

**The  
Ohio Graduation Test  
Content Standards  
by Grade Level**



**The St. Charles Preparatory School  
Response by Course and Quarter**

## **THE ST. CHARLES MISSION STATEMENT**

St. Charles Preparatory School is devoted to providing young men of central Ohio with a fundamentally sound preparation for adult Catholic/Christian life, specifically for their college or university years. The school's administration and faculty are committed to modeling and making clear the importance of a personal relationship with God, accurate learning, and an ethic of disciplined work. St. Charles believes that these three elements are critical components of a competent response to Jesus' invitation to work toward the complete manifestation of God's Kingdom.

## **THE OHIO GRADUATION TEST CONTENT STANDARDS**

This booklet presents the St. Charles Preparatory School's response to the required Ohio Graduation Test content standards. Listed in each curricular area are the OGT content standards and the course and quarter in which the content material is covered. As a minimum requirement, each academic instructor of 9th and 10th grade students is obligated to cover, in an adequate manner, all content standards listed in his/her area of study. This booklet is meant to complement and not to supercede Diocesan Department of Education guidelines for minimum standards for teachers.

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# Grades 9-10 English Language Arts Standards

## Legend

### Grade Nine

LT, 1  
Literature Text 1st Qtr.

GR, 3  
Grammar Text 3rd Qtr.

AH, 4  
American History 4th Qtr.

### Grade Ten

BLT, 2  
British Lit. Text 2nd Qtr.

WC, 1  
*Writer's Choice* (comp text) 1st Qtr.

VOC, 3  
Vocabulary 3rd Qtr.

PSAT, 4  
PSAT Study Mat. 4th Qtr.

## Speaking Skills and Strategies Speaking Applications

1. Demonstrate an understanding of the rules of the English language. ~ GR, 1, 2, 3, 4
2. Select language appropriate to purpose and audience. ~ AH, 4; *Composition Review*, 1, 2, 3, 4
3. Use clear diction and tone, and adjust volume and tempo to stress important ideas. ~ AH, 4
4. Adjust speaking content according to the needs of the audience. ~ AH, 4
5. Deliver informational presentations that: GR, 1, 2, 3, 4
  - a. present events or ideas in logical sequence and maintain a clear focus; ~ AH, 4
  - b. demonstrate an understanding of the topic; ~ AH, 4
  - c. include relevant facts and details from multiple sources to develop topic; ~ AH, 4
  - d. organize information, including a clear introduction, body and conclusion; ~ AH, 4
  - e. use appropriate visual materials (e.g., diagrams, charts, illustrations) and available technology; and
  - f. identify sources. ~ AH, 4
6. Deliver formal and informal descriptive presentations recalling an event or personal experience that convey relevant information and descriptive details. ~ AH, 4; *Composition Review*, 1, 2, 3, 4

## Grade Nine

### Phonemic Awareness, Word Recognition and Fluency

Fluency continues to develop past the primary grades. Readers increase their rate of oral reading to near conversational pace. They show their appropriate use of pauses, pitch, stress and intonation that they are reading in clauses and sentence units to support comprehension. They gain control over a wider, complex sight vocabulary and over longer syntactic structures, so that they are able to read progressively more demanding texts with greater ease. Silent reading becomes considerably faster than oral reading and becomes the preferred, more efficient way to process everyday texts.

### Acquisition of Vocabulary

#### Contextual Understanding Conceptual Understanding Structural Understanding Tools and Resources

1. Define unknown words through context clues and the author's use of comparison, contrast and cause and effect. ~ LT/GR, 1, 2, 3, 4

2. Analyze the relationships of pairs of words in analogical statements (e.g., synonyms and antonyms, connotation and denotation) and infer word meanings from these relationships. ~ **LT, 1, 2, 4; GR, 1**
3. Infer the literal and figurative meaning of words and phrases and discuss the function of figurative language, including metaphors (p 543), similes (p592), idioms and puns. ~ **LT, 4**
4. Examine and discuss ways historical events have influenced the English language. ~ **LT, 2, 3**
5. Use knowledge of Greek, Latin and Anglo-Saxon roots, prefixes and suffixes to understand complex words and new subject-area vocabulary (e.g., unknown words in science, mathematics and social studies). ~ **LT, 1, 2, 4; ~ Latin I, 1, 2, 3, 4; Latin II, 1, 2, 3, 4; GR, 1, 2, 3, 4**
6. Determine the meanings and pronunciations of unknown words by using dictionaries, thesauruses, glossaries, technology and textual features, such as definitional footnotes or sidebars ~ **LT/GR, 1, 2, 3, 4**

### **Reading process: Concepts of Print, Comprehension Strategies and Self-Monitoring Strategies**

**In Grades 8 through 12, students should read purposefully and automatically, using the comprehension and self-monitoring strategies outlined in previous grades. As they encounter increasingly challenging content-area and literary texts, students may more consciously employ these strategies and benefit from teacher modeling of the reading process.**

#### **Comprehension Strategies Self-Monitoring Strategies Independent Reading**

1. Apply reading comprehension strategies, including making predictions, comparing and contrasting, recalling and summarizing and making inferences and drawing conclusions. ~ **LT, 1, 2, 3; GR 1, 2, 3, 4**
2. Answer literal, inferential, evaluative and synthesizing questions to demonstrate comprehension of grade-appropriate print texts and electronic and visual media. ~ **LT, 2, 4; GR 1, 2, 3, 4**
3. Monitor own comprehension by adjusting speed to fit the purpose, or by skimming, scanning, reading on, looking back, note taking or summarizing what has been read so far in text. ~ **Study Skills, 1, 2, 3, 4**
4. Use criteria to choose independent reading materials (e.g., personal interest, knowledge of authors and genres or recommendations from others). ~ **Research, 1, 3; GR 1, 2, 3, 4**
5. Independently read books for various purposes (e.g., for enjoyment, for literary experience, to gain information or to perform a task). ~ **Research, 1, 3; GR 1, 2, 3, 4**

#### **Reading Applications: Informational, Technical and Persuasive Text**

1. Identify and understand organizational patterns (e.g., cause-effect, problem-solution) and techniques, including repetition of ideas, syntax and word choice, that authors use to accomplish their purpose and reach their intended audience. ~ **LT, 4; Composition, 1, 2, 3, 4; GR 1, 2, 3, 4**
2. Critique the treatment, scope and organization of ideas from multiple sources on the same topic. ~ **Research, 3; GR, 3**
3. Analyze information found in maps, charts, tables, graphs, diagrams, cutaways and overlays. ~ **Literary Elements; Class handouts, 1, 2, 3, 4; GR, 3**
4. Assess the adequacy, accuracy and appropriateness of an author's details, identifying persuasive techniques (e.g., bandwagon, testimonial, transfer, glittering generalities, emotional word repetition, bait and switch) and examples of propaganda, bias and stereotyping. ~ **AH, 4; GR 1, 2, 3, 4**
5. Analyze an author's implicit and explicit argument, perspective or viewpoint in text. ~ **LT, 3, 4; GR 1, 2, 3, 4**
6. Analyze the author's development of key points to support argument or point of view. ~ **LT, 4; GR 1, 2, 3, 4**
7. Compare and contrast the effectiveness of the features (e.g., format, sequence, headers) used in various consumer documents (e.g., warranties, product information, instructional materials), functional or workplace documents (e.g., job-related materials, memoranda, instructions) and public documents (e.g., speeches or newspaper editorials). ~ **LT, 4**
8. Identify the features of rhetorical devices used in common types of public documents, including newspaper editorials and speeches. ~ **AH, 2, 3, 4**

## Reading Applications: Literary Text

1. Identify and explain an author's use of direct and indirect characterization, and ways in which characters reveal traits about themselves, including dialect, dramatic monologues and soliloquies. ~LT, 1, 2, 3
2. Analyze the influence of setting in relation to other literary elements. ~LT, 1, 2, 3
3. Identify ways in which authors use conflicts (p 32), parallel plots (*TMW*) and subplots in literary texts. ~LT, 1, 3
4. Evaluate the point of view used in a literary text. ~LT, 1, 4
5. Interpret universal themes across different works by the same author and different authors. ~LT, 1
6. Analyze how an author's choice of genre affects the expression of a theme or topic. ~LT, 4
7. Explain how foreshadowing and flashback are used to shape plot in a literary text. ~LT, 1
8. Define and identify types of irony, including verbal, situational and dramatic, used in literary texts. ~LT, 1, 2
9. Analyze ways in which the author conveys mood and tone through word choice, figurative language and syntax. ~LT, 4
10. Explain how authors use symbols to create broader meanings. ~LT, 4
11. Identify sound devices, including alliteration, assonance, consonance and onomatopoeia, used in literary texts. ~LT, 4

## Writing Processes

1. Generate writing ideas through discussions with others and from printed material, and keep a list of writing ideas. ~Compositions, 1, 2, 3, 4; Research, 1
2. Determine the usefulness of and apply appropriate pre-writing tasks (e.g., background reading, interviews or surveys). ~Compositions, 1, 2, 3, 4; GR, 1, 2, 3, 4
3. Establish and develop a clear thesis statement for informational writing or a clear plan or outline for narrative writing. ~Compositions, 1, 2, 3, 4; Research, 3; GR, 1
4. Determine a purpose and audience and plan strategies (e.g., adapting focus, content structure and point of view) to address purpose and audience. ~Compositions, 1, 2, 3, 4

## Drafting, Revising and Editing Publishing

5. Use organizational strategies (e.g., notes and outlines) to plan writing. ~Research, 3
6. Organize writing to create a coherent whole with an effective and engaging introduction, body and conclusion, and a closing sentence that summarizes, extends or elaborates on points or ideas in the writing. ~Compositions, 1, 2, 3, 4
7. Use a variety of sentence structures and lengths (e.g., simple, compound and complex sentences; parallel or repetitive sentence structure). ~GR, 4; Writing Process, 1, 2, 3, 4
8. Use paragraph form in writing, including topic sentences that arrange paragraphs in a logical sequence, using effective transitions and closing sentences and maintaining coherence across the whole through the use of parallel structures. ~GR, 1, 2, 3, 4
9. Use precise language, action verbs, sensory details, colorful modifiers and style as appropriate to audience and purpose and use techniques to convey a personal style and voice. ~Compositions, 1, 2
10. Use available technology to compose text. ~Library Orientation, 1
11. Reread and analyze clarity of writing, consistency of point of view and effectiveness of organizational structure. ~Compositions, 1, 2, 3, 4
12. Add and delete information and details to better elaborate on stated central idea and more effectively accomplish purpose. ~Compositions, 1, 2, 3, 4
13. Rearrange words, sentences and paragraphs, and add transitional words and phrases to clarify meaning and maintain consistent style, tone and voice. ~Compositions, 1, 2, 3, 4
14. Use resources and reference materials (e.g., dictionaries and thesauruses) to select effective and precise vocabulary that maintains consistent style, tone and voice. ~Compositions, 1, 2, 3, 4; GR, 1, 2, 3, 4

15. Proofread writing, edit to improve conventions (e.g., grammar, spelling, punctuation and capitalization), identify and correct fragments and run-ons and eliminate inappropriate slang or informal language. ~ **Compositions, 1, 2, 3, 4**
16. Apply tools (e.g., rubric, checklist and feedback) to judge the quality of writing. ~ **Compositions, 1, 2, 3, 4**
17. Prepare for publication (e.g., for display or for sharing with others) writing that follows a manuscript form appropriate for the purpose, which could include such techniques as electronic resources, principles of design (e.g., margins, tabs, spacing and columns) and graphics (e.g., drawings, charts and graphs) to enhance the final product. ~ **Research, 3; Compositions, 1, 2, 3, 4**

## **Writing Applications**

1. Write narratives that:
  - a. sustain reader interest by pacing action and developing an engaging plot (e.g., tension and suspense); ~ **Compositions, 4**
  - b. use a range of strategies and literary devices including figurative language and specific narration; and, ~ **Diagnostic Essay, 1**
  - c. include an organized, well-developed structure. ~ **LT, 1, 2, 3, 4**
2. Write responses to literature that organize an insightful interpretation around several clear ideas, premises or images and support judgments with specific references to the original text, to other texts, authors and to prior knowledge. ~ **Compositions, 1, 2, 3, 4; LT, 2**
3. Write business letters, letters to the editor and job applications that:
  - a. address audience needs, stated purpose and context in a clear and efficient manner; ~ **GR, 1, 2, 3, 4**
  - b. follow the conventional style appropriate to the text using proper technical terms; ~ **GR, 1, 2, 3, 4**
  - c. include appropriate facts and details; ~ **GR, 1, 2, 3, 4**
  - d. exclude extraneous details and inconsistencies; ~ **GR, 1, 2, 3, 4**
  - e. provide a sense of closure to the writing. ~ **GR, 1, 2, 3, 4**
4. Write informational essays or reports, including research that:
  - a. pose relevant and tightly drawn questions that engage the reader; ~ **GR, 1, 2, 3, 4**
  - b. provide a clear and accurate perspective on the subject; ~ **GR, 1, 2, 3, 4**
  - c. create an organizing structure appropriate to the purpose, audience and context; ~ **GR, 1, 2, 3, 4**
  - d. support the main ideas with facts, details, examples and explanations from sources; ~ **GR, 1, 2, 3, 4**
  - e. document sources and include bibliographies. ~ **GR, 1, 2, 3, 4**
5. Write persuasive compositions that: ~ **Research, 3; Compositions, 1, 2, 3, 4** for each of the following...
  - a. establish and develop a controlling idea;
  - b. support arguments with detailed evidence;
  - c. exclude irrelevant information; and
  - d. cite sources of information.
6. Produce informal writings (e.g., journals, notes and poems) for various purposes. ~ **Research, 3; LT, 4**

