

**Library-Technology Connections  
to the  
LA Comprehensive Curriculum**

**Algebra I, Part 1**

## Preface

One of the roles of the School Library Media Specialist is that of an instructional partner with the classroom teacher through collaborative planning. Together, they provide students with multidimensional learning experiences using classroom, library, and online resources. Research indicates that the strength of the school library is a clear predictor of academic achievement. Schools with stronger school library programs average 10-12% higher test scores. (School Library Impact Studies, <http://www.lrs.org/Impact.asp>)

The purpose of this document is to identify those activities from the *Louisiana Comprehensive Curriculum* that:

1. can be more effectively addressed in a library setting using multiple print and online library resources,
2. require the use of multiple computers for students to be actively involved in the use of technology.

The complete *Louisiana Comprehensive Curriculum*, with time frames, unit descriptions, student understandings, guiding questions, student activities, grade level expectations, teacher resources, and sample assessments, can be accessed on the Louisiana State Department of Education Website at <http://www.doe.state.la.us/lde/ssa/2108.html>.

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## **INTEGRATING INFORMATIONAL LITERACY SKILLS INTO THE COMPREHENSIVE CURRICULUM**

School library media specialists are uniquely qualified to provide strong support and partnership with teachers to increase student achievement. Recent research studies provide strong evidence that their strongest impact on student achievement comes “when they work in partnership with teachers to integrate information literacy skills into the curriculum through well-designed learning activities. One significant indicator of effectiveness is the extent of collaboration among teachers and library media specialists, in planning and teaching curricular lessons or units that integrate information literacy skills.” (*Guidelines for Library Media Programs in Louisiana Schools*, 2004, <http://www.doe.state.la.us/lde/uploads/4212.doc> )

For suggestions and guidelines on collaborative planning and teaching, and integrating information literacy skills into the curriculum, refer to “Chapter 1: Learning Environment” and “Section Two: Information Literacy Guidelines for Student Learning,” in *Guidelines for Library Media Programs in Louisiana Schools*, pages 12-19 and 65-82.

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### **Included below are:**

- **This grade level’s Information Literacy Skills from *Guidelines for Library Media Programs in Louisiana Schools***
- **Grade Level Expectations and Identified Activities with Library-Technology Connections from the *Comprehensive Curriculum***

## **GRADE 9 INFORMATION LITERACY SKILLS**

**The student ...**

### **DEFINING/FOCUSING/APPRECIATION/ORIENTATION (INFORMATION LITERACY STANDARDS 1, 4, 5 & 7; FOUNDATION SKILLS 1, 2 & 5)**

- demonstrates knowledge of the school library media center(LMC) personnel, organization and procedures.
- identifies, appreciates, and classifies various types and genres of literature. ELA-1-H5; ELA-6-H3 & H4
- formulates a central research question, thesis statement, or problem for investigation. ELA-2-H1
- draws on prior knowledge to brainstorm or cluster ideas.
- develops focus questions using modeled techniques and clarifies and refines questions throughout the research process with guidance from school library media specialist and teacher.
- develops a search strategy for a research project with guidance. ELA-5-H3
- broadens and narrows searches to locate specific information. ELA-5-H3
- recognizes alternate overview sources such as subject encyclopedia, magazine articles, online databases and other technologies. ELA-5-H2; T-4-J
- recognizes the role and importance of information in a democratic society. ELA-7-H4; C-1B-H2

### **SELECTING TOOLS/RESOURCES (INFORMATION LITERACY STANDARDS 2, 3, 4 & 8; FOUNDATION SKILL 1)**

- identifies and interprets information in the LMC card or online catalog to access information for research purposes and leisure reading. ELA-1-H-5; LEAP
- understands the need to locate a variety of sources representing a range of views.
- understands the purpose and major divisions of the Dewey Decimal System to locate materials.
- uses skimming and scanning techniques to survey readability and determine suitability of resources for the task. ELA-5-H2; ELA-7-H-4; T-2-J
- uses organizational features in various references (guide words, key words, table of contents, index, endnotes, glossary, etc.). LEAP
- uses periodicals, newspapers, encyclopedias, almanacs, vertical files, non-print materials, and a wide variety of reference tools as sources of information or leisure reading. ELA-1-H5; LEAP
- interprets and evaluates data from primary and secondary sources. H-1A-H3
- applies intermediate online searching techniques (keyword, phrases, Boolean logic), and uses online resources to investigate curriculum-related issues. SI-H-A3; T-4-J
- selects broader or narrower topics to refine search results.

