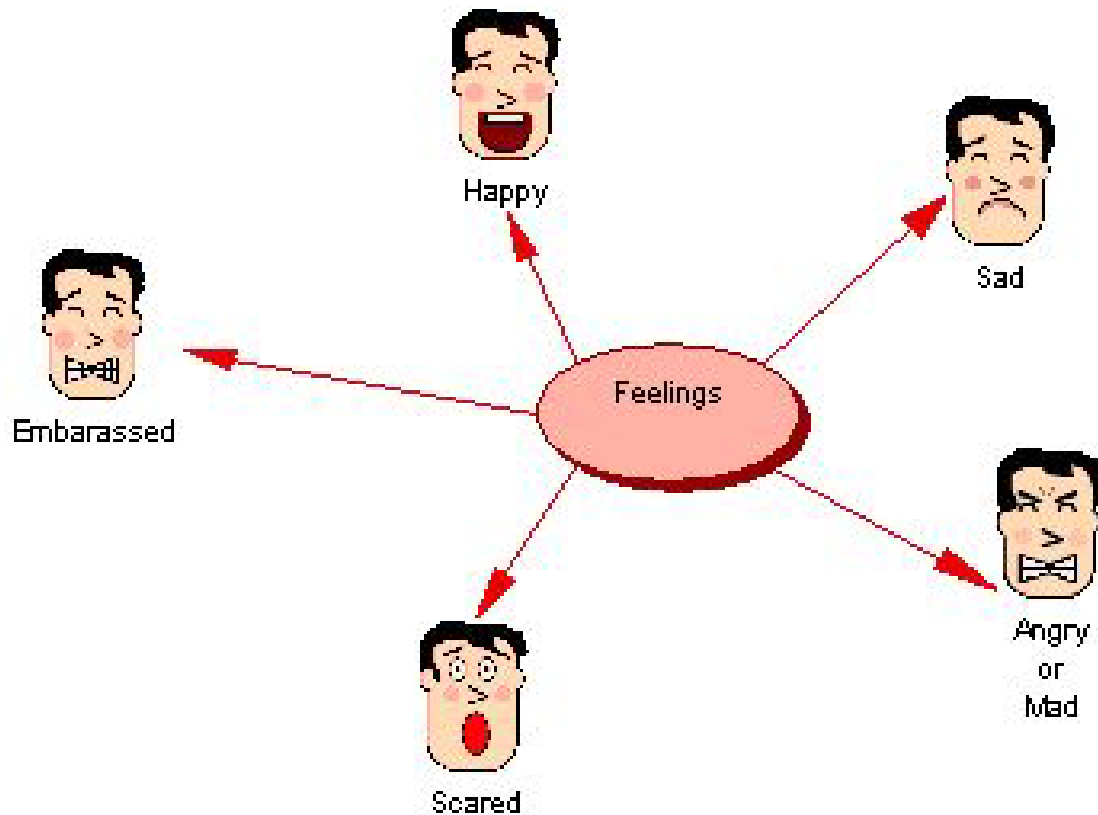


rat



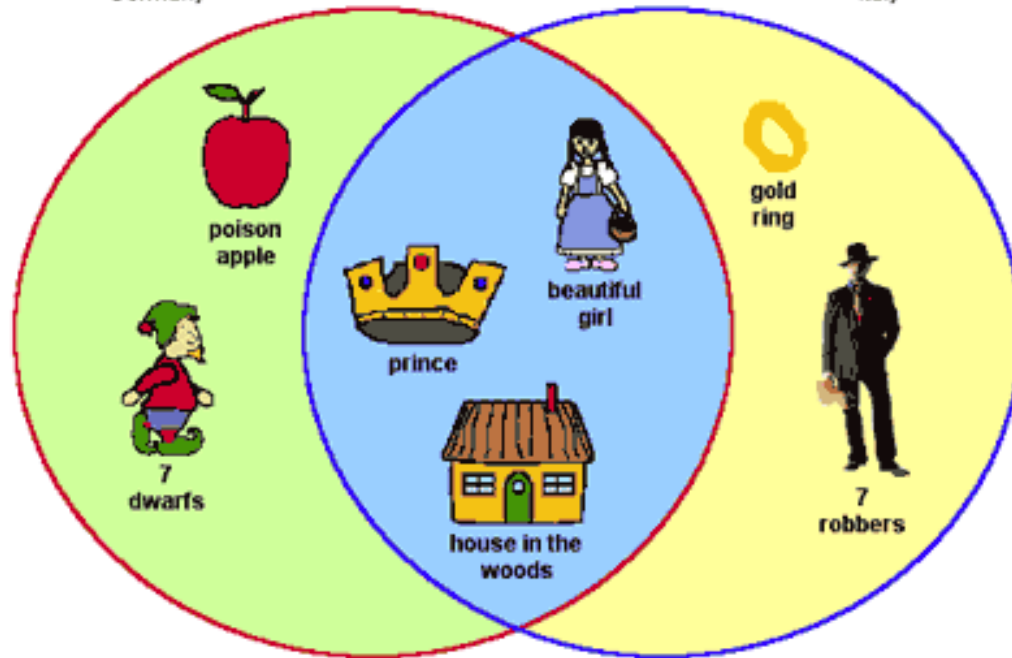
mat

Reading/Language Arts

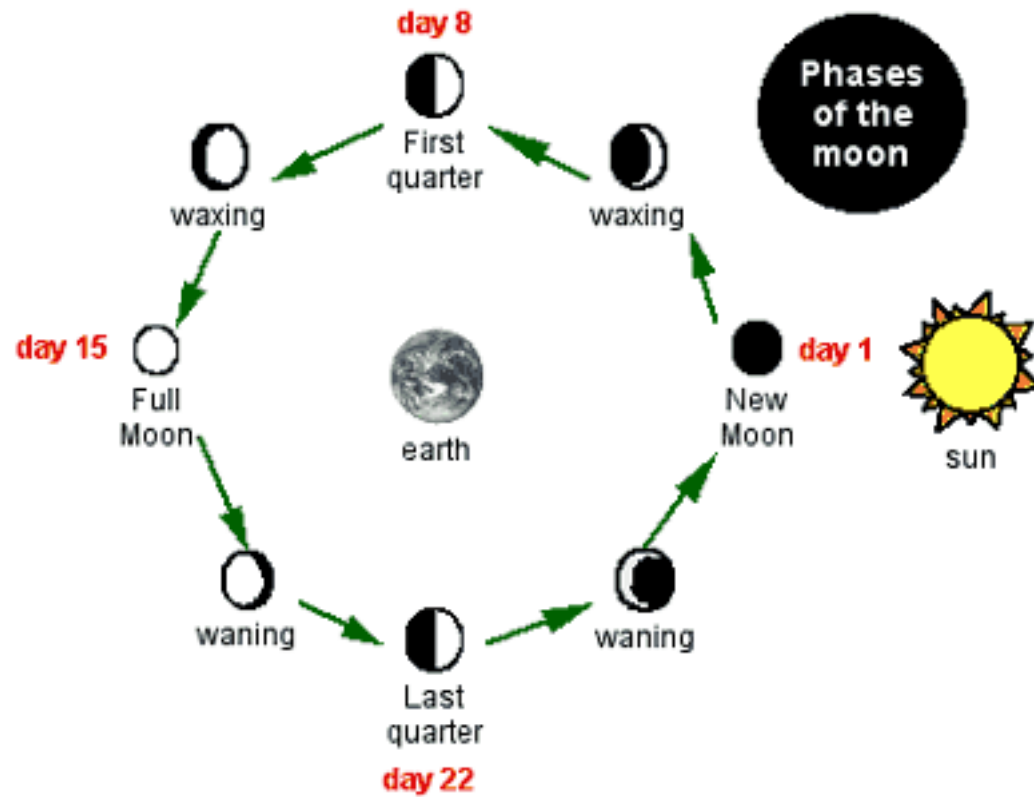


Reading/Language Arts

