

# PBS TeacherLine New York

## TECH 195: Teaching and Learning With Graphic Organizers

### New York State Learning Standards: Math, Science & Technology Standard 1 - Information Systems 2

Students will access, generate, process, and transfer information using appropriate technologies.

#### Key Idea 1

Information technology is used to retrieve, process, and communicate information and as a tool to enhance learning.

#### Performance Indicators

##### *Elementary*

Students use computer technology, traditional paper-based resources, and interpersonal discussions to learn, do, and share science in the classroom.

Students select appropriate hardware and software that aids in word processing, creating databases, telecommunications, graphing, data display, and other tasks.

##### *Intermediate*

Students use spreadsheets and database software to collect, process, display, and analyze information. Students access needed information from electronic databases and on-line telecommunication services.

Students systematically obtain accurate and relevant information pertaining to a particular topic from a range of sources, including local and national media, libraries, museums, governmental agencies, industries, and individuals.

##### *Commencement*

Students understand and use the more advanced features of word processing, spreadsheets, and data-base software.

Students access, select, collate, and analyze information obtained from a wide range of sources such as research data bases, foundations, organizations, national libraries, and electronic communication networks, including the Internet.

#### Key Idea 2

Knowledge of the impacts and limitations of information systems is essential to its effective and ethical use

#### Performance Indicators

##### ***Elementary***

Students will demonstrate ability to evaluate information

##### *Intermediate*

Students will understand the need to question the accuracy of information displayed on a computer because the results produced by a computer may be affected by incorrect data entry.

# **PBS TeacherLine New York TECH 195: Teaching and Learning With Graphic Organizers**

Students will identify advantages and limitations of data-handling programs and graphics programs.

## ***Commencement***

Students evaluate software packages relative to their suitability to a particular application and their ease of use.

## Key Idea 3

Information technology can have positive and negative impacts on society, depending upon how it is used

## ***Elementary***

Students demonstrate ability to evaluate information critically.

## ***Intermediate***

Students use graphical, statistical, and presentation software to presents project to fellow classmates.

Students describe applications of information technology in mathematics, science, and other technologies that address needs and solve problems in the community.

## **New York State Learning Standards: Math, Science & Technology – Standard 3 – Mathematics**

### **Mathematical Reasoning**

#### Key Idea 5

Students use measurement in both metric and English measure to provide a major link between the abstractions of mathematics and the real world in order to describe and compare objects and data.

## ***Commencement***

Students apply proportions to scale drawings, computer-assisted design blueprints, and direct variation in order to compute indirect measurements.

#### Key Idea 6

Students use ideas of uncertainty to illustrate that mathematics involves more than exactness when dealing with everyday situations.

## ***Commencement***

Students judge the reasonableness of a graph produced by a calculator or computer.

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**TECH 195: Teaching and Learning With Graphic Organizers**  
**New York State Learning Standards: Math, Science & Technology – Standard 5 – Technology**

Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.

Key Idea 3

Computers, as tools for design, modeling, information processing, communication, and system control, have greatly increased human productivity and knowledge.

***Elementary***

Students use the computer as a tool for generating and drawing ideas.

***Intermediate***

Students use computer hardware and software to draw and dimension prototypical designs.

***Commencement***

Students use computer-aided drawing and design (CADD) software to model realistic solutions to design problems.

**New York State Learning Standards: Math, Science & Technology – Standard 7 – Interdisciplinary Problem Solving**

Connections

Key Idea 1

The knowledge and skills of mathematics, science, and technology are used together to make informed decisions and solve problems, especially those relating to issues of science/technology/society, consumer decision making, design, and inquiry into phenomena.

***Elementary***

Students observe phenomena and evaluate them scientifically and mathematically by conducting a fair test of the effect of variables and using mathematical knowledge and technological tools to collect, analyze, and present data and conclusions.

***Intermediate***

Students describe and explain phenomena by designing and conducting investigations involving systematic observations, accurate measurements, and the identification and control of variables; by inquiring into relevant mathematical ideas; and by using mathematical and technological tools and procedures to assist in the investigation.

***Commencement***

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**TECH 195: Teaching and Learning With Graphic Organizers**

Students explain and evaluate phenomena mathematically and scientifically by formulating a testable hypothesis, demonstrating the logical connections between the scientific concepts guiding the hypothesis and the design of an experiment, applying and inquiring into the mathematical ideas relating to investigation of phenomena, and using (and if needed, designing) technological tools and procedures to assist in the investigation and in the communication of results.

# PBS TeacherLine New York

## TECH 195: Teaching and Learning With Graphic Organizers

### New York State Learning Standards: Standard 2—Knowing and Using Arts Materials and Resources

#### Visual Arts

##### Key Idea 2

Students will know and use a variety of visual arts materials, techniques, and processes. Students will know about resources and opportunities for participation in visual arts in the community (exhibitions, libraries, museums, galleries) and use appropriate materials (art reproductions, slides, print materials, electronic media). Students will be aware of vocational options available in the visual arts.