## **Writing Conventions**

### **Spelling Punctuation and Capitalization Grammar and Usage**

1. Use correct spelling conventions. ~ **Compositions, 1, 2, 3, 4; 1, 2, 3, 4**
2. Use correct capitalization and punctuation. ~ **GR, 3**
3. Use clauses ~ **GR, 3**
4. Use parallel structure to present items in a series and items juxtaposed for emphasis. ~ **GR, 3**
5. Use proper placement of modifiers. ~ **GR, 1**
6. Maintain the use of appropriate verb tenses. ~ **GR, 1**

## Research

1. Compose open-ended questions for research, assigned or personal interest, and modify questions as necessary during inquiry and investigation to narrow the focus or extend the investigation. ~ **Research, 3**
2. Identify appropriate sources and gather relevant information from multiple sources (e.g., school library catalogs, online databases, electronic resources and Internet-based resources). ~ **Research, 3**
3. Determine the accuracy of sources and the credibility of the author by analyzing the sources' validity (e.g., authority, accuracy, objectivity, publication date and coverage, etc.). ~ **Research, 3**
4. Compile and organize important information and select appropriate sources to support central ideas, concepts and themes. ~ **Compositions, 1, 2, 3, 4**
5. Integrate quotations and citations into written text to maintain a flow of ideas. ~ **Compositions, 1, 2, 3, 4**
6. Use style guides to produce oral and written reports that give proper credit for sources and include an acceptable format for source acknowledgement. ~ **Research, 4**
7. Use a variety of communication techniques, including oral, visual, written or multimedia reports, to present information that supports a clear position about the topic or research question and to maintain an appropriate balance between researched information and original ideas. ~ **AH, 4**

## Communication: Oral and Visual

### Listening and Viewing Speaking Skills and Strategies

1. Apply active listening strategies (e.g., monitoring message for clarity, selecting and organizing essential information, noting cues such as changes in pace) in a variety of settings. ~ **LT, 4; GR, 1, 2, 3, 4**
2. Identify types of arguments used by the speaker, such as authority and appeals to emotion. ~ **Compositions, 1, 2, 3, 4; Literature Analysis, 1, 2, 3, 4; GR, 1, 2, 3, 4**
3. Analyze the credibility of the speaker (e.g., hidden agendas, slanted or biased material) and recognize fallacies of reasoning used in presentations and media messages. ~ **AH, 4**
4. Identify the speaker's choice of language and delivery styles (e.g., repetition, appeal to emotion, eye contact) and explain how they contribute to meaning. ~ **LT, 4**
5. Demonstrate an understanding of the rules of the English language and select language appropriate to purpose and audience. ~ **Diction/Syntax, 1, 2, 3, 4; GR, 1, 2, 3, 4**
6. Adjust volume, phrasing, enunciation, voice modulation and inflection to stress important ideas and impact audience response. ~ **AH, 4**

### Speaking Applications

7. Vary language choices as appropriate to the context of the speech. ~ **AH, 4**
8. Deliver informational presentations (e.g., expository, research) that:
  - a. demonstrate an understanding of the topic and present events or ideas in a logical sequence; ~ **AH, 4**
  - b. support the controlling idea or thesis with well-chosen and relevant facts, details, examples, quotations, statistics, stories and anecdotes; ~ **AH, 4**
  - c. include an effective introduction and conclusion and use a consistent organizational structure (e.g., cause-effect, compare-contrast, problem-solution); ~ **AH, 4**
  - d. use appropriate visual materials (e.g., diagrams, charts, illustrations) and available technology to enhance presentation; and ~ **AH, 4**
  - e. draw from multiple sources, including both primary and secondary sources, and identify sources used. ~ **AH, 4**
9. Deliver formal and informal descriptive presentations that convey relevant information and descriptive details. ~ **AH, 4**
10. Deliver persuasive presentations that:
  - a. establish and develop a logical and controlled argument; ~ **AH, 4**

- b. include relevant evidence, differentiating between evidence and opinion, to support a position and to address counter-arguments or listener bias; ~AH, 4
- c. use persuasive strategies, such as rhetorical devices, anecdotes and appeals to emotion, authority and reason; ~AH, 4
- d. use common organizational structures as appropriate (e.g., cause-effect, compare-contrast, problem-solution); ~AH, 4
- e. use speaking techniques (e.g., reasoning, emotional appeal, case studies or analogies). ~AH, 4

## Grade Ten

### Phonemic Awareness, Word Recognition and Fluency

**Fluency continues to develop past the primary grades. Readers increase their rate of oral reading to near conversational pace. They show their appropriate use of pauses, pitch, stress and intonation that they are reading in clauses and sentence units to support comprehension. They gain control over a wider, complex sight vocabulary and over longer syntactic structures, so that they are able to read progressively more demanding texts with greater ease. Silent reading becomes considerably faster than oral reading and becomes the preferred, more efficient way to process everyday texts.**

#### Acquisition of Vocabulary

1. Define unknown words through context clues and the author’s use of comparison, contrast and cause and effect. ~ VOC, 2, 3; PSAT, 2, 3
2. Analyze the relationships of pairs of words in analogical statements (e.g., synonyms and antonyms, connotation and denotation) and infer word meanings from these relationships. ~ VOC, 2, 3
3. Infer the literal and figurative meaning of words and phrases and discuss the function of figurative language, including metaphors, similes, idioms and puns. ~ BLT, 2, 3
4. Analyze the ways that historical events influenced the English language. ~ BLT, 2, 3
5. Use knowledge of Greek, Latin and Anglo-Saxon roots, prefixes and suffixes to understand complex words and new subject-area vocabulary (e.g., unknown words in science, mathematics and social studies). ~ VOC, 2, 3
6. Determine the meanings and pronunciations of unknown words by using dictionaries, glossaries, technology and textual features, such as definitional footnotes or sidebars. ~ BLT/VOC/WC, 1, 2, 3

#### Reading Process: Concepts of Print, Comprehension Strategies and Self-Monitoring Strategies

**In Grades 8 through 12, students should read purposefully and automatically, using the comprehension and self-monitoring strategies outlined in previous grades. As they encounter increasingly challenging content-area and literary texts, students may more consciously employ these strategies and benefit from teacher modeling of the reading process.**

#### Comprehension Strategies Self-Monitoring Strategies Independent Reading

1. Apply reading comprehension strategies, including making predictions, comparing and contrasting, recalling and summarizing and making inferences and drawing conclusions. ~ BLT, 1, 2, 3
2. Answer literal, inferential, evaluative and synthesizing questions to demonstrate comprehension of grade-appropriate print texts and electronic and visual media. ~ BLT, 1, 2, 3
3. Monitor own comprehension by adjusting speed to fit the purpose, or by skimming, scanning, reading on, looking back, note taking or summarizing what has been read so far in text. ~ WC, 1

4. Use criteria to choose independent reading materials (e.g., personal interest, knowledge of authors and genres or recommendations from others). ~ [BLT, 1, 2, 3](#); [Summer Reading List](#)
5. Independently read books for various purposes (e.g., for enjoyment, for literary experience, to gain information or to perform a task). ~ [Summer Reading List](#)

### **Reading Applications: Informational, Technical and Persuasive Text**

1. Identify and understand organizational patterns (e.g., cause-effect, problem-solution) and techniques, including repetition of ideas, syntax and word choice, that authors use to accomplish their purpose and reach their intended audience. ~ [WC, 1](#)
2. Critique the treatment, scope and organization of ideas from multiple sources on the same topic. ~ [Research, 1](#); [WC, 1](#)
3. Evaluate the effectiveness of information found in maps, charts, tables, graphs, diagrams, cutaways and overlays. ~ [BLT, 1, 2, 3](#); [WC 1, 2, 3](#); [Globe Theater Model, 1, 2, 3](#)
4. Assess the adequacy, accuracy and appropriateness of an author's details, identifying persuasive techniques (e.g., transfer, glittering generalities, bait and switch) and examples of propaganda, bias and stereotyping. ~ [WC, 1](#)
5. Analyze an author's implicit and explicit argument, perspective or viewpoint in text. ~ [BLT, 3](#); [Handouts, 3](#); [WC, 1, 2, 3](#)
6. Identify appeals to authority, reason and emotion. ~ [WC, 1](#)
7. Analyze the effectiveness of the features (e.g., format, graphics, sequence, headers) used in various consumer documents (e.g., warranties, product information, instructional materials), functional or workplace documents (e.g., job-related materials, memoranda, instructions) and public documents (e.g., speeches or newspaper editorials). ~ [WC, 1](#)
8. Describe the features of rhetorical devices used in common types of public documents, including newspaper editorials and speeches. ~ [WC, 1, 2, 3](#); [BLT, 1, 2, 3](#)

### **Reading Applications – Literary Text**

1. Compare and contrast an author's use of direct and indirect characterization, and ways in which characters reveal traits about themselves, including dialect, dramatic monologues and soliloquies (pp 759-774). ~ [BLT, 2, 3](#)
2. Analyze the features of setting and their importance in a literary text. ~ [BLT, 3](#)
3. Distinguish how conflicts, parallel plots and subplots affect the pacing of action in literary text. ~ [BLT, 3](#)
4. Interpret universal themes across different works by the same author or by different authors. ~ [BLT, 2, 3](#)
5. Analyze how an author's choice of genre affects the expression of a theme or topic. ~ [BLT, 2](#)
- e.6. Explain how literary techniques, including foreshadowing and flashback, are used to shape the plot of a literary text. ~ [BLT, 2](#)
7. Recognize how irony is used in a literary text. ~ [BLT, 2, 3](#)
8. Analyze the author's use of point of view, mood and tone. ~ [BLT, 2, 3](#)
9. Explain how authors use symbols to create broader meanings. ~ [BLT, 2, 3](#)
10. Describe the effect of using sound devices in literary texts (e.g., to create rhythm, to appeal to the senses or to establish mood). ~ [BLT, 2, 3](#)
11. Explain ways in which an author develops a point of view and style (e.g., figurative language, sentence structure and tone), and cite specific examples from the text. ~ [BLT, 2, 3](#); [Research, 2, 3](#)

### **Writing Processes**

#### **Prewriting Drafting, Revising and Editing**

1. Generate writing ideas through discussions with others and from printed material, and keep a list of writing ideas. ~ [WC, 1](#)

2. Determine the usefulness of and apply appropriate pre-writing tasks (e.g., background reading, interviews or surveys). ~ WC, 1
3. Establish and develop a clear thesis statement for informational writing or a clear plan or outline for narrative writing. ~ WC, 1
4. Determine a purpose and audience and plan strategies (e.g., adapting focus, content structure, and point of view) to address purpose and audience. ~ WC, 1
5. Use organizational strategies (e.g., notes, outlines) to plan writing. ~ WC, 1
6. Organize writing to create a coherent whole with an effective and engaging introduction, body and conclusion, and a closing sentence that summarizes, extends or elaborates on points or ideas in the writing. ~ WC, 1
7. Use a variety of sentence structures and lengths (e.g., simple, compound and complex sentences; parallel or repetitive sentence structure). ~ WC, 1

### **Publishing**

8. Use paragraph form in writing, including topic sentences that arrange paragraphs in a logical sequence, using effective transitions and closing sentences and maintaining coherence across the whole through the use of parallel structures. ~ WC, 1
9. Use language, including precise language, action verbs, sensory details and colorful modifiers, and style as appropriate to audience and purpose, and use techniques to convey a personal style and voice. ~ WC, 1
10. Use available technology to compose text. ~ WC, 1
11. Reread and analyze clarity of writing, consistency of point of view and effectiveness of organizational structure. ~ WC, 1
12. Add and delete information and details to better elaborate on stated central idea and more effectively accomplish purpose. ~ WC, 1
13. Rearrange words, sentences and paragraphs and add transitional words and phrases to clarify meaning and maintain consistent style, tone and voice. ~ WC, 1
14. Use resources and reference materials (e.g., dictionaries and thesauruses) to select effective and precise vocabulary that maintains consistent style, tone and voice. ~ Research, 3
15. Proofread writing, edit to improve conventions (e.g., grammar, spelling, punctuation and capitalization), identify and correct fragments and run-ons and eliminate inappropriate slang or informal language. ~ WC, 1
16. Apply tools (e.g., rubric, checklist and feedback) to judge the quality of writing. ~ WC, 1
17. Prepare for publication (e.g., for display or for sharing with others) writing that follows a manuscript form appropriate for the purpose, which could include such techniques as electronic resources, principles of design (e.g., margins, tabs, spacing and columns) and graphics (e.g., drawings, charts and graphs) to enhance the final product. ~ WC, 1, 3

### **Writing Applications**

1. Write narratives that:
  - a. sustain reader interest by pacing action and developing an engaging plot (e.g., tension and suspense); ~ WC, 1
  - b. use a range of strategies and literary devices including figurative language and specific narration; ~ WC, 1
  - c. include an organized, well-developed structure. ~ WC, 1
2. Write responses to literature that organize an insightful interpretation around several clear ideas, premises or images and support judgments with specific references to the original text, to other texts, authors and to prior knowledge. ~ WC, 1
3. Write business letters, letters to the editor and job applications that:
  - a. address audience needs, stated purpose and context in a clear and efficient manner; ~ WC, 1
  - b. follow the conventional style appropriate to the text using proper technical terms; ~ WC, 1
  - c. include appropriate facts and details; ~ WC, 1
  - d. exclude extraneous details and inconsistencies; ~ WC, 1