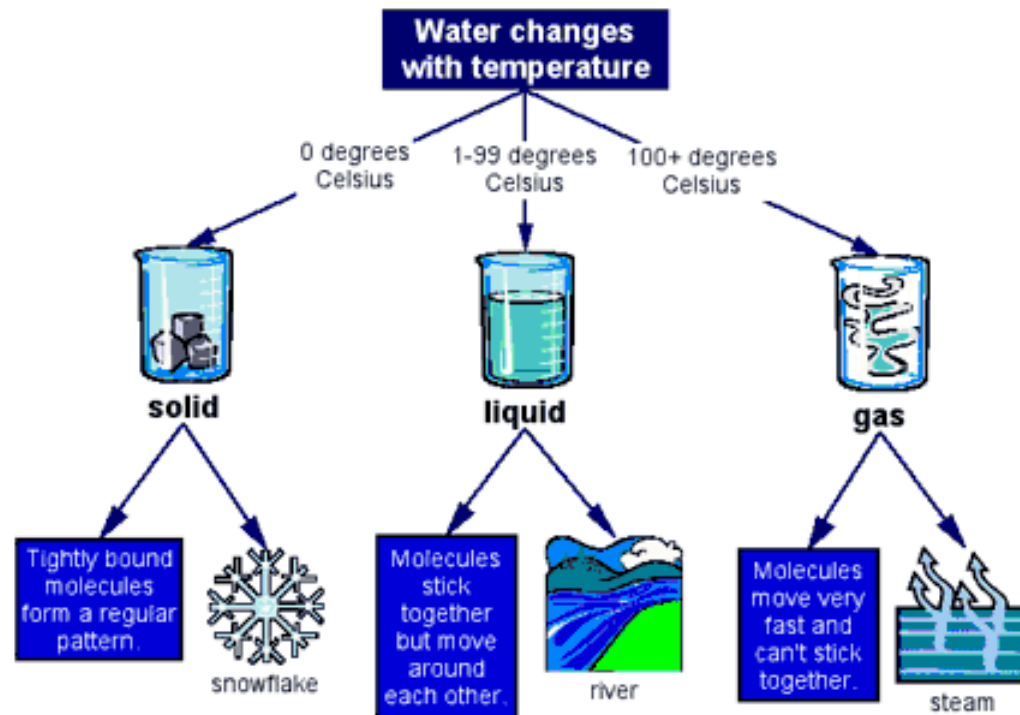
Little Snow White
Germany



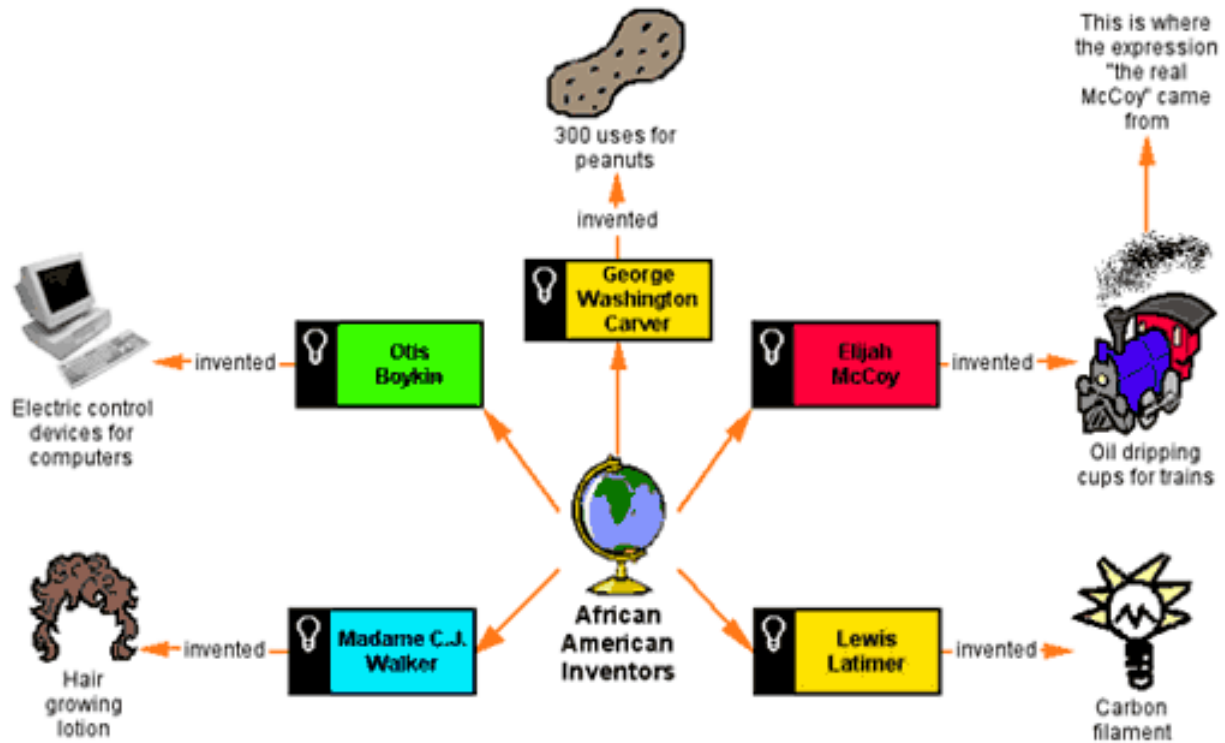
Science



Science



Social Studies



Social Studies



Inspiration 7.5



