



# Content Standards Guide for Parents

## Grade 5

Grandville Public Schools  
Office of Curriculum & Instruction

Dear Parents,

Grandville Public Schools prides itself on high academic expectations and successful partnerships with parents. Working together creates the best opportunity for student success.

As educators, we regularly review and update our curriculum in order to provide students with the skills and knowledge necessary to be successful in the twenty-first century. While these standards outline the State approved content to be taught at each grade level, it is our progressive and individualized classroom instruction that provides the means by which students master the content. By establishing a solid home-school partnership, we can work together to create high expectations and assure a positive learning environment for all students.

This guide has been designed to provide you with an understanding of the standards and curricular content for fifth grade. It is our hope that it gives clarity of your child's learning at school and helps you support their progress at home.

As always, you should never hesitate to contact your child's teacher, building principal or me with any curricular questions you might have. Thank you for your continued support of our teaching and learning.

Sincerely,

Scott Merkel  
Asst. Superintendent for Curriculum & Instruction

## English Language Arts Standards

---

### **Overview**

In grade five, students will continue to build important reading, writing, speaking, and listening skills. They will read more challenging literature, articles, and other sources of information and continue to grow their vocabulary. Students will also be expected to understand and clearly summarize what they have learned from readings and classroom discussions, referring to specific evidence and details from the text. Students will write regularly and continue to develop their ability to gather, organize, interpret, and present information. Activities in these areas will include:

- Determining the theme of a story, play, or poem, including how characters respond to challenges
- Comparing and contrasting stories that deal with similar themes or topics
- Explaining how authors use reasons and evidence to support their points or ideas
- Drawing on information from multiple books, articles, or online sources to locate an answer or to solve a problem quickly
- Learning the rules of spoken and written English
- Learning and using new words, including words related to specific subjects (such as science words)
- Understanding figurative language
- Participating in class discussions by listening, asking questions, sharing ideas, and building on the ideas of others
- Giving a class presentation on a topic or telling a story, introducing relevant facts and details in a clear, logical order
- Writing research or opinion papers over extended periods of time

### **Reading: Literature**

#### ***Key Ideas and Details:***

- Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
- Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
- Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).

#### ***Craft and Structure:***

- Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.
- Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.
- Describe how a narrator's or speaker's point of view influences how events are described.

#### ***Integration of Knowledge and Ideas:***

Grandville Public Schools  
Grade 5 Curriculum Standards

- Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).
- Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.

***Range of Reading and Level of Text Complexity:***

- By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4-5 text complexity band independently and proficiently.

**Reading: Informational Text**

***Key Ideas and Details:***

- Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
- Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
- Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

***Craft and Structure:***

- Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area*.
- Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.
- Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.

***Integration of Knowledge and Ideas:***

- Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
- Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).
- Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

***Range of Reading and Level of Text Complexity:***

- By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently.

**Reading: Foundational Skills**

***Phonics and Word Recognition:***

- Know and apply grade-level phonics and word analysis skills in decoding words.

Grandville Public Schools  
Grade 5 Curriculum Standards

- Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

***Fluency:***

- Read with sufficient accuracy and fluency to support comprehension.
  - Read grade-level text with purpose and understanding.
  - Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
  - Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

**Writing**

***Text Types and Purposes:***

- Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
  - Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose.
  - Provide logically ordered reasons that are supported by facts and details.
  - Link opinion and reasons using words, phrases, and clauses (e.g., *consequently, specifically*).
  - Provide a concluding statement or section related to the opinion presented.
- Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
  - Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
  - Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
  - Link ideas within and across categories of information using words, phrases, and clauses (e.g., *in contrast, especially*).
  - Use precise language and domain-specific vocabulary to inform about or explain the topic.
  - Provide a concluding statement or section related to the information or explanation presented.
- Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
  - Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.

Grandville Public Schools  
Grade 5 Curriculum Standards

- Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations.
- Use a variety of transitional words, phrases, and clauses to manage the sequence of events.
- Use concrete words and phrases and sensory details to convey experiences and events precisely.
- Provide a conclusion that follows from the narrated experiences or events.

***Production and Distribution of Writing:***

- Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3 above.)
- With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
- With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.