- e. provide a sense of closure to the writing. ~ WC, 1
- 4. Write informational essays or reports, including research that:
  - a. pose relevant and tightly drawn questions that engage the reader. ~ WC, 1
  - b. provide a clear and accurate perspective on the subject. ~ WC, 1
  - c. create an organizing structure appropriate to the purpose, audience and context. ~ WC, 1
  - d. support the main ideas with facts, details, examples and explanations from sources; ~ WC, 1
  - e. document sources and include bibliographies. ~ WC, 1
- 5. Write persuasive compositions that:
  - a. support arguments with detailed evidence; ~ WC, 1
  - b. exclude irrelevant information; ~ WC, 1
  - c. cite sources of information. ~ WC, 1
- 6. Produce informal writings (e.g., journals, notes and poems) for various purposes. ~ Satire, 3

## **Writing Conventions**

### **Spelling Punctuation and Capitalization Grammar and Usage**

- 1. Use correct spelling conventions. ~ VOC, 2, 3
- 2. Use correct capitalization and punctuation. ~ WC, 1
- 3. Use clauses (e.g., main, subordinate) and phrases (e.g., gerund, infinitive, participial). ~ WC, 1
- 4. Use parallel structure to present items in a series and items juxtaposed for emphasis. ~ WC, 1
- 5. Use proper placement of modifiers. ~ WC, 1

### **Research**

- 1. Compose open-ended questions for research, assigned or personal interest, and modify questions as necessary during inquiry and investigation to narrow the focus or extend the investigation. ~ WC, 1
- 2. Identify appropriate sources and gather relevant information from multiple sources (e.g., school library catalogs, online databases, electronic resources and Internet-based resources). ~ WC, 1
- 3. Determine the accuracy of sources and the credibility of the author by analyzing the sources' validity (e.g., authority, accuracy, objectivity, publication date and coverage, etc.). ~ WC, 1
- 4. Evaluate and systematically organize important information, and select appropriate sources to support central ideas, concepts and themes. ~ WC, 1
- 5. Integrate quotations and citations into written text to maintain a flow of ideas. ~ WC, 1
- 6. Use style guides to produce oral and written reports that give proper credit for sources, and include an acceptable format for source acknowledgement. ~ WC, 1
- 7. Use a variety of communication techniques, including oral, visual, written or multimedia reports, to present information that supports a clear position about the topic or research question and to maintain an appropriate balance between researched information and original ideas. ~ AH, 4

## **Communication: Oral and Visual**

### **Listening and Viewing Speaking Skills and Strategies**

- 1. Apply active listening strategies (e.g., monitoring message for clarity, selecting and organizing essential information, noting cues such as changes in pace) in a variety of settings. ~ AH, 4
- 2. Interpret types of arguments used by the speaker such as authority and appeals to audience. ~ WC, 1
- 3. Evaluate the credibility of the speaker (e.g., hidden agendas, slanted or biased material) and recognize fallacies of reasoning used in presentations and media messages. ~ WC, 1
- 4. Identify how language choice and delivery styles (e.g., repetition, appeal to emotion, eye contact) contribute to meaning. ~ AH, 4

5. Demonstrate an understanding of the rules of the English language and select language appropriate to purpose and audience. ~AH, 4

### Speaking Applications

6. Adjust volume, phrasing, enunciation, voice modulation and inflection to stress important ideas and impact audience response. ~AH, 4

7. Vary language choices as appropriate to the context of the speech. ~AH, 4

8. Deliver informational presentations (e.g., expository, research) that:

a. demonstrate an understanding of the topic and present events or ideas in a logical sequence; ~AH, 4

b. support the controlling idea or thesis with well-chosen and relevant facts, details, examples, quotations, statistics, stories and anecdotes; ~AH, 4

c. include an effective introduction and conclusion and use a consistent organizational structure (e.g., cause-effect, compare-contrast, problem-solution); ~AH, 4

d. use appropriate visual materials (e.g., diagrams, charts, illustrations) and available technology to enhance presentation; ~AH, 4

e. draw from multiple sources, including both primary and secondary sources, and identify sources used. ~AH, 4

9. Deliver formal and informal descriptive presentations that convey relevant information and descriptive details. ~AH, 4

10. Deliver persuasive presentations that:

a. establish and develop a logical and controlled argument; ~AH, 4

b. include relevant evidence, differentiating between evidence and opinion, to support a position and to address counter-arguments or listener bias; ~AH, 4

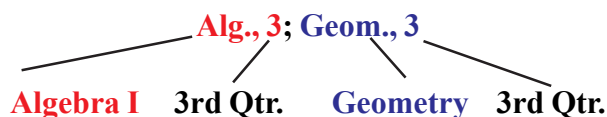
c. use persuasive strategies, such as rhetorical devices, anecdotes and appeals to emotion, authority and reason; ~AH, 4

d. consistently use common organizational structures as appropriate (e.g., cause-effect, compare-contrast, problem-solution); ~AH, 4

e. use speaking techniques (e.g., reasoning, emotional appeal, case studies or analogies). ~AH, 4

# Grades 8-10 Mathematics Standards

## Legend



## Grade Eight

### Number, Number Sense and Operations Standard

#### Number and Number Systems

1. Use scientific notation to express large numbers and small numbers between 0 and 1. ~Alg., 3
2. Recognize that natural numbers, whole numbers, integers, rational numbers and irrational numbers are subsets of the real number system. ~Alg., 1 & 4

#### Meaning of Operations

3. Apply order of operations to simplify expressions and perform computations involving integer exponents and radicals. ~Alg., 1

#### Computation and Estimation

4. Explain and use the inverse and identity properties and use inverse relationships (addition/subtraction, multiplication/division, squaring/square roots) in problem solving situations. ~Alg., 1
5. Determine when an estimate is sufficient and when an exact answer is needed in problem situations, and evaluate estimates in relation to actual answers; e.g., very close, less than, greater than. ~Alg., 4
6. Estimate, compute and solve problems involving rational numbers, including ratio, proportion and percent, and judge the reasonableness of solutions. ~Alg., 1, 2, 3, 4
7. Find the square root of perfect squares, and approximate the square root of non-perfect squares as consecutive integers between which the root lies; e.g., is between 11 and 12. ~Alg., 4
8. Add, subtract, multiply, divide and compare numbers written in scientific notation. ~Alg., 3; Geom., 3

### Measurement Standard

#### Measurement Units

1. Compare and order the relative size of common U.S. customary units and metric units; e.g., mile and kilometer, gallon and liter, pound and kilogram. ~Geom., 3
2. Use proportional relationships and formulas to convert units from one measurement system to another; e.g., degrees Fahrenheit to degrees Celsius. ~Geom., 3

## Use Measurement Techniques and Tools

3. Use appropriate levels of precision when calculating with measurements. ~ Alg. 1, 2, 3, 4; Geom., 1, 2, 3
4. Derive formulas for surface area and volume and justify them using geometric models and common materials. For example, find:
  - a. the surface area of a cylinder as a function of its height and radius; ~ Geom., 3
  - b. that the volume of a pyramid (or cone) is one-third of the volume of a prism (or cylinder) with the same base area and height. ~ Geom., 3
5. Determine surface area for pyramids by analyzing their parts. ~ Geom., 3
6. Solve and determine the reasonableness of the results for problems involving rates and derived measurements, such as velocity and density, using formulas, models and graphs. ~ Geom., 3
7. Apply proportional reasoning to solve problems involving indirect measurements or rates. ~ Geom., 3
8. Find the sum of the interior and exterior angles of regular convex polygons with and without measuring the angles with a protractor. ~ Geom., 1
9. Demonstrate understanding of the concepts of perimeter, circumference and area by using established formulas for triangles, quadrilaterals, and circles to determine the surface area and volume of prisms, pyramids, cylinders, spheres and cones. (Note: Only volume should be calculated for spheres and cones.) ~ Geom., 3
10. Use conventional formulas to find the surface area and volume of prisms, pyramids and cylinders and the volume of spheres and cones to a specified level of precision. ~ Geom., 3

## Geometry and Spatial Sense Standard

### Characteristics and Properties

1. Make and test conjectures about characteristics and properties (e.g., sides, angles, symmetry) of two-dimensional figures and three-dimensional objects. ~ Geom., 1
2. Recognize the angles formed and the relationship between the angles when two lines intersect and when parallel lines are cut by a transversal. ~ Geom., 1

### Spatial Relationships

3. Use proportions in several forms to solve problems involving similar figures (part-to-part, part-to-whole, corresponding sides between figures). ~ Geom., 2

### Transformations and Symmetry

4. Represent and analyze shapes using coordinate geometry; e.g., given three vertices and the type of quadrilateral, find the coordinates of the fourth vertex. ~ Geom., 3; Alg., 3

### Visualization and Geometric Models

5. Draw the results of translations, reflections, rotations and dilations of objects in the coordinate plane, and determine properties that remain fixed; e.g., lengths of sides remain the same under translations. ~ Geom., 3
6. Draw nets for a variety of prisms, pyramids, cylinders and cones. ~ Geom., 3

## Patterns, Functions and Algebra Standard

### Use Patterns, Relations and Functions

1. Relate the various representations of a relationship; i.e., relate a table to graph, description and symbolic form. ~ Alg., 3

2. Generalize patterns and sequences by describing how to find the nth term. ~ Alg., 3

### Use Algebraic Representations

3. Identify functions as linear or nonlinear based on information given in a table, graph or equation. ~ Alg., 3

4. Extend the uses of variables to include covariants where y depends on x. ~ Alg., 3

5. Use physical models to add and subtract monomials and polynomials, and to multiply a polynomial by a monomial. ~ Alg., 2

6. Describe the relationship between the graph of a line and its equation, including being able to explain the meaning of slope as a constant rate of change and y-intercept in real-world problems. ~ Geom., 3, Alg., 3

7. Use symbolic algebra (equations and inequalities), graphs and tables to represent situations and solve problems. ~ Alg., 1, 2, 3, 4

8. Write, simplify and evaluate algebraic expressions (including formulas) to generalize situations and solve problems. ~ Alg., 1, 2, 3, 4; Geom., 1, 2, 3

### Analyze Change

9. Solve linear equations and inequalities graphically, symbolically and using technology. ~ Alg., 3; Geom., 3

10. Solve 2 by 2 systems of linear equations graphically and by simple substitution. ~ Alg., 3; Geom., 1, 2, 3

11. Interpret the meaning of the solution of a 2 by 2 system of equations; i.e., point, line, no solution. ~ Alg., 3; Geom., 3

12. Solve simple quadratic equations graphically; e.g.,  $y = x^2 - 16$ . ~ Alg., 3

13. Compute and interpret slope, midpoint and distance given a set of ordered pairs. ~ Alg., 3; Geom., 3

14. Differentiate and explain types of changes in mathematical relationships, such as linear vs. nonlinear, continuous vs. noncontinuous, direct variation vs. inverse variation. ~ Alg., 3, 4

15. Describe and compare how changes in an equation affects the related graphs; e.g., for a linear equation changing the coefficient of x affects the slope and changing the constant affects the intercepts. ~ Alg., 3

16. Use graphing calculators or computers to analyze change; e.g., interest compounded over time as a nonlinear growth pattern. ~ N/A

### Data Analysis and Probability Standard

#### Data Collection

1. Use, create and interpret scatterplots and other types of graphs as appropriate. ~ Geom., 3

2. Evaluate different graphical representations of the same data to determine which is the most appropriate representation for an identified purpose; e.g., line graph for change over time, circle graph for part-to-whole comparison, scatterplot for relationship between two variants. ~ Alg., 3

#### Statistical Methods

3. Differentiate between discrete and continuous data and appropriate ways to represent each. ~ Alg., 3; Geom., 3

4. Compare two sets of data using measures of center (mean, mode, median) and measures of spread (range, quartiles, interquartile range, percentiles). ~ Alg., 3; Geom., 3

5. Explain the mean's sensitivity to extremes and its use in comparison with the median and mode. ~ Alg., 3; Geom., 3

6. Make conjectures about possible relationship in a scatterplot and approximate line of best fit. ~ Geom., 3

#### Probability

7. Identify different ways of selecting samples, such as survey response, random sample, representative sample and

convenience sample. ~Alg., 3; Geom., 3

8. Describe how the relative size of a sample compared to the target population affects the validity of predictions.

~ Alg., 3; Geom., 3

9. Construct convincing arguments based on analysis of data and interpretation of graphs ~Alg., 3; Geom., 3

10. Calculate the number of possible outcomes for a situation, recognizing and accounting for when items may occur more than once or when order is important. ~Alg., 3; Geom., 3

11. Demonstrate an understanding that the probability of either of two disjoint events occurring can be found by adding the probabilities for each and that the probability of one independent event following another can be found by multiplying the probabilities. ~Alg., 3; Geom., 3

## Grade Nine

### Number, Number Sense and Operations Standard

#### Number and Number Systems

1. Identify and justify whether properties (closure, identity, inverse, commutative and associative) hold for a given set and operations; e.g., even integers and multiplication. ~Alg., 1

#### Meaning of Operations

2. Compare, order and determine equivalent forms for rational and irrational numbers. ~Alg., 4

#### Computation and Estimation

3. Explain the effects of operations such as multiplication or division, and of computing powers and roots on the magnitude of quantities. ~Alg., 1, 2; Geom., 3

4. Demonstrate fluency in computations using real numbers. ~Alg., 1, 2

5. Estimate the solutions for problem situations involving square and cube roots. ~Alg., 4

### Measurement Standard

#### Measurement Units

1. Convert rates within the same measurement system; e.g., miles per hour to feet per second; kilometers per hour to meters per second. ~Geom., 3

#### Use Measurement Techniques and Tools

2. Use unit analysis to check computations involving measurement. ~Geom., 3

3. Use the ratio of lengths in similar two-dimensional figures or three-dimensional objects to calculate the ratio of their areas or volumes respectively. ~Geom., 2

4. Use scale drawings and right triangle trigonometry to solve problems that include unknown distances and angle measures. ~Alg., 4; Geom., 2

5. Solve problems involving unit conversion for situations involving distances, areas, volumes and rates within the same measurement system. ~Geom., 3

## Geometry and Spatial Sense Standard

### Characteristics and Properties

1. Define the basic trigonometric ratios in right triangles: sine, cosine and tangent. ~Alg., 4; Geom., 2
2. Apply proportions and right triangle trigonometric ratios to solve problems involving missing lengths and angle measures in similar figures. ~Alg., 4; Geom., 2

### Visualization and Geometric Models

3. Analyze two-dimensional figures in a coordinate plane; e.g., use slope and distance formulas to show that a quadrilateral is a parallelogram. ~Alg., 3; Geom., 3

## Patterns, Functions and Algebra Standard

### Use Patterns, Relations and Functions

1. Define function with ordered pairs in which each domain element is assigned exactly one range element. ~Alg., 3.
2. Generalize patterns using functions or relationships (linear, quadratic and exponential), and freely translate among tabular, graphical and symbolic representations. ~Alg., 3.
3. Describe problem situations (linear, quadratic and exponential) by using tabular, graphical and symbolic representations. ~Alg., 3.
4. Demonstrate the relationship among zeros of a function, roots of equations, and solutions of equations graphically and in words. ~Alg., 3.