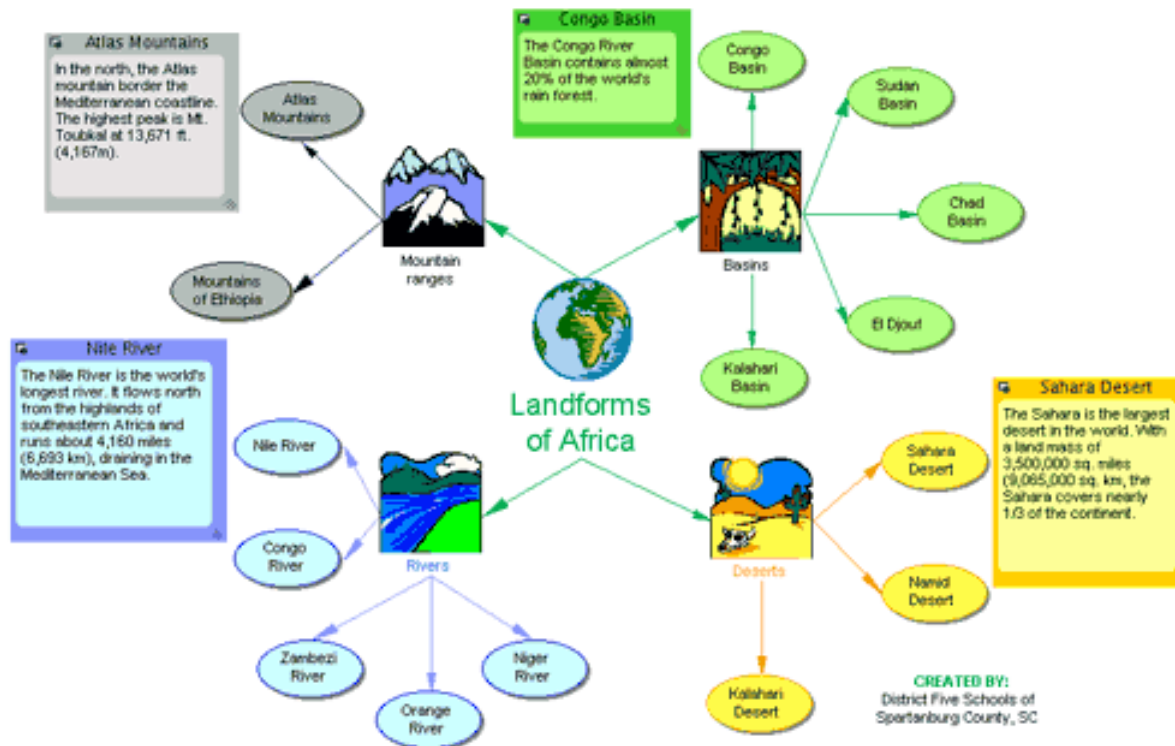
- Grades 6-12
- Powered by the proven techniques of visual learning, Inspiration:
 - Tap creativity
 - Build new knowledge
 - Analyze complex topics
 - Improve organizational skills