- follows district approved Internet acceptable use policy/guidelines in accessing information. T-5-D
- recognizes databases as sources of information and as tools for organizing information using standard categories. ELA-5-H4; T-3-G
- operates equipment and software programs necessary to access information. T-6-C
- consults information sources or services outside the school setting (community, state or online libraries, agencies, experts, etc.).
- examines media sources (TV show, movie, commercial, billboard ad, tabloid newspaper, etc.) and compares point of view, checks for sources, and compares and contrasts different versions of the same information to detect bias or political “spin” control.
- consults information sources or services outside the school setting (community, state or online libraries, agencies, experts, etc.).

### **EXTRACTING/RECORDING**

#### **(INFORMATION LITERACY STANDARDS 1, 2, 3 & 8; FOUNDATION SKILL 3)**

- locates and uses information from textual, visual, auditory sources and interviews, using skimming, scanning, and contextual clues, distinguishing fact from opinion, determining cause and effect, and generating inquiry. ELA-5-H3; ELA-7-H4
- conducts research using graphic organizers, outlining, note taking, summarizing, interviewing, and surveying. ELA-5-H3
- interprets and makes inferences from graphic presentations of data (charts/graphs, tables/schedules, diagrams/maps, organizational charts/flowcharts). ELA-5-H6; D-7-H; LEAP
- recognizes the appropriate use of information, adheres to copyright guidelines, and applies ethical and legal principles (use of key words and phrases, proper attribution of direct quotes, record of sources used, etc.). ELA-5-H5; T-5-C & D
- uses advanced tools associated with software applications, telecommunications, and emerging technologies. T-1 & 3-E
- compiles a bibliography using a standard prescribed format. ELA-5-H5

### **PROCESSING INFORMATION**

#### **(INFORMATION LITERACY STANDARDS 2, 3, 5 & 6; FOUNDATION SKILLS 2, 3 & 4)**

- sorts, evaluates, and selects information appropriate to topic. ELA-7-H2; T-1&2-J
- problem solves by assessing the reliability and validity of information. ELA-7-H2
- determines purpose and point of view, identifies bias, and recognizes various sides of an issue. ELA-7-H3

- distinguishes among fact, non-fact, opinion, and propaganda. ELA-7-H4; ITBS; T-2, 4 & 5-N
- compares, summarizes, and generalizes information from varied sources. ELA-7-H1; LEAP
- recognizes information deficiencies and locates additional information as necessary.
- relates information to previous experience to determine cause and effect. ELA-7-H4; ITBS
- compares information from different sources for opposing viewpoints and accuracy, derives valid inferences from information collected and understand why there may be various interpretations of data. ELA-7-H1; LEAP
- re-writes thesis statement or re-states problem for investigation based on research results.
- generates and links knowledge, transferring information from one context to another. F-4

### **ORGANIZING INFORMATION**

#### **(INFORMATION LITERACY STANDARDS 3 & 6; FOUNDATION SKILLS 3 & 4)**

- prioritizes, categories, and synthesizes selected information, individually or with a group, and proposes an appropriate solution to a problem based on prior knowledge and new information. ELA-7-H2
- uses extracted information to predict outcomes, draw conclusions, and/or perceive relationships. ELA-7-H1; LEAP
- selects and uses an appropriate organizational style (list, web, cluster, traditional outline, e.g.) utilizing brainstorming/webbing techniques & technologies as available. T-2-J

### **PRODUCING FINDINGS**

#### **(INFORMATION LITERACY STANDARDS 3, 6, 8 & 9; FOUNDATION SKILL 4)**

- plans a specific project using a selected organizational style. ELA-5-H4
- determines the most effective method of presentation for a selected organizational style. ELA-5-H4
- produces a written, oral, or electronic presentation using a variety of print and/or electronic tools appropriate to grade level, with progressing independence. ELA-5-H4; T-3-G
- uses appropriate resources as needed (glossary, dictionary, thesaurus, spell check) to assist with writing and spelling. ELA-3-H3
- demonstrates ability in proofreading and editing. ELA-2-H3; LEAP
- uses word processing skills for note taking, creating reports, lists and tables and producing and publishing a variety of works. ELA-5-H4; D-7-H; T-1, 2 & 4-F, G & J
- uses a spreadsheet program, creating simple formulas for basic functions. ELA-5-H4; D-7-H; T-1, 2 & 4-F, G & J

- uses a database program with guidance to browse, edit, add, or delete records in a group or class-created database. ELA-5-H4; D-7-H; T-1, 2 & 4-F, G & J
- demonstrates ethical and legal use of information, credits sources of information, and cites references using various formats (footnotes, bibliographies). ELA-5-H5; T-4 & 5-C & D

**EVALUATING EFFORTS**

**(INFORMATION LITERACY STANDARDS 2, 6 & 9)**

- evaluates the end product/project (student and peer).
- evaluates reliability of each source used.
- evaluates by one or more of the following techniques: observation, anecdotal records, checklists, rubrics, portfolios, journals/logs, conferences, etc.