### Use Algebraic Representations

5. Describe and compare characteristics of the following families of functions: linear, quadratic and exponential functions; e.g., general shape, number of roots, domain, range, rate of change, maximum or minimum. ~Alg., 3.
6. Write and use equivalent forms of equations and inequalities in problem situations; e.g., changing a linear equation to the slope-intercept form. ~Alg., 3; Geom., 3
7. Use formulas to solve problems involving exponential growth and decay. ~Alg., 3. Geom., 3
8. Find linear equations that represent lines that pass through a given set of ordered pairs, and find linear equations that represent lines parallel or perpendicular to a given line through a specific point. ~Alg., 3. Geom., 3

### Analyze Change

9. Solve and interpret the meaning of 2 by 2 systems of linear equations graphically, by substitution and by elimination, with and without technology. ~Alg., 3; Geom., 3
10. Solve quadratic equations with real roots by factoring, graphing, using the quadratic formula and with technology. ~Alg., 2, 4; Geom., 3
11. Add, subtract, multiply and divide monomials and polynomials (division of polynomials by monomials only). ~Alg., 2, 3.
12. Simplify rational expressions by eliminating common factors and applying properties of integer exponents. ~Alg., 3.
13. Model and solve problems involving direct and inverse variation using proportional reasoning. ~Alg., 3.
14. Describe the relationship between slope and the graph of a direct variation and inverse variation. ~Alg., 3.
15. Describe how a change in the value of a constant in a linear or quadratic equation affects the related graphs. ~Alg., 3; Geom., 3

## Data Analysis and Probability Standard

### Data Collection

1. Classify data as univariate (single variable) or bivariate (two variables) and as quantitative (measurement) or qualitative (categorical) data. ~ [Geom.](#), 3

### Statistical Methods

2. Create a scatterplot for a set of bivariate data, sketch the line of best fit, and interpret the slope of the line of best fit. . ~ [Alg.](#), 3; [Geom.](#), 3

3. Analyze and interpret frequency distributions based on spread, symmetry, skewness, clusters and outliers. ~ [Alg.](#), 3; [Geom.](#), 3

### Probability

4. Describe and compare various types of studies (survey, observation, experiment), and identify possible misuses of statistical data. ~ [Alg.](#), 3; [Geom.](#), 3

5. Describe characteristics and limitations of sampling methods, and analyze the effects of random versus biased sampling; e.g., determine and justify whether the sample is likely to be representative of the population. ~ [Alg.](#), 3; [Geom.](#), 3

6. Make inferences about relationships in bivariate data, and recognize the difference between evidence of relationship (correlation) and causation. ~ [Alg.](#), 3; [Geom.](#), 3

7. Use counting techniques and the Fundamental Counting principle to determine the total number of possible outcomes for mathematical situations. ~ [Alg.](#), 3; [Geom.](#), 3

8. Describe, create and analyze a sample space and use it to calculate probability. ~ [Alg.](#), 3; [Geom.](#), 3

9. Identify situations involving independent and dependent events, and explain differences between, and common misconceptions about, probabilities associated with those events. ~ [Alg.](#), 3; [Geom.](#), 3

10. Use theoretical and experimental probability, including simulations or random numbers, to estimate probabilities and to solve problems dealing with uncertainty; e.g., compound events, independent events, simple dependent events. ~ [Alg.](#), 3; [Geom.](#), 3

## Grade Ten

### Number, Number Sense and Operations Standard

#### Number and Number Systems Meaning of Operations

1. Connect physical, verbal and symbolic representations of irrational numbers; e.g., construct  $\sqrt{2}$  as a hypotenuse or on a number line. ~ [Geom.](#), 4

#### Computation and Estimation

2. Explain the meaning of the  $n$ th root. ~ [Alg.](#), 4.

3. Use factorial notation and computations to represent and solve problem situations involving arrangements. ~ [Alg.](#), 4

4. Approximate the  $n$ th root of a given number greater than zero between consecutive integers when  $n$  is an integer; e.g., the 4th root of 50 is between 2 and 3. ~ [Alg.](#), 4

## Measurement Standard

### Use Measurement Techniques and Tools

1. Explain how a small error in measurement may lead to a large error in calculated results. ~ Alg., 3
2. Calculate relative error. ~ Alg., 3
3. Explain the difference between absolute error and relative error in measurement. ~ Alg., 3
4. Give examples of how the same absolute error can be problematic in one situation but not in another; e.g., compare "accurate to the nearest foot" when measuring the height of a person versus when measuring the height of a mountain. ~ Alg., 3
5. Determine the measures of central and inscribed angles and their associated major and minor arcs. ~ Geom., 2

## Geometry and Spatial Sense Standard

### Characteristics and Properties

1. Formally define and explain key aspects of geometric figures, including:
  - a. interior and exterior angles of polygons; ~ Geom., 1, 2, 3;
  - b. segments related to triangles (median, altitude, midsegment); ~ Geom., 1, 2, 3;
  - c. points of concurrency related to triangles (centroid, incenter, orthocenter, circumcenter); ~ Geom., 1, 2, 3;
  - d. circles (radius, diameter, chord, circumference, major arc, minor arc, sector, segment, inscribed angle). ~ Geom., 1, 2, 3;

### Spatial Relationships

2. Recognize and explain the necessity for certain terms to remain undefined, such as point, line and plane. ~ Geom., 1
3. Make, test and establish the validity of conjectures about geometric properties and relationships using counterexample, inductive and deductive reasoning, and paragraph or two-column proof, including:
  - a. prove the Pythagorean Theorem; ~ Geom., 1, 2
  - b. prove theorems involving triangle similarity and congruence; ~ Geom., 1, 2
  - c. prove theorems involving properties of lines, angles, triangles and quadrilaterals; ~ Geom., 1, 2
  - d. test a conjecture using basic constructions made with a compass and straightedge or technology. ~ Geom., 1, 2

### Transformation and Symmetry

4. Construct right triangles, equilateral triangles, parallelograms, trapezoids, rectangles, rhombuses, squares and kites, using compass and straightedge or dynamic geometry software. ~ Geom., 3
5. Construct congruent figures and similar figures using tools, such as compass, straightedge, and protractor or dynamic geometry software. ~ Geom., 2
6. Identify the reflection and rotation symmetries of two- and three-dimensional figures. ~ Geom., 3

### Visualization and Geometric Models

7. Perform reflections and rotations using compass and straightedge constructions and dynamic geometry software. ~ Geom., 3
8. Derive coordinate rules for translations, reflections and rotations of geometric figures in the coordinate plane. ~ Geom., 3
9. Show and describe the results of combinations of translations, reflections and rotations (compositions); e.g., perform compositions and specify the result of a composition as the outcome of a single motion, when applicable. ~ Geom., 3
10. Solve problems involving chords, radii and arcs within the same circle. ~ Geom., 2

## Patterns, Functions and Algebra Standard

### Use Patterns, Relations and Functions

1. Define function formally and with  $f(x)$  notation. ~Alg.,3; Geom., 3

### Use Algebraic Representations

2. Describe and compare characteristics of the following families of functions: square root, cubic, absolute value and basic trigonometric functions; e.g., general shape, possible number of roots, domain and range. ~Alg., 3, 4
3. Solve equations and formulas for a specified variable; e.g., express the base of a triangle in terms of the area and height. ~Alg., 2, 3
4. Use algebraic representations and functions to describe and generalize geometric properties and relationships. ~Alg., 2, 3; Geom., 1, 2, 3
5. Solve simple linear and nonlinear equations and inequalities having square roots as coefficients and solutions. ~Alg., 4; Geom., 2
6. Solve equations and inequalities having rational expressions as coefficients and solutions. ~Alg., 3

### Analyze Change

7. Solve systems of linear inequalities. ~Alg., 3
8. Graph the quadratic relationship that defines circles. ~Geom., 3
9. Recognize and explain that the slopes of parallel lines are equal and the slopes of perpendicular lines are negative reciprocals. ~Alg., 3; Geom., 3
10. Solve real-world problems that can be modeled using linear, quadratic, exponential or square root functions. ~Alg., 3; Geom., 3
11. Solve real-world problems that can be modeled, using systems of linear equations and inequalities. ~Alg., 3
12. Describe the relationship between slope of a line through the origin and the tangent function of the angle created by the line and the positive x-axis. ~Alg., 3; Geom., 3

## Data Analysis and Probability Standard

### Data Collection

1. Describe measures of center and the range verbally, graphically and algebraically. ~ Alg., 3; Geom., 3
2. Represent and analyze bivariate data using appropriate graphical displays (scatterplots, parallel box-and-whisker plots, histograms with more than one set of data, tables, charts, spreadsheets) with and without technology. ~Alg., 3; Geom., 3

### Statistical Methods

3. Display bivariate data where at least one variable is categorical. ~Alg., 3; Geom., 3
4. Identify outliers on a data display; e.g., use interquartile range to identify outliers on a box-and-whisker plot. ~Alg.,3; Geom., 3

### Probability

5. Provide examples and explain how a statistic may or may not be an attribute of the entire population; e.g., intentional or unintentional bias may be present. ~Alg.,3; Geom., 3
6. Interpret the relationship between two variables using multiple graphical displays and statistical measures; e.g.,

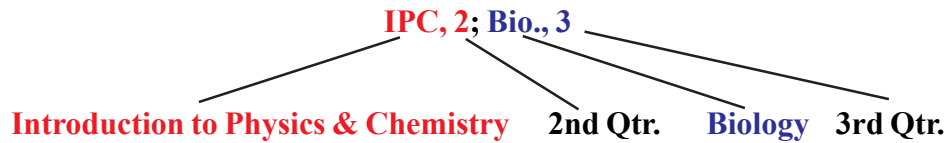
scatterplots, parallel box-and-whisker plots, and measures of center and spread. ~ Alg., 3; Geom., 3

7. Model problems dealing with uncertainty with area models (geometric probability). ~ Geom., 3

8. Differentiate and explain the relationship between the probability of an event and the odds of an event, and compute one given the other. ~ Alg., 3; Geom., 3

# Grades 8-10 Science Standards

## Legend



## Grade Eight

### Earth and Space Sciences

#### The Universe

1. Describe how objects in the solar system are in regular and predictable motions that explain such phenomena as days, years, seasons, eclipses, tides and moon cycles. ~ **IPC, 1**
2. Explain that gravitational force is the dominant force determining motions in the solar system and in particular keeps the planets in orbit around the sun. ~ **IPC, 1**
3. Compare the orbits and composition of comets and asteroids with that of Earth. ~ **IPC, 1**
4. Describe the effect that asteroids or meteoroids have when moving through space and sometimes entering planetary atmospheres (e.g., meteor-"shooting star" and meteorite). ~ **IPC, 1**
5. Explain that the universe consists of billions of galaxies that are classified by shape. ~ **IPC, 1**
6. Explain interstellar distances are measured in light years (e.g., the nearest star beyond the sun is 4.3 light years away). ~ **IPC, 1**
7. Examine the life cycle of a star and predict the next likely stage of a star. ~ **IPC, 2**
8. Name and describe tools used to study the universe (e.g., telescopes, probes, satellites and spacecraft). ~ **IPC, 2**