Inspiration 7.5

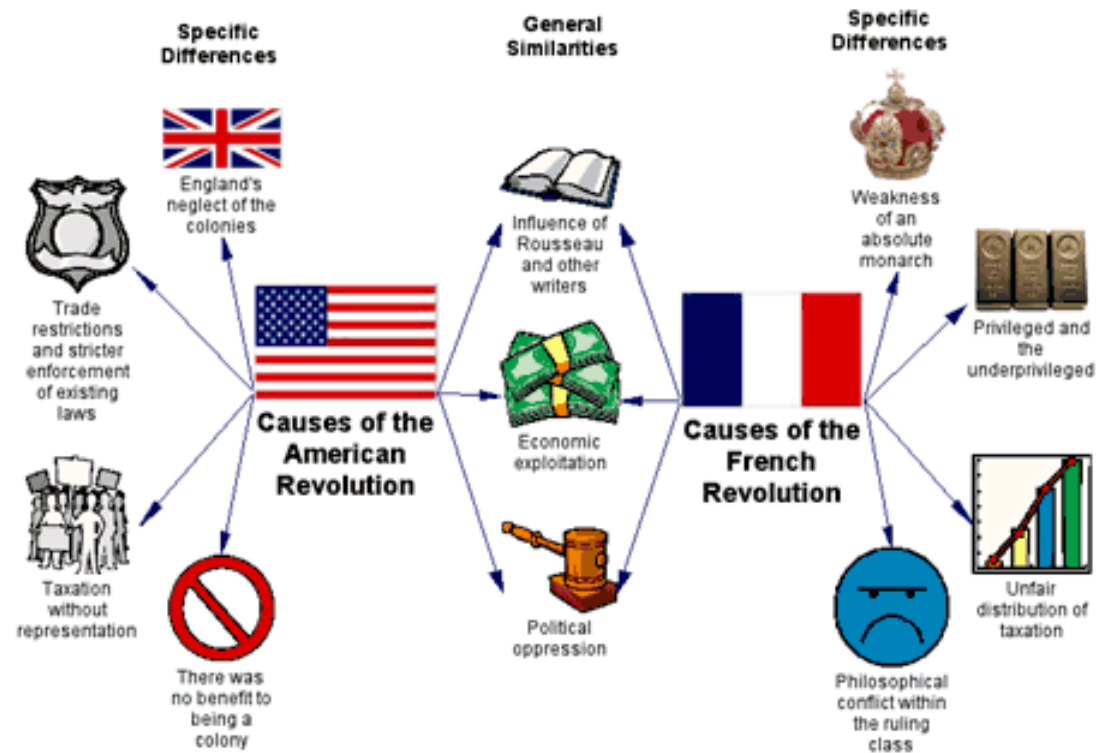


- **Use Inspiration for:**
 - Brainstorming
 - Critical thinking
 - Webbing
 - Concept mapping
 - Planning
 - Outlining