***Research to Build and Present Knowledge:***

- Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
- Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
- Draw evidence from literary or informational texts to support analysis, reflection, and research.
  - Apply grade 5 Reading standards to literature (e.g., "Compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]").
  - Apply grade 5 Reading standards to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]").

***Range of Writing:***

- Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

**Speaking & Listening**

***Comprehension and Collaboration:***

Grandville Public Schools  
Grade 5 Curriculum Standards

- Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly.
  - Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
  - Follow agreed-upon rules for discussions and carry out assigned roles.
  - Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
  - Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.
- Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.

***Presentation of Knowledge and Ideas:***

- Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
- Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
- Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation.

**Language**

***Conventions of Standard English:***

- Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
  - Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences.
  - Form and use the perfect (e.g., *I had walked*; *I have walked*; *I will have walked*) verb tenses.
  - Use verb tense to convey various times, sequences, states, and conditions.
  - Recognize and correct inappropriate shifts in verb tense.\*
  - Use correlative conjunctions (e.g., *either/or*, *neither/nor*).
- Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
  - Use punctuation to separate items in a series.\*
  - Use a comma to separate an introductory element from the rest of the sentence.

Grandville Public Schools  
Grade 5 Curriculum Standards

- Use a comma to set off the words *yes* and *no* (e.g., *Yes, thank you*), to set off a tag question from the rest of the sentence (e.g., *It's true, isn't it?*), and to indicate direct address (e.g., *Is that you, Steve?*).
- Use underlining, quotation marks, or italics to indicate titles of works.
- Spell grade-appropriate words correctly, consulting references as needed.

**Knowledge of Language:**

- Use knowledge of language and its conventions when writing, speaking, reading, or listening.
  - Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.
  - Compare and contrast the varieties of English (e.g., *dialects, registers*) used in stories, dramas, or poems.

**Vocabulary Acquisition and Use:**

- Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies.
  - Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.
  - Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *photograph, photosynthesis*).
  - Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
- Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
  - Interpret figurative language, including similes and metaphors, in context.
  - Recognize and explain the meaning of common idioms, adages, and proverbs.
  - Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.
- Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., *however, although, nevertheless, similarly, moreover, in addition*).



## **Mathematics Standards**

---

### **Introduction**

In Grade 5, instructional time should focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume.

1. Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)
2. Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.
3. Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems.

## **Grade 5 Overview**

### ***Operations and Algebraic Thinking***

- Write and interpret numerical expressions.
- Analyze patterns and relationships.

### ***Number and Operations in Base Ten***

- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

### ***Number and Operations—Fractions***

- Use equivalent fractions as a strategy to add and subtract fractions.
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

### ***Measurement and Data***

- Convert like measurement units within a given measurement system.
- Represent and interpret data.
- Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

### ***Geometry***

- Graph points on the coordinate plane to solve real-world and mathematical problems.
- Classify two-dimensional figures into categories based on their properties.

### ***Mathematical Practices***

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

### **Operations & Algebraic Thinking**

#### ***Write and interpret numerical expressions.***

- Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
- Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as  $2 \times (8 + 7)$ . Recognize that  $3 \times (18932 + 921)$  is three times as large as  $18932 + 921$ , without having to calculate the indicated sum or product.*

#### ***Analyze patterns and relationships.***

- Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*

### **Number & Operations in Base Ten**

#### ***Understand the place value system.***

- Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and  $1/10$  of what it represents in the place to its left.
- Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
- Read, write, and compare decimals to thousandths.
  - Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g.,  $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$ .
  - Compare two decimals to thousandths based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.
- Use place value understanding to round decimals to any place.

#### ***Perform operations with multi-digit whole numbers and with decimals to hundredths.***

- Fluently multiply multi-digit whole numbers using the standard algorithm.
- Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

- Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

### **Number & Operations – Fractions**

***Use equivalent fractions as a strategy to add and subtract fractions.***

- Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example,  $2/3 + 5/4 = 8/12 + 15/12 = 23/12$ . (In general,  $a/b + c/d = (ad + bc)/bd$ .)*
- Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result  $2/5 + 1/2 = 3/7$ , by observing that  $3/7 < 1/2$ .*