#### Earth Systems

9. Describe the interior structure of Earth and Earth's crust as divided into tectonic plates riding on top of the slow moving currents of magma in the mantle. ~ **IPC, 1**
10. Explain that most major geological events (e.g., earthquakes, volcanic eruptions, hot spots and mountain building) result from plate motion. ~ **IPC, 4**
11. Use models to analyze the size and shape of Earth, its surface and its interior (e.g., globes, topographic maps, satellite images). ~ **IPC, 1**
12. Explain that some processes involved in the rock cycle are directly related to thermal energy and forces in the mantle that drive plate motions. ~ **IPC, 4**
13. Describe how landforms are created through a combination of destructive (e.g., weathering and erosion) and constructive processes (e.g., crustal deformation, volcanic eruptions and deposition of sediment). ~ **IPC 4**
14. Explain that folding, faulting and uplifting can rearrange the rock layers so the youngest is not always found on top. ~ **IPC, 4**
15. Illustrate how the three primary types of plate boundaries (transform, divergent and convergent) cause different landforms (e.g., mountains, volcanoes and ocean trenches). ~ **IPC, 4**

## **Life Sciences**

### **Heredity**

1. Describe that asexual reproduction limits the spread of detrimental characteristics through a species and allows for genetic continuity. ~ Bio., 2, 3
2. Recognize that in sexual reproduction new combinations of traits are produced which may increase or decrease an organism's chances for survival. ~ Bio., 2, 3

### **Evolutionary Theory**

3. Explain how variations in structure, behavior or physiology allow some organisms to enhance their reproductive success and survival in a particular environment. ~ Bio., 2, 3
4. Explain that diversity of species is developed through gradual processes over many generations (e.g., fossil record). ~ Bio., 2, 3
5. Investigate how an organism adapted to a particular environment may become extinct if the environment, as shown by the fossil record, changes. ~ Bio., 2, 3

## **Physical Sciences**

### **Forces and Motion**

1. Describe how the change in the position (motion) of an object is always judged and described in comparison to a reference point. ~ IPC, 1
2. Explain that motion describes the change in the position of an object (characterized by a speed and direction) as time changes. ~ IPC, 1
3. Explain that an unbalanced force acting on an object changes that object's speed and/or direction. ~ IPC, 1

### **Nature of Energy**

4. Demonstrate that waves transfer energy. ~ IPC, 1
5. Demonstrate that vibrations in materials may produce waves that spread away from the source in all directions (e.g., earthquake waves and sound waves). ~ IPC, 1, 4

## **Science and Technology**

### **Understanding Technology**

1. Examine how science and technology have advanced through the contributions of many different people, cultures and times in history. ~ IPC, 1
2. Examine how choices regarding the use of technology are influenced by constraints caused by various unavoidable factors (e.g., geographic location, limited resources, social, political and economic considerations). ~ IPC, 1, 2, 3, 4

### **Abilities To Do Technological Design**

3. Design and build a product or create a solution to a problem given more than two constraints (e.g., limits of cost and time for design and production, supply of materials and environmental effects). ~ IPC, 1, 2, 3, 4
4. Evaluate the overall effectiveness of a product design or solution. ~ IPC, 1, 2, 3, 4

## Scientific Inquiry

### Doing Scientific Inquiry

1. Choose the appropriate tools or instruments and use relevant safety procedures to complete scientific investigations. ~ IPC, 1, 2, 3, 4
2. Describe the concepts of sample size and control and explain how these affect scientific investigations. ~ IPC, 1, 2, 3, 4
3. Read, construct and interpret data in various forms produced by self and others in both written and oral form (e.g., tables, charts, maps, graphs, diagrams and symbols). ~ IPC, 1, 2, 3, 4
4. Apply appropriate math skills to interpret quantitative data (e.g., mean, median and mode). ~ IPC, 1, 2, 3, 4

## Scientific Ways of Knowing

### Nature of Science

1. Identify the difference between description (e.g., observation and summary) and explanation (e.g., inference, prediction, significance and importance). ~ IPC, 1, 2, 3, 4

## Grade Nine

### Earth and Space Sciences

#### The Universe

1. Describe that stars produce energy from nuclear reactions and that processes in stars have led to the formation of all elements beyond hydrogen and helium. ~ IPC 1, 2
2. Describe the current scientific evidence that supports the theory of the explosive expansion of the universe, the Big Bang, over 10 billion years ago. ~ IPC 1, 2
3. Explain that gravitational forces govern the characteristics and movement patterns of the planets, comets and asteroids in the solar system. ~ IPC 1, 2

#### Earth Systems

4. Explain the relationships of the oceans to the lithosphere and atmosphere (e.g., transfer of energy, ocean currents and landforms). ~ IPC, 4

### Processes That Shape Earth

5. Explain how the slow movement of material within Earth results from:
  - a. thermal energy transfer (conduction and convection) from the deep interior; ~ IPC, 4
  - b. the action of gravitational forces on regions of different density. ~ IPC, 4
6. Explain the results of plate tectonic activity (e.g., magma generation, igneous intrusion, metamorphism, volcanic action, earthquakes, faulting and folding). ~ IPC, 4
7. Explain seafloor spreading and continental drift using scientific evidence (e.g., fossil distributions, magnetic reversals and radiometric dating). ~ IPC, 4

## Historical Perspectives and Scientific Revolutions

8. Use historical examples to explain how new ideas are limited by the context in which they are conceived; are often initially rejected by the scientific establishment; sometimes spring from unexpected findings; and usually grow slowly through contributions from many different investigators (e.g., heliocentric theory and plate tectonics theory). ~ IPC 2, 4

### Life Sciences

**No Indicators present for this standard.**

### Physical Sciences

#### Nature of Matter

1. Recognize that all atoms of the same element contain the same number of protons, and elements with the same number of protons may or may not have the same mass. Those with different masses (different numbers of neutrons) are called isotopes. ~ IPC, 3
2. Illustrate that atoms with the same number of positively charged protons and negatively charged electrons are electrically neutral. ~ IPC, 3
3. Describe radioactive substances as unstable nuclei that undergo random spontaneous nuclear decay emitting particles and/or high energy wavelike radiation. ~ IPC, 3
4. Show that when elements are listed in order according to the number of protons (called the atomic number), the repeating patterns of physical and chemical properties identify families of elements. Recognize that the periodic table was formed as a result of the repeating pattern of electron configurations. ~ IPC, 3
5. Describe how ions are formed when an atom or a group of atoms acquire an unbalanced charge by gaining or losing one or more electrons. ~ IPC, 3
6. Explain that the electric force between the nucleus and the electrons hold an atom together. Relate that on a larger scale, electric forces hold solid and liquid materials together (e.g., salt crystals and water). ~ IPC, 3
7. Show how atoms may be bonded together by losing, gaining or sharing electrons and that in a chemical reaction, the number, type of atoms and total mass must be the same before and after the reaction (e.g., writing correct chemical formulas and writing balanced chemical equations). ~ IPC, 3
8. Demonstrate that the pH scale (0-14) is used to measure acidity and classify substances or solutions as acidic, basic, or neutral. ~ IPC, 3
9. Investigate the properties of pure substances and mixtures (e.g., density, conductivity, hardness, properties of alloys, superconductors and semiconductors). ~ IPC, 3
10. Compare the conductivity of different materials and explain the role of electrons in the ability to conduct electricity. ~ IPC, 2, 3

#### Nature of Energy

11. Explain how thermal energy exists in the random motion and vibrations of atoms and molecules. Recognize that the higher the temperature, the greater the average atomic or molecular motion, and during changes of state the temperature remains constant. ~ IPC, 2
12. Explain how an object's kinetic energy depends on its mass and its speed ( $KE = \frac{1}{2}mv^2$ ). ~ IPC, 1
13. Demonstrate that near Earth's surface an object's gravitational potential energy depends upon its weight ( $mg$  where  $m$  is the object's mass and  $g$  is the acceleration due to gravity) and height ( $h$ ) above a reference surface ( $PE = mgh$ ). ~ IPC, 1
14. Summarize how nuclear reactions convert a small amount of matter into a large amount of energy. (Fission involves the splitting of a large nucleus into smaller nuclei; fusion is the joining of two small nuclei into a larger nucleus at extremely high energies.) ~ IPC, 3

15. Trace the transformations of energy within a system (e.g., chemical to electrical to mechanical) and recognize that energy is conserved. Show that these transformations involve the release of some thermal energy. ~ IPC, 1
16. Illustrate that chemical reactions are either endothermic or exothermic (e.g., cold packs, hot packs and the burning of fossil fuels). ~ IPC, 2
17. Demonstrate that thermal energy can be transferred by conduction, convection or radiation (e.g., through materials by the collision of particles, moving air masses or across empty space by forms of electromagnetic radiation). ~ IPC, 2
18. Demonstrate that electromagnetic radiation is a form of energy. Recognize that light acts as a wave. Show that visible light is a part of the electromagnetic spectrum (e.g., radio waves, microwaves, infrared, visible light, ultraviolet, X-rays, and gamma rays). ~ IPC, 2
19. Show how the properties of a wave depend on the properties of the medium through which it travels. Recognize that electromagnetic waves can be propagated without a medium. ~ IPC, 2
20. Describe how waves can superimpose on one another when propagated in the same medium. Analyze conditions in which waves can bend around corners, reflect off surfaces, are absorbed by materials they enter, and change direction and speed when entering a different material. ~ IPC, 2

### **Forces and Motion**

21. Demonstrate that motion is a measurable quantity that depends on the observer's frame of reference and describe the object's motion in terms of position, velocity, acceleration and time. ~ IPC, 1
22. Demonstrate that any object does not accelerate (remains at rest or maintains a constant speed and direction of motion) unless an unbalanced (net) force acts on it. ~ IPC, 1
23. Explain the change in motion (acceleration) of an object. Demonstrate that the acceleration is proportional to the net force acting on the object and inversely proportional to the mass of the object. ( $F_{\text{net}} = ma$ . Note that weight is the gravitational force on a mass.) ~ IPC, 1
24. Demonstrate that whenever one object exerts a force on another, an equal amount of force is exerted back on the first object. ~ IPC, 1
25. Demonstrate the ways in which frictional forces constrain the motion of objects (e.g., a car traveling around a curve, a block on an inclined plane, a person running, an airplane in flight). ~ IPC, 1

### **Historical Perspectives and Scientific Revolutions**

26. Use historical examples to explain how new ideas are limited by the context in which they are conceived; are often initially rejected by the scientific establishment; sometimes spring from unexpected findings; and usually grow slowly through contributions from many different investigators (e.g., atomic theory, quantum theory and Newtonian mechanics). ~ IPC, 1, 3
27. Describe advances and issues in physical science that have important, long-lasting effects on science and society (e.g., atomic theory, quantum theory, Newtonian mechanics, nuclear energy, nanotechnology, plastics, ceramics and communication technology). ~ IPC, 3

### **Science and Technology**

#### **Understanding Technology**

1. Describe means of comparing the benefits with the risks of technology and how science can inform public policy. ~ IPC, 1

#### Abilities To Do Technological Design

2. Identify a problem or need, propose designs and choose among alternative solutions for the problem. ~ IPC, 1

3. Explain why a design should be continually assessed and the ideas of the design should be tested, adapted and refined. ~ IPC, 1

## **Scientific Inquiry**

### **Doing Scientific Inquiry**

1. Distinguish between observations and inferences given a scientific situation. ~ IPC, 1
2. Research and apply appropriate safety precautions when designing and conducting scientific investigations (e.g., OSHA, Material Safety Data Sheets [MSDS], eyewash, goggles and ventilation). ~ IPC, 1
3. Construct, interpret and apply physical and conceptual models that represent or explain systems, objects, events or concepts. ~ IPC, 1, 2, 3, 4
4. Decide what degree of precision based on the data is adequate and round off the results of calculator operations to the proper number of significant figures to reasonably reflect those of the inputs. ~ IPC, 1
5. Develop oral and written presentations using clear language, accurate data, appropriate graphs, tables, maps and available technology. ~ IPC, 1, 2, 3, 4
6. Draw logical conclusions based on scientific knowledge and evidence from investigations. ~ IPC, 1, 2, 3, 4

## **Scientific Ways of Knowing**

### **Nature of Science**

1. Comprehend that many scientific investigations require the contributions of women and men from different disciplines in and out of science. These people study different topics, use different techniques and have different standards of evidence but share a common purpose - to better understand a portion of our universe. ~ IPC, 1, 2, 3, 4
2. Illustrate that the methods and procedures used to obtain evidence must be clearly reported to enhance opportunities for further investigations. ~ IPC, 1
3. Demonstrate that reliable scientific evidence improves the ability of scientists to offer accurate predictions. ~ IPC, 1

### **Ethical Practices**

4. Explain how support of ethical practices in science (e.g., individual observations and confirmations, accurate reporting, peer review and publication) are required to reduce bias. ~ IPC, 1

## **Scientific Theories**

5. Justify that scientific theories are explanations of large bodies of information and/or observations that withstand repeated testing. ~ IPC, 1
6. Explain that inquiry fuels observation and experimentation that produce data that are the foundation of scientific disciplines. Theories are explanations of these data. ~ IPC, 1, 2, 3, 4
7. Recognize that scientific knowledge and explanations have changed over time, almost always building on earlier knowledge. ~ IPC, 1, 2, 3, 4

## **Science and Society**

8. Illustrate that much can be learned about the internal workings of science and the nature of science from the study of scientists, their daily work and their efforts to advance scientific knowledge in their area of study. ~ IPC 1, 2, 3, 4
9. Investigate how the knowledge, skills and interests learned in science classes apply to the careers students plan to pursue. ~ IPC, 1, 2, 3, 4