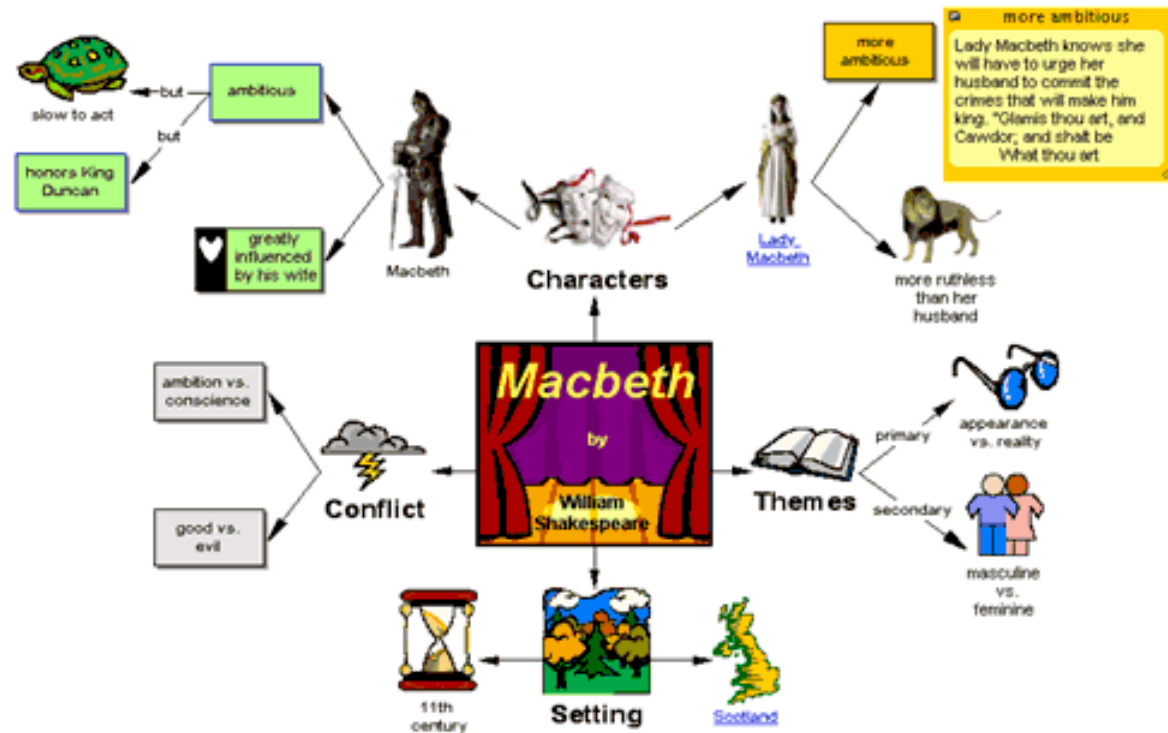
Science



Social Studies

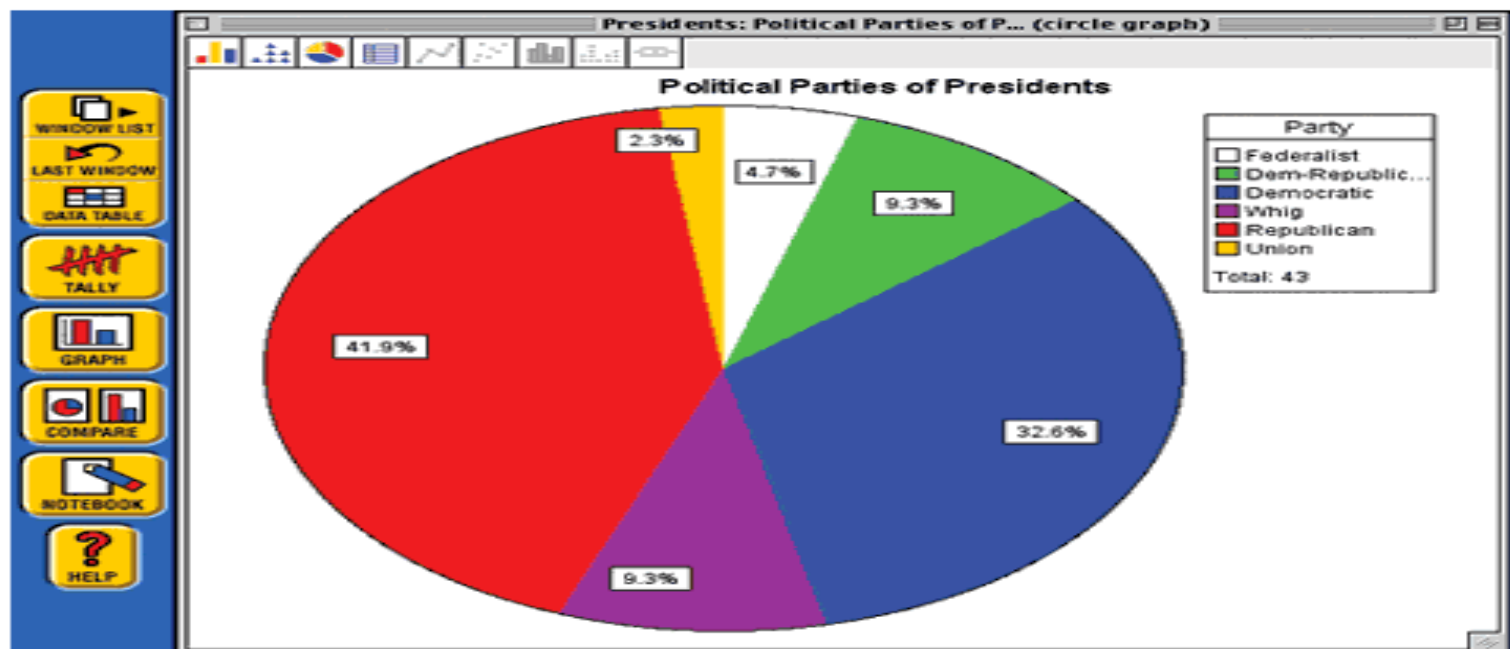


Social Studies



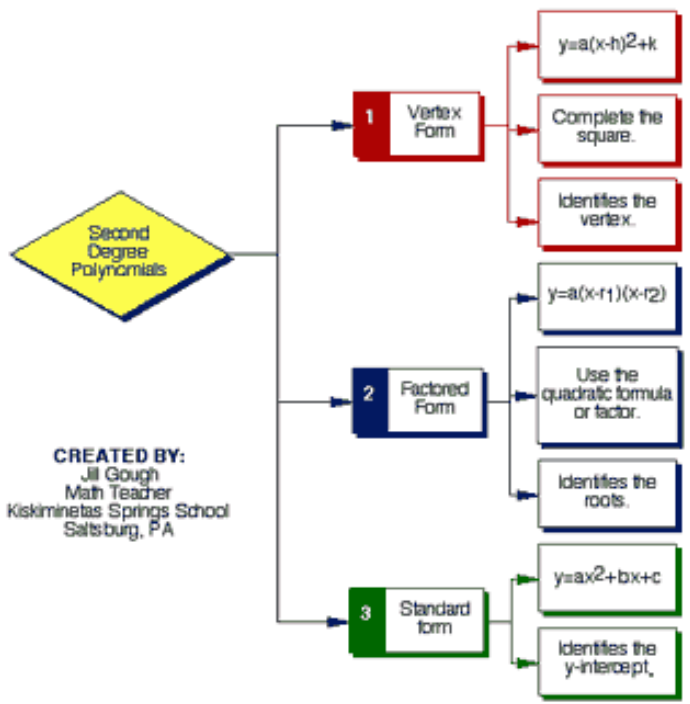
Presidents: Data Table

	A	B	C	D	E
	Number	Name	Party	Term Start	Term End
1	1	Washington	Federalist	1789	1797
2	2	J. Adams	Federalist	1797	1801
3	3	Jefferson	Dem-Republican	1801	1809
4	4	Madison	Dem-Republican	1809	1817
5	5	Monroe	Dem-Republican	1817	1825
6	6	J. Q. Adams	Dem-Republican	1825	1829
7	7	Jackson	Democratic	1829	1837
8	8	Van Buren	Democratic	1837	1841
9	9	W. H. Harrison	Whig	1841	1841
10	10	Tyler	Whig	1841	1845
11	11	Polk	Democratic	1845	1849
12	12	Taylor	Whig	1849	1850
13	13	Fillmore	Whig	1850	1853
14	14	Pierce	Democratic	1853	1857
15	15	Buchanan	Democratic	1857	1861
16	16	Lincoln	Republican	1861	1865
17	17	A. Johnson	Union	1865	1869
18	18	Grant	Republican	1869	1877
19	19	Hayes	Republican	1877	1881
20	20	Garfield	Republican	1881	1881
21	21	Arthur	Republican	1881	1885