##### ***Elementary***

Students develop skills with electronic media as a means of expressing visual ideas

##### ***Intermediate***

Students use the computer and other electronic media as designing tools and to communicate visual ideas

##### ***Commencement***

Students use the computer and electronic media to express their visual ideas and demonstrate a variety of approaches to artistic creation

**PBS TeacherLine New York**  
**TECH 195: Teaching and Learning With Graphic Organizers**  
**New York State Learning Standards: English Language Arts - Standard 1—**  
**Language for Information and Understanding**

Students will listen, speak, read, and write for information and understanding. As listeners and readers, students will collect data, facts, and ideas; discover relationships, concepts, and generalizations; and use knowledge generated from oral, written, and electronically produced texts. As speakers and writers, they will use oral and written language that follows the accepted conventions of the English language to acquire, interpret, apply, and transmit information.

**Listening and Reading**

Key Idea 1

Listening and reading to acquire information and understanding involves collecting data, facts, and ideas; discovering relationships, concepts, and generalizations; and using knowledge from oral, written, and electronic sources.

***Elementary***

Students gather and interpret information from children’s reference books, magazines, textbooks, electronic bulletin boards, audio and media presentations, oral interviews, and from such forms as charts, graphs, maps, and diagrams

Students select and use strategies they have been taught for note-taking, organizing, and categorizing information

***Intermediate***

Students interpret and analyze information from textbooks and nonfiction books for young adults, as well as reference materials, audio and media presentations, oral interviews, graphs, charts, diagrams, and electronic data bases intended for a general audience

Students compare and synthesize information from different sources

Students use a wide variety of strategies for selecting, organizing, and categorizing information

***Commencement***

Students interpret and analyze complex informational texts and presentations, including technical manuals, professional journals, newspaper and broadcast editorials, electronic networks, political speeches and debates, and primary source material in their subject area courses

Students synthesize information from diverse sources and identify complexities and discrepancies in the information

Students use a combination of techniques (e.g., previewing, use of advance organizers, structural cues) to extract salient information from texts  
Students make distinctions about the relative value and significance of specific data, facts, and ideas

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## **TECH 195: Teaching and Learning With Graphic Organizers**

### **Speaking and Writing**

#### Key Idea 2

Speaking and writing to acquire and transmit information requires asking probing and clarifying questions, interpreting information in one's own words, applying information from one context to another, and presenting the information and interpretation clearly, concisely, and comprehensibly.

#### ***Elementary***

Students present information clearly in a variety of oral and written forms such as summaries, paraphrases, brief reports, stories, posters, and charts

Students select a focus, organization, and point of view for oral and written presentations

Students use a few traditional structures for conveying information such as chronological order, cause and effect, and similarity and difference

#### ***Intermediate***

Students produce oral and written reports on topics related to all school subjects

Students organize information according to an identifiable structure, such as compare/contrast or general to specific

Students develop information with appropriate supporting material, such as facts, details, illustrative examples or anecdotes, and exclude extraneous material

#### ***Commencement***

Students write and present research reports, feature articles, and thesis/support papers on a variety of topics related to all school subjects

Students present a controlling idea that conveys an individual perspective and insight into the topic

Students use a wide range of organizational patterns such as chronological, logical (both deductive and inductive), cause and effect, and comparison/contrast

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## **New York State Learning Standards: English Language Arts – Standard 3— Language for critical analysis and evaluation.**

Students will listen, speak, read, and write for critical analysis and evaluation. As listeners and readers, students will analyze experiences, ideas, information, and issues presented by others using a variety of established criteria. As speakers and writers, they will use oral and written language that follows the accepted conventions of the English language to present, from a variety of perspectives, their opinions and judgments on experiences, ideas, information and issues

### **Listening and Reading**

#### Key Idea 1

Listening and reading to analyze and evaluate experiences, ideas, information, and issues requires using evaluative criteria from a variety of perspectives and recognizing the difference in evaluations based on different sets of criteria.

#### ***Intermediate***

Students analyze, interpret, and evaluate information, ideas, organization, and language from academic and nonacademic texts, such as textbooks, public documents, book and movie reviews, and editorials

#### ***Commencement***

Students analyze, interpret, and evaluate ideas, information, organization, and language of a wide range of general and technical texts and presentations across subject areas, including technical manuals, professional journals, political speeches, and literary criticism.

## **New York State Learning Standards: English Language Arts - Standard 4 – Language for Social Interaction**

Students will listen, speak, read, and write for social interaction. Students will use oral and written language that follows the accepted conventions of the English language for effective social communication with a wide variety of people. As readers and listeners, they will use the social communications of others to enrich their understanding of people and their views



**PBS TeacherLine New York**  
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**Health, Physical Education, and Home Economics**

**New York State Learning Standards: Health, Physical Education, and Home Economics- Standard 3 – Resource Management**

Students will understand and be able to manage their personal and community resources

**Home Economics**

***Commencement***

Students understand the basics of an individual/family budget and plan to obtain, use, and protect money and assets

Students develop job skills (e.g., communication, effective time management, problem solving, and leadership).