# Grade Ten

## Earth and Space Sciences

### Earth Systems

1. Summarize the relationship between the climatic zone and the resultant biomes. (This includes explaining the nature of the rainfall and temperature of the mid-latitude climatic zone that supports the deciduous forest.) ~ Bio., 3
2. Explain climate and weather patterns associated with certain geographic locations and features (e.g., tornado alley, tropical hurricanes and lake effect snow). ~ Bio., 3
3. Explain how geologic time can be estimated by multiple methods (e.g., rock sequences, fossil correlation and radiometric dating). ~ Bio., 2
4. Describe how organisms on Earth contributed to the dramatic change in oxygen content of Earth's early atmosphere. ~ Bio., 2
5. Explain how the acquisition and use of resources, urban growth and waste disposal can accelerate natural change and impact the quality of life. ~ Bio., 1
6. Describe ways that human activity can alter biogeochemical cycles (e.g., carbon and nitrogen cycles) as well as food webs and energy pyramids (e.g., pest control, legume rotation crops vs. chemical fertilizers). ~ Bio., 1, 3

### Historical Perspectives and Scientific Revolutions

7. Describe advances and issues in Earth and space science that have important long-lasting effects on science and society (e.g., geologic time scales, global warming, depletion of resources and exponential population growth). ~ Bio., 1, 2, 3

## Life Sciences

### Characteristics and Structure of Life

1. Explain that living cells
  - a. are composed of a small number of key chemical elements (carbon, hydrogen, oxygen, nitrogen, phosphorus and sulfur) ~ Bio., 1
  - b. are the basic unit of structure and function of all living things ~ Bio., 1
  - c. come from preexisting cells after life originated ~ Bio., 1
  - d. are different from viruses ~ Bio., 1, 2
2. Compare the structure, function and interrelatedness of cell organelles in eukaryotic cells (e.g., nucleus, chromosome, mitochondria, cell membrane, cell wall, chloroplast, cilia, flagella) and prokaryotic cells. ~ Bio., 1
3. Explain the characteristics of life as indicated by cellular processes including
  - a. homeostasis ~ Bio., 1, 2, 3
  - b. energy transfers and transformation ~ Bio., 1, 3
  - c. transportation of molecules ~ Bio., 1, 3
  - d. disposal of wastes ~ Bio., 1, 3
  - e. synthesis of new molecules ~ Bio., 1
4. Summarize the general processes of cell division and differentiation, and explain why specialized cells are useful to organisms and explain that complex multicellular organisms are formed as highly organized arrangements of differentiated cells. ~ Bio., 1, 3

## Heredity

5. Illustrate the relationship of the structure and function of DNA to protein synthesis and the characteristics of an organism. ~ Bio., 2, 3
6. Explain that a unit of hereditary information is called a gene, and genes may occur in different forms called alleles (e.g., gene for pea plant height has two alleles, tall and short). ~ Bio., 2, 3
7. Describe that spontaneous changes in DNA are mutations, which are a source of genetic variation. When mutations occur in sex cells, they may be passed on to future generations; mutations that occur in body cells may affect the functioning of that cell or the organism in which that cell is found. ~ Bio., 2, 3
8. Use the concepts of Mendelian and non-Mendelian genetics (e.g., segregation, independent assortment, dominant and recessive traits, sex-linked traits and jumping genes) to explain inheritance. ~ Bio., 2, 3

## Diversity and Interdependence of Life

9. Describe how matter cycles and energy flows through different levels of organization in living systems and between living systems and the physical environment. Explain how some energy is stored and much is dissipated into the environment as thermal energy (e.g., food webs and energy pyramids). ~ Bio., 1, 3
10. Describe how cells and organisms acquire and release energy (photosynthesis, chemosynthesis, cellular respiration and fermentation). ~ Bio., 1
11. Explain that living organisms use matter and energy to synthesize a variety of organic molecules (e.g., proteins, carbohydrates, lipids and nucleic acids) and to drive life processes (e.g., growth, reacting to the environment, reproduction and movement). ~ Bio., 1, 2, 3
12. Describe that biological classification represents how organisms are related with species being the most fundamental unit of the classification system. Relate how biologists arrange organisms into a hierarchy of groups and subgroups based on similarities and differences that reflect their evolutionary relationships. ~ Bio., 3
13. Explain that the variation of organisms within a species increases the likelihood that at least some members of a species will survive under gradually changing environmental conditions. ~ Bio., 2
14. Relate diversity and adaptation to structures and their functions in living organisms (e.g., adaptive radiation). ~ Bio 1, 3
15. Explain how living things interact with biotic and abiotic components of the environment (e.g., predation, competition, natural disasters and weather). ~ Bio., 1, 3
16. Relate how distribution and abundance of organisms and populations in ecosystems are limited by the ability of the ecosystem to recycle materials and the availability of matter, space and energy. ~ Bio., 1
17. Conclude that ecosystems tend to have cyclic fluctuations around a state of approximate equilibrium that can change when climate changes, when one or more new species appear as a result of immigration or when one or more species disappear. ~ Bio., 1, 3
18. Describe ways that human activities can deliberately or inadvertently alter the equilibrium in ecosystems. Explain how changes in technology/biotechnology can cause significant changes, either positive or negative, in environmental quality and carrying capacity. ~ Bio., 1, 2, 3
19. Illustrate how uses of resources at local, state, regional, national, and global levels have affected the quality of life (e.g., energy production and sustainable vs. nonsustainable agriculture). ~ Bio., 1

## Evolutionary Theory

20. Recognize that a change in gene frequency (genetic composition) in a population over time is a foundation of biological evolution. ~ Bio., 2
21. Explain that natural selection provides the following mechanism for evolution; undirected variation in inherited characteristics exist within every species. These characteristics may give individuals an advantage or disadvantage compared to others in surviving and reproducing. The advantaged offspring are more likely to survive and reproduce. Therefore, the proportion of individuals that have advantageous characteristics will increase. When an environment

changes, the survival value of some inherited characteristics may change. ~ Bio., 2, 3

22. Describe historical scientific developments that occurred in evolutionary thought (e.g., Lamarck and Darwin, Mendelian Genetics and modern synthesis). ~ Bio., 2

23. Describe how scientists continue to investigate and critically analyze aspects of evolutionary theory. (The intent of this indicator does not mandate the teaching or testing of intelligent design.) ~ Bio., 2, 3

24. Analyze how natural selection and other evolutionary mechanisms (e.g. genetic drift, immigration, emigration, mutation) and their consequences provide a scientific explanation for the diversity and unity of past life forms, as depicted in the fossil record, and present life forms. ~ Bio., 2, 3

25. Explain that life on Earth is thought to have begun as simple, one celled organisms approximately 4 billion years ago. During most of the history of Earth only single celled microorganisms existed, but once cells with nuclei developed about a billion years ago, increasingly complex multicellular organisms evolved. ~ Bio., 1, 2, 3

### **Historical Perspectives and Scientific Revolutions**

26. Use historical examples to explain how new ideas are limited by the context in which they are conceived. These ideas are often rejected by the scientific establishment; sometimes spring from unexpected findings; and usually grow slowly through contributions from many different investigators (e.g., biological evolution, germ theory, biotechnology and discovering germs). ~ Bio., 2, 3

27. Describe advances in life sciences that have important long-lasting effects on science and society (e.g., biological evolution, germ theory, biotechnology and discovering germs). ~ Bio., 1, 2, 3

28. Analyze and investigate emerging scientific issues (e.g., genetically modified food, stem cell research, genetic research and cloning). ~ Bio., 1, 2, 3

### **Physical Sciences**

**No Indicators present for this standard.**

### **Science and Technology**

#### **Understanding Technology**

1. Cite examples of ways that scientific inquiry is driven by the desire to understand the natural world and how technology is driven by the need to meet human needs and solve human problems. ~ IPC, 2, 3

2. Describe examples of scientific advances and emerging technologies and how they may impact society. ~ IPC, 3

#### **Abilities To Do Technological Design**

3. Explain that when evaluating a design for a device or process, thought should be given to how it will be manufactured, operated, maintained, replaced and disposed of in addition to who will sell, operate and take care of it. Explain how the costs associated with these considerations may introduce additional constraints on the design. ~ IPC, 1, 2, 3

### **Scientific Inquiry**

#### **Doing Scientific Inquiry**

1. Research and apply appropriate safety precautions when designing and conducting scientific investigations (e.g. OSHA, MSDS, eyewash, goggles and ventilation). ~ IPC, 3, 4

2. Present scientific findings using clear language, accurate data, appropriate graphs, tables, maps and available technology. ~ IPC 1, 2, 3

3. Use mathematical models to predict and analyze natural phenomena. ~ IPC, 1, 2, 3

4. Draw conclusions from inquiries based on scientific knowledge and principles, the use of logic and evidence (data) from investigations. ~ IPC, 1, 2, 3
5. Explain how new scientific data can cause any existing scientific explanation to be supported, revised or rejected. ~ IPC1, 2, 3

## **Scientific Ways of Knowing**

### **Nature of Science**

1. Discuss science as a dynamic body of knowledge that can lead to the development of entirely new disciplines. ~ IPC, 1, 2, 3
2. Describe that scientists may disagree about explanations of phenomena, about interpretation of data or about the value of rival theories, but they do agree that questioning, response to criticism and open communication are integral to the process of science. ~ IPC, 1, 2, 3
3. Recognize that science is a systematic method of continuing investigation, based on observation, hypothesis testing, measurement, experimentation, and theory building, which leads to more adequate explanations of natural phenomena. ~ IPC, 1, 2, 3

### **Ethical Practices**

4. Recognize that ethical considerations limit what scientists can do. ~ IPC, 1
5. Recognize that research involving voluntary human subjects should be conducted only with the informed consent of the subjects and follow rigid guidelines and/or laws. ~ IPC, 1
6. Recognize that animal-based research must be conducted according to currently accepted professional standards and laws. ~ IPC, 1

### **Science and Society**

7. Investigate how the knowledge, skills and interests learned in science classes apply to the careers students plan to pursue. ~ IPC, 1, 3

# Grades 8-10 Social Studies Standards

## Legend



## Grade Eight

### History

#### Chronology

1. Select events and construct a multiple-tier time line to show relationships among events. ~AH, 1

#### The First Global Age

2. Describe the political, religious and economic aspects of North American colonization including:
  - a. Reasons for colonization, including religion, desire for land and economic opportunity; ~AH, 1
  - b. Key differences among the Spanish, French and British colonies; ~AH, 1
  - c. Interactions between American Indians and European settlers, including the agricultural and cultural exchanges, alliances and conflicts; ~AH, 2
  - d. Indentured servitude and the introduction and institutionalization of slavery; ~AH, 1
  - e. Early representative Governments and democratic practices that emerged, including town meetings and colonial assemblies; ~AH, 1
  - f. Conflicts among colonial powers for control of North America. ~AH, 1

#### Revolution

3. Identify and explain the sources of conflict which led to the American Revolution, with emphasis on the perspectives of the Patriots, Loyalists, neutral colonists and the British concerning:
  - a. The Proclamation of 1763, the Stamp Act, the Townshend Acts, the Tea Act and the Intolerable Acts; ~AH, 1
  - b. The Boston Tea Party, the boycotts, the Sons of Liberty and petitions and appeals to Parliament. ~AH, 1
4. Explain the results of important developments of the American Revolution including:
  - a. A declaration of American independence; ~AH, 1
  - b. Character and significance of the military struggle in the North in the early years of the war and the shift of the battle to the South after 1779; ~AH, 1
  - c. Creation of state constitutions; ~AH, 1
  - d. Impacts on women, African-Americans and American Indians. ~AH, 1

#### A New Nation

5. Explain major domestic problems faced by the leaders of the new republic under the Articles of Confederation including:
  - a. Maintaining national security; ~AH, 1
  - b. Creating a stable economic system; ~AH, 1

- c. Dealing with war debts; ~AH, 1
  - d. Collecting revenue; ~AH, 1
  - e. Defining the authority of the central Government. ~AH, 1
6. Explain the challenges in writing and ratifying the U.S. Constitution including: ~AH, 1
- a. Issues debated during the convention resulting in compromises (i.e., the Great Compromise, the Three-Fifths Compromise and the compromise over the slave trade); ~AH, 1
  - b. The Federalist/Anti-Federalist debate ~AH, 1
  - c. The debate over a Bill of Rights. ~AH, 1
7. Describe the actions taken to build one country from 13 states including:
- a. The precedents established by George Washington, including the cabinet and a two-term presidency; ~AH, 1
  - b. Alexander Hamilton's actions to create a financially strong country, including the creation of a national bank; ~AH, 1
  - c. The establishment of an independent federal court system. ~AH, 1

### **Civil War and Reconstruction**

8. Describe and analyze the territorial expansion of the United States including:
- a. Northwest Ordinance; ~AH, 1
  - b. The Louisiana Purchase and the Lewis and Clark expedition; ~AH, 1
  - c. Westward movement including Manifest Destiny; ~AH, 1
  - d. The Texas War for Independence and the Mexican-American War. ~AH, 1
9. Explain causes of the Civil War with emphasis on: ~AH, 1
- a. Slavery; ~AH, 1
  - b. States' rights; ~AH, 1, 2
  - c. The different economies of the North and South. ~AH, 2
  - d. The extension of slavery into the territories, including the Dred Scott Decision and the Kansas-Nebraska Act; ~AH, 2
  - e. The abolitionist movement and the roles of Frederick Douglass and John Brown; ~AH, 2
  - f. The addition of new states to the Union and their impact on the balance of power in the Senate, including the Missouri Compromise and the Compromise of 1850; ~AH, 2
  - g. The emergence of Abraham Lincoln as a national figure in the Lincoln-Douglas debates, the presidential election of 1860, and the South's secession. ~AH, 2
10. Explain the course and consequences of the Civil War with emphasis on
- a. Contributions of key individuals, including Abraham Lincoln, Robert E. Lee and Ulysses S. Grant; ~AH, 2
  - b. The Emancipation Proclamation; ~AH, 2
  - c. The Battle of Gettysburg. ~AH, 2
11. Analyze the consequences of Reconstruction with emphasis on:
- a. President Lincoln's assassination and the ensuing struggle for control of Reconstruction, including the impeachment of President Andrew Johnson; ~AH, 2
  - b. Attempts to protect the rights of and enhance opportunities for the freedmen, including the basic provisions of the 13th, 14th and 15th Amendments to the U.S. Constitution ~AH, 2
  - c. The Ku Klux Klan and the enactment of black codes. ~AH, 2