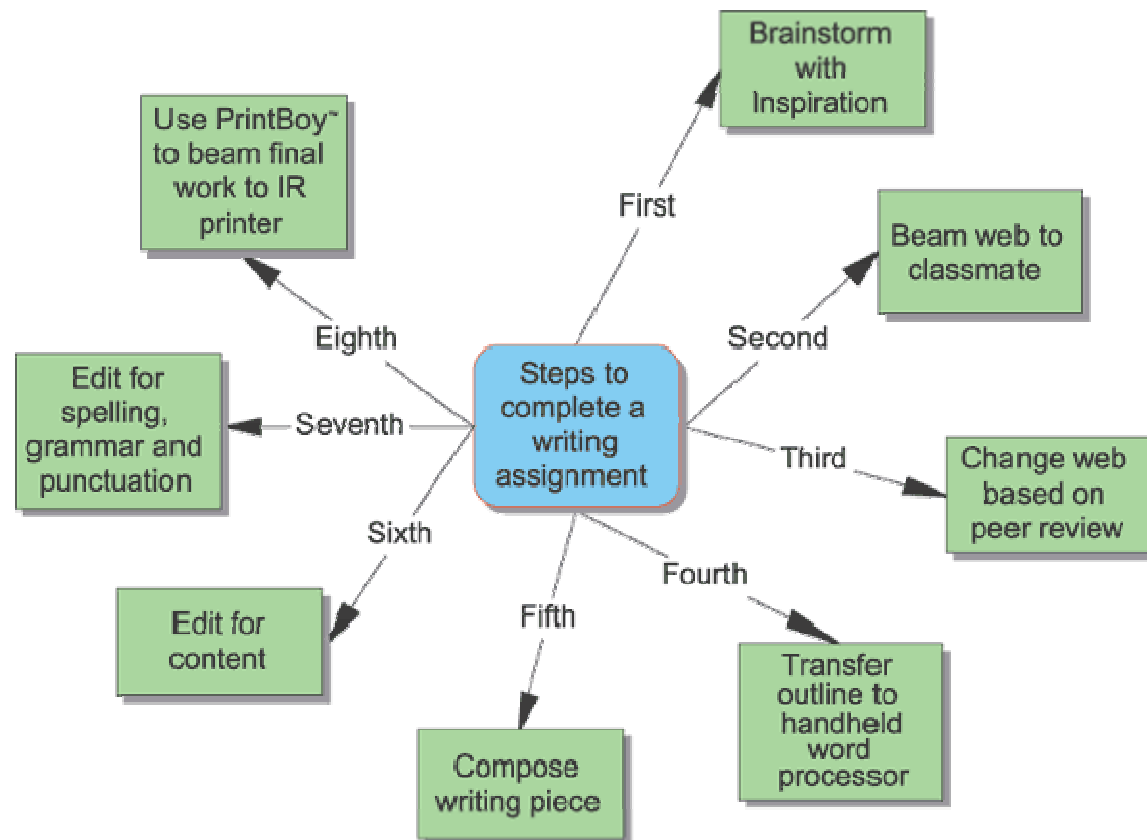


Students collect, enter, and analyze data.