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## **TECH 195: Teaching and Learning With Graphic Organizers**

### Key Idea 2

Important ideas, social and cultural values, beliefs, and traditions from New York State and United States history illustrate the connections and interactions of people and events across time and from a variety of perspectives

#### ***Elementary***

Students gather and organize information about the traditions transmitted by various groups living in their neighborhood and community

Students distinguish between near and distant past and interpret simple timelines.

#### ***Intermediate***

Students describe the reasons for periodizing history in different ways

#### ***Commencement***

Students discuss several schemes for periodizing the history of New York State and the United States

Students develop and test hypotheses about important events, eras, or issues in New York State and United States history, setting clear and valid criteria for judging the importance and significance of these events, eras, or issues

### Key Idea 3

Study about the major social, political, economic, cultural, and religious developments in New York State and United States history involves learning about the important roles and contributions of individuals and groups.

#### ***Elementary***

Students gather and organize information about the important accomplishments of individuals and groups, including Native American Indians, living in their neighborhoods and communities

Students classify information by type of activity: social, political, economic, technological, scientific, cultural, or religious

#### ***Intermediate***

Students gather and organize information about the important achievements and contributions of individuals and groups living in New York State and the United States

Students classify major developments into categories such as social, political, economic, geographic, technological, scientific, cultural, or religious

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## ***Commencement***

Students compare and contrast the experiences of different ethnic, national, and religious groups, including Native American Indians, in the United States, explaining their contributions to American society and culture

## **New York State Learning Standards: Social Studies - Standard 2: World History**

Students will use a variety of intellectual skills to demonstrate their understanding of major ideas, eras, themes, developments, and turning points in world history and examine the broad sweep of history from a variety of perspectives

### Key Idea 2

Important ideas, social and cultural values, beliefs, and traditions from New York State and United States history illustrate the connections and interactions of people and events across time and from a variety of perspectives

#### ***Elementary***

Students gather and organize information about the traditions transmitted by various groups living in their neighborhood and community

Students distinguish between near and distant past and interpret simple timelines

#### ***Intermediate***

Students describe the reasons for periodizing history in different ways

#### ***Commencement***

Students discuss several schemes for periodizing the history of New York State and the United States

### Key Idea 3

Study about the major social, political, economic, cultural, and religious developments in New York State and United States history involves learning about the important roles and contributions of individuals and groups

#### ***Elementary***

Students gather and organize information about the important achievements and contributions of individuals and groups living in New York State and the United States

Students classify major developments into categories such as social, political, economic, geographic, technological, scientific, cultural, or religious.

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## ***Intermediate***

Students gather and organize information about the important achievements and contributions of individuals and groups living in New York State and the United States

Students classify major developments into categories such as social, political, economic, geographic, technological, scientific, cultural, or religious

## ***Commencement***

Students research and analyze the major themes and developments in New York State and United States history (e.g., colonization and settlement; Revolution and New National Period; immigration; expansion and reform era; Civil War and Reconstruction; The American labor movement; Great Depression; World Wars; contemporary United States)

## **New York State Learning Standards: Social Studies - Standard 3: Geography**

Students will use a variety of intellectual skills to demonstrate their understanding of the geography of the interdependent world in which we live—local, national, and global—including the distribution of people, places, and environments over the Earth’s surface.

### Key Idea 2

Geography requires the development and application of the skills of asking and answering geographic questions; analyzing theories of geography; and acquiring, organizing, and analyzing geographic information.

## ***Intermediate***

Students use a number of research skills (e.g., computer databases, periodicals, census reports, maps, standard reference works, interviews, surveys) to locate and gather geographical information about issues and problems

Students present geographic information in a variety of formats, including maps, tables, graphs, charts, diagrams, and computer-generated models

## ***Commencement***

Students analyze geographic information by developing and testing inferences and hypotheses, and formulating conclusions from maps, photographs, computer models, and other geographic representations

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## **TECH 195: Teaching and Learning With Graphic Organizers**

### **New York State Learning Standards: Social Studies - Standard 4: Economics**

Students will use a variety of intellectual skills to demonstrate their understanding of how the United States and other societies develop economic systems and associated institutions to allocate scarce resources, how major decision-making units function in the U.S. and other national economies, and how an economy solves the scarcity problem through market and non-market mechanisms

#### Key Idea 2

Economics requires the development and application of the skills needed to make informed and well-reasoned economic decisions in daily and national life.

#### ***Elementary***

Students present economic information by developing charts, tables, diagrams, and simple graphs

#### ***Intermediate***

Students identify and collect economic information from standard reference works, newspapers, periodicals, computer databases, textbooks, and other primary and secondary sources

Students organize and classify economic information by distinguishing relevant from irrelevant information, placing ideas in chronological order, and selecting appropriate labels for data

Students present economic information by using media and other appropriate visuals such as tables, charts, and graphs to communicate ideas and conclusions.

#### ***Commencement***

Students identify, locate, and evaluate economic information from standard reference works, newspapers, periodicals, computer databases, monographs, textbooks, government publications, and other primary and secondary sources

Students present economic information and conclusions in different formats, including graphic representations, computer models, research reports, and oral presentations.