### **People in Societies**

#### **Interaction**

1. Trace the development of religious diversity in the colonies, and analyze how the concept of religious freedom has evolved in the United States. ~AH, 1, 2, 3, 4
2. Describe and explain the social, economic and political effects of:
- a. Stereotyping and prejudice; ~AH, 1, 2, 3, 4

- b. Racism and discrimination; ~AH, 1, 2, 3, 4
  - c. Institutionalized racism and institutionalized discrimination. ~AH, 1, 2, 3, 4
3. Analyze how contact between white settlers and American Indians resulted in treaties, land acquisition and Indian removal. ~AH, 2
  4. Analyze the economic, geographic, religious and political factors that contributed to:
    - a. The enslavement of Africans in North America; ~AH, 1
    - b. Resistance to slavery.~AH, 1
  5. Describe the historical limitations on participation of women in U.S. society and their efforts to gain equal rights.~AH, 1

### **Diffusion**

6. Explain how the diverse peoples of the United States developed a common national identity.~AH, 1

### **Geography**

#### **Places and Regions**

1. Compare places and regions in the United States as they existed prior to 1877 with the same places and regions today to analyze changes in land use and population, political, social and economic characteristics.~AH, 1, 2, 3

#### **Human Environmental Interaction**

2. Analyze how physical characteristics of the environment influenced population distribution, settlement patterns and economic activities in the United States during the 18th and 19th centuries.~AH, 1, 2

### **Movement**

3. Explain how colonization, westward expansion, immigration and advances in transportation and communication changed geographic patterns in the United States.~AH, 2, 3

### **Economics**

#### **Scarcity and Resource Allocation**

1. Explain how the uneven distribution of productive resources influenced historic events such as the Civil War.~AH, 2; Econ., 3

### **Markets**

2. Discuss how mercantilism and the establishment of colonies led to increased global trading during the 17th and 18th centuries.~AH, 1; Econ., 3
3. Explain the purpose and effects of trade barriers such as tariffs enacted before the Civil War.~AH, 1; Econ., 3

#### **Government and the Economy**

4. Explain how lack of power to regulate the economy contributed to the demise of the Articles of Confederation and the creation of U.S. Constitution. ~AH, 2; Gov., 1
5. Explain how Governmental protection of property rights and regulation of economic activity impacted the development of the U.S. economy.~AH, 1, 3; Gov., 1, 2

## Government

### Role of Government

1. Analyze the principles of self-Government and natural rights expressed in the Declaration of Independence and their relationship to Enlightenment ideas. ~AH, 1; Gov., 1
2. Explain how political parties developed as a result of attempts to resolve issues in the early years of the United States including:
  - a. Payment of debt; ~AH, 1; Gov., 1, 2
  - b. Establishment of a national bank; ~AH, 1; Gov., 1, 2
  - c. Strict or loose interpretation of the Constitution; ~AH, 1; Gov., 1, 2
  - d. Support for England or France. ~AH, 1

### Rules and Laws

3. Explain how events and issues demonstrated the need for a stronger form of Governance in the early years of the United States:
  - a. Shays's Rebellion ~AH, 1
  - b. Economic instability; ~AH, 1
  - c. Government under the Articles of Confederation. ~AH, 1; Gov., 1
4. Explain the political concepts expressed in the U.S. Constitution:
  - a. Representative democracy; ~AH, 1; Gov., 1
  - b. Federalism; ~AH, 1; Gov., 1
  - c. Bicameralism; ~AH, 1; Gov., 1
  - d. Separation of powers; ~AH, 1; Gov., 1
  - e. Checks and balances. ~AH, 1, 2, 3; Gov., 1
5. Explain how the U.S. Constitution protects the rights of citizens, regulates the use of territory, manages conflict and establishes order and security. ~AH, 1, 2, 3, 4; Gov., 1, 2
6. Explain how specific provisions of the U.S. Constitution, including the Bill of Rights, limit the powers of Government in order to protect the rights of individuals with emphasis on:
  - a. Freedom of religion, speech, press, assembly and petition; ~AH, 1; Gov., 1
  - b. Right to trial by jury and the right to counsel; ~AH, 1; Gov., 1
  - c. Due process and equal protection of the laws. ~AH, 1; Gov., 1, 2
7. Explain how the Northwest Ordinance established principles and procedures for the orderly expansion of the United States. ~AH, 1
8. Describe the process by which a bill becomes a law. ~Gov., 1

### Citizenship Rights and Responsibilities

#### Participation

1. Show the relationship between participating in civic and political life and the attainment of individual and public goals including:
  - a. The Sons of Liberty and Committees of Correspondence/American independence; ~AH, 1
  - b. The Underground Railroad and the abolitionist movement/Abolition of slavery. ~AH, 2
2. Explain how the opportunities for civic participation expanded during the first half of the 19th century including:
  - a. Nominating conventions; ~AH, 1; Gov., 1, 2
  - b. Expansion of the franchise; ~AH, 2; Gov., 1, 2
  - c. Active campaigning. ~AH, 1, 3, 4; Gov., 1, 2

## Rights and Responsibilities

3. Evaluate the role of historical figures and political bodies in furthering and restricting the rights of individuals including:
  - a. Jefferson and the contradiction between the ideals of the Declaration of Independence and his role as a slave owner; ~AH, 1
  - b. State constitutional conventions and the disenfranchisement of free blacks; ~AH, 1, 2; Gov., 1, 2
  - c. Jackson and his role in Indian removal; ~AH, 1
  - d. Frederick Douglass and the abolitionist movement; ~AH, 2
  - e. Elizabeth Cady Stanton and women's rights. ~AH, 2, 3; Gov., 1, 2
4. Show connections between the rights and responsibilities of citizenship including:
  - a. Voting and staying informed on issues; ~AH, 1; Gov., 1, 2
  - b. Being tried by a jury and serving on juries; ~AH, 1; Gov., 1, 2
  - c. Having rights and respecting the rights of others. ~AH, 1; Gov., 1, 2

## Social Studies Skills and Methods

### Obtaining Information

1. Compare accuracy and point of view of fiction and nonfiction sources about a particular era or event. ~AH, 1, 2, 3, 4

### Communicating Information

2. Construct a historical narrative using primary and secondary sources. ~AH, 4
3. Write a position paper or give an oral presentation that includes citation of sources. ~AH, 4

### Problem Solving

4. Organize and lead a discussion. ~AH, 4
5. Identify ways to manage conflict within a group. ~AH, 4

## Grade Nine

### History

#### Enlightenment Ideas

1. Explain how Enlightenment ideas produced enduring effects on political, economic and cultural institutions, including challenges to religious authority, monarchy and absolutism. ~AH, 1; Gov., 1
2. Explain connections among Enlightenment ideas, the American Revolution, the French Revolution and Latin American wars for independence. ~AH, 1; Gov., 1

#### Industrialization

3. Explain the causes and effects of the Industrial Revolution with emphasis on:
  - a. How scientific and technological changes promoted industrialization in the textile industry in England; ~AH, 1
  - b. The impact of the growth of population, rural-to-urban migrations, growth of industrial cities, and emigration out of Europe; ~AH, 1; Gov., 2
  - c. The changing role of labor and the rise of the union movement; ~AH, 3
  - d. Changes in living and working conditions for the early industrial working class, especially women and children; ~AH, 3

e. The growth of industrialization around the world. ~AH, 3, 4

## Imperialism

4. Describe the political, economic and social roots of imperialism. ~AH, 3; Gov., 1

5. Analyze the perspectives of the colonizers and the colonized concerning:

a. Indigenous language; ~AH, 1, 3

b. Natural resources; ~AH, 1

c. Labor; ~AH, 1

d. Political systems; ~AH, 1, 3

e. Religion. ~AH, 1, 3

6. Explain the global impact of imperialism including:

a. Modernization of Japan; ~AH, 4

b. Political and social reform in China ~AH, 4

c. Exploitation of African resources. ~AH, 1

## 20th Century Conflict

7. Analyze the causes and effects of World War I with emphasis on:

a. Militarism, imperialism, nationalism and alliances; ~AH, 3

b. The global scope, outcomes and human costs of the war; ~AH, 3

c. The role of new technologies and practices including the use of poison gas, trench warfare, machine guns, airplanes, submarines and tanks; ~AH, 3

d. The Treaty of Versailles and the League of Nations. ~AH, 3

8. Analyze the causes and consequences of the Russian Revolution including:

a. The lack of economic, political and social reforms under the tsars; ~AH, 3

b. The impact of World War I; ~AH, 3

c. The emergence of Lenin, Stalin and the Bolsheviks; ~AH, 3

d. The rise of communism in Russia. ~AH, 3

9. Assess the global impact of post-World War I economic, social and political turmoil including:

a. Disarmament; ~AH, 3

b. Worldwide depression; ~AH, 3; Econ., 3

c. Colonial rebellion; ~AH, 3

d. Rise of militarist and totalitarian states in Europe and Asia. ~AH, 3

10. Analyze the causes of World War II including:

a. Appeasement; ~AH, 4

b. Axis expansion; ~AH, 4

c. The role of the Allies. ~AH, 4

11. Analyze the consequences of World War II including:

a. Atomic weapons; ~AH, 4

b. Civilian and military losses ~AH, 4

c. The Holocaust and its impact; ~AH, 4

d. Refugees and poverty; ~AH, 4

e. The United Nations; ~AH, 4

f. The establishment of the state of Israel. ~AH, 4

12. Analyze the impact of conflicting political and economic ideologies after World War II that resulted in the Cold War including:

a. Soviet expansion in Eastern Europe; ~AH, 4; Econ., 3

b. The division of Germany; ~AH, 4

c. The emergence of NATO and the Warsaw Pact; ~AH, 4

- d. The Chinese Communist Revolution. ~AH, 4
- 13. Examine social, economic and political struggles resulting from colonialism and imperialism including:
  - a. Independence movements in India, Indochina and Africa. ~AH, 4; Gov., 1
  - b. Rise of dictatorships in former colonies. ~Gov., 1
- 14. Explain the causes and consequences of the fall of the Soviet Union and the end of the Cold War including:
  - a. The arms buildup; ~AH, 4
  - b. Ethnic unrest in the Soviet Union; ~AH, 4
  - c. Independence movements in former Soviet satellites; ~AH, 4
  - d. Global decline of communism. ~AH, 4
- 15. Examine regional and ethnic conflict in the post-Cold War era including:
  - a. Persistent conflict in the Middle East; ~AH, 4
  - b. Ethnic strife in Europe, Africa and Asia. ~AH, 4

## People in Societies

### Cultures

- 1. Analyze examples of how people in different cultures view events from different perspectives including:
  - a. Creation of the state of Israel; ~AH, 4
  - b. Partition of India and Pakistan; ~AH, 4
  - c. Reunification of Germany; ~AH, 4
  - d. End of apartheid in South Africa. ~AH, 4

### Interaction

- 2. Analyze the results of political, economic, and social oppression and the violation of human rights including:
  - a. The exploitation of indigenous peoples; ~AH, 4
  - b. The Holocaust and other acts of genocide, including those that have occurred in Armenia, Rwanda, Bosnia and Iraq. ~AH, 4

### Diffusion

- 3. Explain how advances in communication and transportation have impacted:
  - a. Globalization; ~AH, 1, 2
  - b. Cooperation and conflict; ~AH, 4
  - c. The environment; ~AH, 3
  - d. Collective security; ~AH, 4
  - e. Popular culture; ~AH, 3, 4
  - f. Political systems; ~AH, 3
  - g. Religion. ~AH, 4

## Geography

### Places and Regions

- 1. Interpret data to make comparisons between and among countries and regions including:
  - a. Birth rates; ~Gov., 1
  - b. Death rates; ~Gov., 1
  - c. Infant mortality rates; ~Gov., 1
  - d. Education levels; ~Gov., 1

- e. Per capita Gross Domestic Product (GDP). ~ Econ., 3
- 2. Explain how differing points of view play a role in conflicts over territory and resources. ~ AH, 2, 3
- 3. Explain how political and economic conditions, resources, geographic locations and cultures have contributed to cooperation and conflict. ~ AH, 1, 2, 3, 4

### **Human Environmental Interaction**

- 4. Explain the causes and consequences of urbanization including economic development, population growth and environmental change. ~ Econ., 3

### **Movement**

- 5. Analyze the social, political, economic and environmental factors that have contributed to human migration now and in the past. ~ AH, 1; Econ., 3