Math

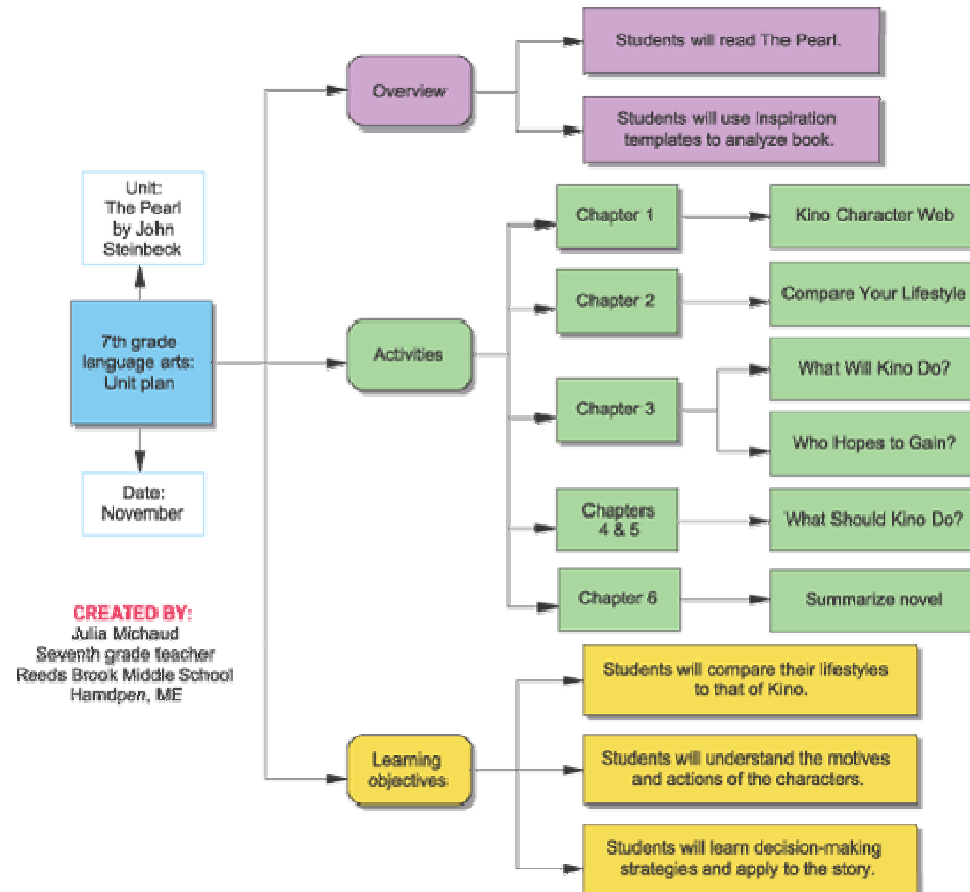


Writing

**CREATED BY:**

Tina Moran
District Technology Curriculum Coordinator
Douglas Public Schools
Douglas, MA

Teacher Planning





Microsoft

- Mission for Schools:

- “We envision the world itself as an enriched learning environment, where learners in the classroom, on the job, and at home easily connect with each other and with relevant information. At Microsoft, we call this vision the Connected Learning Community. To bring about this vision, Microsoft helps create learning opportunities for today's students and tomorrow's knowledge workers by.”



Microsoft

- **Dedication:**

- Partnering with other innovators in education and technology
- Nurturing communities that connect educators with each other and with resources for using technology to enhance their teaching
- Funding research and programs that provide access to technology and training to prepare students for tomorrow's careers
- Developing powerful technology to help educators individualize learning plans, to encourage students to collaborate, and to meet institutions' needs



Microsoft Front Page

Microsoft

- Used by students and staff
- New layout and graphics tools make it easier to design exactly the site you want.
- Beall-Dawson House



Microsoft Publisher



Microsoft

- Newsletters & school letterhead
stationary - **Weekly letter to parents**
- School flyers - **SGA Elections**
- Signs - **Tech Expo Posters**
- Brochure - **Famous Structure**



Microsoft Publisher



Microsoft

- State-of-the-art, professional-looking publications
- Easy to convey ideas
- Many design templates, images, fonts, colors, etc.

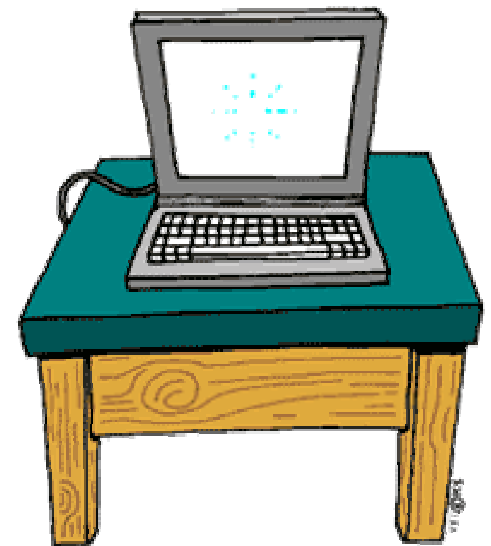


Microsoft Word



Microsoft

- Basic word-processing
- Alternative to writing
- Corrects spelling/grammar mistakes
- Thesaurus
- Clip-Art
- Numbering & Bulleting
- Tables





- Grade Machine is an award-winning electronic grade book and attendance software program.
- Assists with time and organization
- Designed by teachers, for teachers, Grade Machine accommodates individual skill levels and preferences of diverse educators, with a range of customizable features.



Grade Machine.

by Misty City Software

- Five great reasons teachers love Grade Machine:
 1. Grade Machine is designed for both beginner and computer expert.
 2. You can set up your gradebook the way you like it.
 3. You can provide great feedback to students and parents.
 4. You can use it for reporting data, etc.
 5. You can stay organized, from school or home.



Intel® Play™ QX3™ Computer Microscope

- Grades 1-5
- After students have captured snapshots of their specimens, the program allows them to change pictures to look like X-rays, add a caption, draw on the specimen pictures themselves, and even make movies.
- The combination of scientific and artistic worlds captures and manipulates the microscopic world in a fun and colorful way.



Intel® Play™ QX3™ Computer Microscope

- Explore the user-friendly interactive software that interfaces with the QX3 computer microscope.
- The software contains six menus that allow students to capture images, manipulate them with paint and special effects filters, print the images, and create movies and slide shows.

Intel® Play™ QX3™ Computer Microscope



Intel® Play™ QX3™ Computer Microscope



Figure 1

The End





References

- <http://www.tomsnyder.com>
- <http://www.mistycity.com>
- <http://www.microsoft.com>
- <http://micro.magnet.fsu.edu/>
- <http://www.mcps.k12.md.us>
- Guastello, E.F. (2000). Concept Mapping Effects on Science Content Comprehension of Low-Achieving Inner-City Seventh Graders. *Remedial & Special Education*, 21, 356-365.