**Algebra I, Part 1  
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**Algebra I: Part 1**  
**Unit 1: Variables and Relationships**

**Unit 1 Grade-Level Expectations (GLEs)**

<b>GLE#</b>	<b>GLE Text and Benchmarks</b>
<b>Number and Number Relations</b>	
2.	Evaluate and write numerical expressions involving integer exponents (N-2-H)
3.	Apply scientific notation to perform computations, solve problems, and write representations of numbers (N-2-H)
4.	Distinguish between an exact and an approximate answer, and recognize errors introduced by the use of approximate numbers with technology (N-3-H) (N-4-H) (N-7-H)

**Sample Activities**

**Activity 7: Using Exponents In Scientific Notation (GLEs: 2, 3)**

Relate the use of exponents to scientific notation (e.g.,  $3.2 \times 10^3 = 3.2 \times 10 \times 10 \times 10 = 3200$ ). Include using negative exponents in the discussion. Discuss how to perform operations involving scientific notation using a calculator. **Have the class research (using Internet or encyclopedias)** why scientific notation was created and its benefit in science and then write a report on their findings.

**Activity 9: Astronomical Measurement (GLEs: 2, 3, 4)**

**Have students use the Internet to find the following astronomical distances:** Earth to the sun; Earth to the moon; Earth to Mars; Earth to Pluto; the sun to Pluto. Also, have students determine the speed of light as well as the maximum rate of speed that one of our manned spacecraft can fly in space. Once students find this information, have them write the distances and the speeds in both simplified form and scientific notation. Ask students if they think the values are exact or approximations and explain why they think so.

**Algebra I: Part 1**  
**Unit 4: Linear Equations, Linear Inequalities, and Graphing**

**Unit 4 Grade-Level Expectations (GLEs)**

<b>GLE #</b>	<b>GLE Text and Benchmarks</b>
<b>Algebra</b>	
9.	Model real-life situations using linear expressions, equations, and inequalities (A-1-H) (D-2-H) (P-5-H)
10.	Identify independent and dependent variables in real-life relationships (A-1-H)
12.	Evaluate polynomial expressions for given values of the variable (A-2-H)
15.	Translate among tabular, graphical, and algebraic representations of functions and real-life situations (A-3-H) (P-1-H) (P-2-H)
<b>Geometry</b>	
23.	Use coordinate methods to solve and interpret problems (e.g., slope as rate of change, intercept as initial value, intersection as common solution, midpoint as equidistant) (G-2-H) (G-3-H)
24.	Graph a line when the slope and a point or when two points are known (G-3-H)
25.	Explain slope as a representation of “rate of change” (G-3-H) (A-1-H)
26.	Perform translations and line reflections on the coordinate plane (G-3-H)
<b>Data Analysis, Probability, and Discrete Math</b>	
<b>Patterns, Relations, and Functions</b>	
37.	Analyze real-life relationships that can be modeled by linear functions (P-1-H) (P-5-H)

**Sample Activities**

**Activity 12: Modeling Functions (GLEs: 9, 10, 12, 15, 23, 24, 25, 37)**

To begin this activity, provide the following situation to students:

*A family is going on a trip. They travel 8 hours a day, averaging 50 mph.  
 It takes 3 days to get to their destination.*

First, have students write an equation that matches the situation. Have students name any variables they use to make their models, and then construct a graph using paper and pencil to display the data. In the process, ask students to determine which of their variables represents the independent variable and which represents the dependent variable. In this case, the function used to model this situation is the distance traveled per day ( $d$ ) equals the speed (50 mph) times the number of hours driven ( $h$  or  $t$ ). So the equation they use to model the situation should be of the form  $d = 50h$ . The  $x$ -axis

(independent) would be the number of hours driven (scale from 0 to 24 hrs) and the y-axis (dependent) would be the number of miles driven (scale from 0 to 1,200 miles). The graph would consist of a straight line starting at the origin (0,0) and going up and to the right, ending at the point (24, 1200). Have the students answer questions concerning the graph (e.g., How far does the family travel in 3 hours? *answer = 150 miles*; How many hours will it take to cover 200 miles? *answer = 4 hours*). Provide students with opportunities to learn that the function produces one output value for each input value. **The *Illuminations* site at <http://www.NCTM.org> has a multitude of activities showing interesting real-life applications that can be modeled by linear functions.** These activities involve the use of graphing calculators to enter data, find lines of best fit, and analyze the resulting graphs.