### **Economics**

#### **Markets**

- 1. Describe costs and benefits of trade with regard to:
  - a. Standard of living; ~ Econ., 3
  - b. Productive capacity; ~ Econ., 3
  - c. Usage of productive resource ~ Econ., 3
  - d. Infrastructure. ~ Econ., 3
- 2. Explain how changing methods of production and a country's productive resources affect how it answers the fundamental economic questions of what to produce, how to produce, and for whom to produce. ~ Econ., 3
- 3. Analyze characteristics of traditional, market, command and mixed economies with regard to:
  - a. Private property; ~ Econ., 3
  - b. Freedom of enterprise; ~ Econ., 3
  - c. Competition and consumer choice; ~ Econ., 3
  - d. The role of Government. ~ Econ., 3

### **Government and the Economy**

- 4. Analyze the economic costs and benefits of protectionism, tariffs, quotas and blockades on international trade. ~ Econ., 3

### **Government**

#### **Systems of Government**

- 1. Explain how various systems of Governments acquire, use and justify their power. ~ Gov., 1
- 2. Analyze the purposes, structures and functions of various systems of Government including:
  - a. Absolute monarchies; ~ Gov., 1
  - b. Constitutional monarchies; ~ Gov., 1
  - c. Parliamentary democracies; ~ Gov., 1
  - d. Presidential democracies; ~ Gov., 1
  - e. Dictatorships; ~ Gov., 1
  - f. Theocracies. ~ Gov., 1

## Citizenship Rights and Responsibilities

### Participation

1. Analyze and evaluate the influence of various forms of citizen action on public policy including:
  - a. The French Revolution; ~AH, 1; Gov., 1
  - b. The international movement to abolish the slave trade and slavery; ~AH, 1; Gov., 1
  - c. The Russian Revolution; ~AH, 3; Gov., 1
  - d. The independence movement in India; ~AH, 4; Gov., 1
  - e. The fall of communism in Europe ~AH, 4; Gov., 1
  - f. The end of apartheid. ~AH, 4; Gov., 1
2. Describe and compare opportunities for citizen participation under different systems of Government including:
  - a. Absolute monarchies; ~AH, 1; Gov., 1
  - b. Constitutional monarchies; ~Gov., 1
  - c. Parliamentary democracies; ~Gov., 1
  - d. Presidential democracies; ~AH, 1; Gov., 1
  - e. Dictatorships; ~Gov., 1
  - f. Theocracies. ~Gov., 1
3. Analyze how Governments and other groups have used propaganda to influence public opinion and behavior. ~AH, 3; Gov., 1

## Social Studies Skills and Methods

### Thinking and Organizing

1. Detect bias and propaganda in primary and secondary sources of information. ~AH, 1, 2, 3, 4
2. Evaluate the credibility of sources for:
  - a. Logical fallacies; ~AH, 1, 2, 3, 4
  - b. Consistency of arguments; ~AH, 1, 2, 3, 4
  - c. Unstated assumptions; ~AH, 1, 2, 3, 4
  - d. Bias. ~AH, 1, 2, 3, 4
3. Analyze the reliability of sources for:
  - a. Accurate use of facts; ~AH, 1, 2, 3, 4
  - b. Adequate support of statements; ~AH, 1, 2, 3, 4
  - c. Date of publication. ~AH, 1, 2, 3, 4

### Communicating Information

4. Develop and present a research project including:
  - a. Collection of data; ~AH, 4
  - b. Narrowing and refining the topic; ~AH, 4
  - c. Construction and support of the thesis. ~AH, 4

# Grade Ten

## History

### Industrialization

1. Explain the effects of industrialization in the United States in the 19th century including:
  - a. Changes in work and the workplace; ~AH, 3
  - b. Immigration and child labor and their impact on the labor force; ~AH, 3
  - c. Modernization of agriculture; ~AH, 3
  - d. Urbanization; ~AH, 3
  - e. The emergence of a middle class and its impact on leisure, art, music, literature and other aspects of culture. ~AH, 3
2. Analyze the impact of industrialization and the modern corporation in the United States on economic and political practices with emphasis on:
  - a. Laissez-faire policies; ~AH, 3; Econ., 3
  - b. Monopolies; ~AH, 3; Econ., 3
  - c. Standard of living. ~AH, 3; Econ., 3
3. Analyze the reasons for the rise and growth of labor organizations in the United States (i.e., Knights of Labor, American Federation of Labor and Congress of Industrial Organizations) including:
  - a. Unregulated working conditions; ~AH, 3; Econ., 3
  - b. Laissez-faire policies toward big business; ~AH, 3; Econ., 3
  - c. Violence toward supporters of organized labor. ~AH, 3, 4; Econ., 3
4. Explain the goals and outcomes of the late 19th and early 20th century reform movements of Populism and Progressivism with emphasis on:
  - a. Urban reforms; ~AH, 3; Gov., 1
  - b. Conservation; ~AH, 3
  - c. Business regulation and antitrust legislation; ~AH, 3; Econ., 3
  - d. The movement for public schooling; ~AH, 3
  - e. The regulation of child labor. ~AH, 3; Gov., 1

### Imperialism

5. Trace the development of the United States as a world power with emphasis on:
  - a. The Spanish-American War; ~AH, 3
  - b. U.S. imperialism in the Far East, South Pacific, Caribbean and Central America. ~AH, 3

### 20th Century Conflict

6. Trace the development of the United States as a world power with emphasis on:
  - a. The decision to enter into World War I; ~AH, 3
  - b. President Wilson's Fourteen Points; ~AH, 3; Gov., 2
  - c. The Treaty of Versailles; ~AH, 3; Gov., 2
  - d. The decision of the United States not to participate in the League of Nations. ~AH, 3; Gov., 2
7. Analyze the impact of U.S. participation in World War II, with emphasis on the change from isolationism to international involvement including the reaction to the attack on Pearl Harbor. ~AH, 4
8. Explain how the Cold War and related conflicts influenced U.S. foreign policy after 1945 with emphasis on:
  - a. The Marshall Plan; ~AH, 4; Gov., 2
  - b. Communist containment, including the Truman Doctrine, Berlin Blockade and Cuban Missile Crisis; ~AH, 4; Gov., 2

c. The Korean War and the Vietnam War. ~AH, 4; Gov., 2

## The United States in the 20th Century

9. Analyze the major political, economic and social developments of the 1920s including:
  - a. The Red Scare; ~AH, 3; Gov., 2
  - b. Women's right to vote; ~AH, 3; Gov., 1
  - c. African-American migrations from the South to the North; ~AH, 3; Gov., 2
  - d. Immigration restrictions, nativism, race riots and the reemergence of the Ku Klux Klan; ~AH, 3; Gov., 2
  - e. The Roaring Twenties and the Harlem Renaissance; ~AH, 3
  - f. Stock market speculation and the stock market crash of 1929. ~AH, 3; Econ., 3
10. Analyze the causes and consequences of major political, economic and social developments of the 1930s with emphasis on:
  - a. The Great Depression; ~AH, 3; Econ., 3
  - b. The Dust Bowl; ~AH, 3
  - c. The New Deal. ~AH, 3; Econ., 3
11. Analyze the impact of U.S. participation in World War II with emphasis on:
  - a. Events on the home front to support the war effort, including industrial mobilization, women and minorities in the workforce; ~AH, 4
  - b. The internment of Japanese-Americans. ~AH, 4
12. Explain major domestic developments after 1945 with emphasis on:
  - a. Postwar prosperity in the United States; ~AH, 4
  - b. McCarthyism; ~AH, 4
  - c. The space race; ~AH, 4
  - d. Immigration patterns. ~AH, 4; Gov., 2
13. Trace social unrest, protest and change in the United States including:
  - a. Antiwar protest during the Vietnam War; ~AH, 4
  - b. The counterculture movement; ~AH, 4
  - c. The women's liberation movement. ~AH, 4; Gov., 2
14. Analyze the origins, major developments, controversies and consequences of the civil rights movement with emphasis on:
  - a. Brown v. Board of Education; ~AH, 4; Gov., 2
  - b. Changes in goals and tactics of leading civil rights advocates and organizations; ~AH, 4
  - c. The linkages between the civil rights movement and movements to gain justice for other minority groups. ~AH, 4; Gov., 2

## People in Societies

### Cultures

1. Describe how the perspectives of cultural groups helped to create political action groups such as:
  - a. The National Association for the Advancement of Colored People (NAACP); ~AH, 3
  - b. National Organization for Women (NOW); ~AH, 4; Gov., 2
  - c. American Indian Movement (AIM); ~AH, 4
  - d. United Farm Workers. ~AH, 4
2. Analyze the perspectives that are evident in African-American, American Indian and Latino art, music, literature and media and how these contributions reflect and shape culture in the United States. ~AH, 4

## Interaction

3. Explain how Jim Crow laws legalized discrimination based on race. ~AH, 3; Gov., 2
4. Analyze the struggle for racial and gender equality and its impact on the changing status of minorities since the late 19th century. ~AH, 3

## Diffusion

5. Explain the effects of immigration on society in the United States:
  - a. Housing patterns; ~AH, 3
  - b. Political affiliation; ~AH, 3; Gov., 2
  - c. Education system; ~AH, 3; Gov., 2
  - d. Language; ~AH, 3
  - e. Labor practices; ~AH, 3
  - f. Religion. ~AH, 3

## Geography

### Places and Regions

1. Explain how perceptions and characteristics of geographic regions in the United States have changed over time including:
  - a. Urban areas; ~AH, 1, 2, 3, 4
  - b. Wilderness; ~AH, 2
  - c. Farmland; ~AH, 2, 3
  - d. Centers of industry and technology. ~AH, 3

### Human Environmental Interaction

2. Describe how changes in technology, transportation and communication affect the location and patterns of economic activities and use of productive resources. ~Econ., 3

## Movement

3. Analyze the geographic processes that contributed to changes in American society including:
  - a. Industrialization and post-industrialization; ~AH, 2, 3; Econ., 3
  - b. Urbanization and suburbanization; ~AH, 3; Gov., 2
  - c. Immigration. ~AH, 3; Gov., 2

## Economics

### Markets

1. Evaluate the effects of specialization, trade and interdependence on the economic system of the United States. ~Econ., 3
2. Analyze the development and impacts of labor unions, farm organizations and business organizations on the U.S. economy. ~Econ., 3

## Government and the Economy

3. Demonstrate how U.S. Governmental policies, including taxes, antitrust legislation and environmental regulations affect individuals and businesses. ~ Econ., 3
4. Explain the reasons for the creation of the Federal Reserve System and its importance to the economy. ~ Econ., 3
5. Analyze the impact of the Great Depression and World War II on the economy of the United States and the resulting expansion of the role of the federal Government. ~ AH, 4; Econ., 3;

### Government

#### Rules and Laws

1. Examine the U.S. Constitution as a living document by analyzing its evolution through amendments and Supreme Court decisions including:
  - a. Plessy v. Ferguson; ~ AH, 3; Gov., 1, 2
  - b. Brown v. Board of Education; ~ AH, 3; Gov., 1, 2
  - c. Regents of the University of California v. Bakke. ~ Gov., 1, 2
2. Explain why the 19th and 26th Amendments were enacted and how they affected individuals and groups. ~ AH, 4; Gov., 1, 2

### Citizenship Rights and Responsibilities

#### Participation

1. Describe the ways in which Government policy has been shaped and set by the influence of political parties, interest groups, lobbyists, the media and public opinion with emphasis on:
    - a. Extension of suffrage; ~ AH, 3; Gov., 1, 2
    - b. Labor legislation; ~ AH, 3; Gov., 1, 2
    - c. Civil rights legislation; ~ AH 3, 4; Gov. 1, 2
    - d. Military policy; ~ Gov., 1, 2
    - e. Environmental legislation; ~ AH 3; Gov., 1, 2
    - f. Business regulation; ~ AH, 3; Gov., 1, 2
    - g. Educational policy. ~ AH, 2, 3; Gov., 1, 2
- Explain how civil disobedience differs from other forms of dissent and evaluate its application and consequences including:
- a. Women's suffrage movement of the late 1800s; ~ AH, 2; Gov., 1, 2
  - b. Civil rights movement of the 1960s; ~ AH, 4; Gov., 1, 2
  - c. Student protests during the Vietnam War. ~ AH, 4; Gov., 1, 2

#### Rights and Responsibilities

3. Explain the considerations and criteria commonly used in determining what limits should be placed on specific rights including:
  - a. Clear and present danger; ~ Gov., 1, 2
  - b. Compelling Government interest; ~ Gov., 1, 2
  - c. National security; ~ Gov., 1, 2
  - d. Libel or slander; ~ AH, 2, 3; Gov., 1, 2
  - e. Public safety; ~ Gov., 1, 2
  - f. Equal opportunity. ~ AH, 2, 3, 4; Gov., 1, 2

4. Analyze instances in which the rights of individuals were restricted including:
  - a. Conscientious objectors in World War I; ~AH, 3
  - b. Immigrants during the Red Scare; ~AH, 3; Gov., 1, 2
  - c. Intellectuals and artists during the McCarthy Era; ~AH, 4
  - d. African-Americans during the civil rights movement. ~AH, 2, 3, 4; Gov., 2

### **Social Studies Skills and Methods**

#### **Thinking and Organizing**

1. Determine the credibility of sources by considering the following:
  - a. The qualifications and reputation of the writer; ~AH, 4
  - b. Agreement with other credible sources; ~AH, 1, 2, 3, 4
  - c. Recognition of stereotypes; ~AH, 4
  - d. Accuracy and consistency of sources; ~AH, 1, 2, 3, 4
  - e. The circumstances in which the author prepared the source. ~AH, 4
2. Critique evidence used to support a thesis. ~AH, 4

#### **Communicating Information**

3. Analyze one or more issues and present a persuasive argument to defend a position. ~AH, 1, 2, 3, 4