***Apply and extend previous understandings of multiplication and division.***

- Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret  $3/4$  as the result of dividing 3 by 4, noting that  $3/4$  multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size  $3/4$ . If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*
- Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
  - Interpret the product  $(a/b) \times q$  as a parts of a partition of  $q$  into  $b$  equal parts; equivalently, as the result of a sequence of operations  $a \times q \div b$ . *For example, use a visual fraction model to show  $(2/3) \times 4 = 8/3$ , and create a story context for this equation. Do the same with  $(2/3) \times (4/5) = 8/15$ . (In general,  $(a/b) \times (c/d) = ac/bd$ .)*
  - Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
- Interpret multiplication as scaling (resizing), by:
  - Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.

- Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence  $a/b = (n \times a)/(n \times b)$  to the effect of multiplying  $a/b$  by 1.
- Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
- Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.<sup>1</sup>
  - Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for  $(1/3) \div 4$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that  $(1/3) \div 4 = 1/12$  because  $(1/12) \times 4 = 1/3$ .*
  - Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for  $4 \div (1/5)$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that  $4 \div (1/5) = 20$  because  $20 \times (1/5) = 4$ .*
- Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share  $1/2$  lb of chocolate equally? How many  $1/3$ -cup servings are in 2 cups of raisins?*

### **Measurement & Data**

#### ***Convert like measurement units within a given measurement system.***

- Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

#### ***Represent and interpret data.***

- Make a line plot to display a data set of measurements in fractions of a unit ( $1/2$ ,  $1/4$ ,  $1/8$ ). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

#### ***Geometric measurement: understand concepts of volume.***

- Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
  - A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.

- A solid figure which can be packed without gaps or overlaps using  $n$  unit cubes is said to have a volume of  $n$  cubic units.
  - Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
- Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
  - Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
  - Apply the formulas  $V = l \times w \times h$  and  $V = b \times h$  for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.
  - Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

### **Geometry**

#### ***Graph points on the coordinate plane to solve real-world and mathematical problems.***

- Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g.,  $x$ -axis and  $x$ -coordinate,  $y$ -axis and  $y$ -coordinate).
- Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

#### ***Classify two-dimensional figures into categories based on their properties.***

- Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.
- Classify two-dimensional figures in a hierarchy based on properties.

## **Science Standards**

---

### **Overview:**

Discipline 1: Science Processes & Inquiry

Discipline 2: Physical Science

- Standard: Force and Motion
  - Force Interactions
  - Force
  - Speed

Discipline 3: Life Science

- Standard: Organization of Living Things
  - Animal Systems
- Standard: Heredity
  - Inherited and Acquired Traits
- Standard: Evolution
  - Species Adaptation and Survival
  - Relationships Among Organisms

Discipline 4: Earth Science

- Standard: Earth Systems
  - Seasons
- Standard: Earth in Space and Time
  - Solar System
  - Solar System Motion

### **Science Processes**

#### ***Inquiry Process***

Develop an understanding that scientific inquiry and reasoning involves observing, questioning, investigating, recording, and developing solutions to problems

- Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.
  - **Generate scientific questions based on observations, investigations, and research.**
  - **Design and conduct scientific investigations.**
  - **Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations.**
  - **Use metric measurement devices in an investigation.**
  - **Construct charts and graphs from data and observations.**
  - **Identify patterns in data.**

#### ***Inquiry Analysis and Communication***

Develop an understanding that scientific inquiry and investigations require analysis and communication of findings, using appropriate technology.

- Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.
  - **Analyze information from data tables and graphs to answer**

**scientific questions.**

- **Evaluate data, claims, and personal knowledge through collaborative science discourse.**
- **Communicate and defend findings of observations and investigations using evidence.**
- **Draw conclusions from sets of data from multiple trials of a scientific investigation.**
- **Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.**

***Reflection and Social Implications***

Develop an understanding that claims and evidence for their scientific merit should be analyzed. Understand how scientists decide what constitutes scientific knowledge. Develop an understanding of the importance of reflection on scientific knowledge and its application to new situations to better understand the role of science in society and technology.

- Reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge requires careful analysis of evidence that guides decision-making and the application of science throughout history and within society.<sup>16</sup>
  - **Evaluate the strengths and weaknesses of claims, arguments, and data.**
  - **Describe limitations in personal and scientific knowledge.**
  - **Identify the need for evidence in making scientific decisions.**
  - **Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.**
  - **Design solutions to problems using technology.**
  - **Describe the effect humans and other organisms have on the balance in the natural world.**
  - **Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.**

**Physical Science**

***Force and Motion***

Develop an understanding that the position and/or motion of an object is relative to a point of reference. Understand forces affect the motion and speed of an object and that the net force on an object is the total of all of the forces acting on it. Understand the Earth pulls down on objects with a force called gravity. Develop an understanding that some forces are in direct contact with objects, while other forces are not in direct contact with objects.

- Force Interactions- Some forces between objects act when the objects are in direct contact(touching), such as friction and air resistance, or when they are not in direct contact (not touching), such as magnetic force, electrical force, and gravitational force.
  - **Distinguish between contact forces and non-contact forces.**



- **Demonstrate contact and non-contact forces to change the motion of an object.**
- Force- Forces have a magnitude and direction. Forces can be added. The net force on an object is the sum of all of the forces acting on the object. The speed and/or direction of motion of an object changes when a non-zero net force is applied to it. A balanced force on an object does not change the motion of the object (the object either remains at rest or continues to move at a constant speed in a straight line).
  - **Describe what happens when two forces act on an object in the same or opposing directions.**
  - **Describe how constant motion is the result of balanced (zero net) forces.**
  - **Describe how changes in the motion of objects are caused by a non-zero net (unbalanced) force.**
  - **Relate the size of change in motion to the strength of unbalanced forces and the mass of the object.**
- Speed- Motion can be described by a change in position relative to a point of reference. The motion of an object can be described by its speed and the direction it is moving. The position and speed of an object can be measured and graphed as a function of time.
  - **Explain the motion of an object relative to its point of reference.**
  - **Describe the motion of an object in terms of distance, time and direction, as the object moves, and in relationship to other objects.**
  - **Illustrate how motion can be measured and represented on a graph.**

## **Life Science**

### ***Organization of Living Things***

Develop an understanding that plants and animals (including humans) have basic requirements for maintaining life which include the need for air, water and a source of energy. Understand that all life forms can be classified as producers, consumers, or decomposers as they are all part of a global food chain where food/energy is supplied by plants, which need light to produce food/energy. Develop an understanding that plants and animals can be classified by observable traits and physical characteristics. Understand that all living organisms are composed of cells and they exhibit cell growth and division. Understand that all plants and animals have a definite life cycle, body parts, and systems to perform specific life functions.

- Animal Systems- Multicellular organisms may have specialized systems that perform functions, which serve the needs of the organism.
  - **Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive).**

- **Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.**

### ***Heredity***

Develop an understanding that all life forms must reproduce to survive. Understand that characteristics of mature plants and animals may be inherited or acquired and that only inherited traits are passed on to their young. Understand that inherited traits can be influenced by changes in the environment and by genetics.

- **Inherited and Acquired Traits** - The characteristics of organisms are influenced by heredity and environment. For some characteristics, inheritance is more important; for other characteristics, interactions with the environment are more important.
  - **Explain that the traits of an individual are influenced by both the environment and the genetics of the individual.**
  - **Distinguish between inherited and acquired traits.**

### ***Evolution***

Develop an understanding that plants and animals have observable parts and characteristics that help them survive and flourish in their environments. Understand that fossils provide evidence that life forms have changed over time and were influenced by changes in environmental conditions. Understand that life forms either change (evolve) over time or risk extinction due to environmental changes and describe how scientists identify the relatedness of various organisms based on similarities in anatomical features.

- **Species Adaptation and Survival**- Species with certain traits are more likely than others to survive and have offspring in particular environments. When an environment changes, the advantage or disadvantage of the species' characteristics can change. Extinction of a species occurs when the environment changes and the characteristics of a species are insufficient to allow survival.
  - **Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment.**
  - **Describe the physical characteristics (traits) of organisms that help them survive in their environment.**
  - **Describe how fossils provide evidence about how living things and environmental conditions have changed.**
  - **Analyze the relationship of environmental change and catastrophic events (for example: volcanic eruption, floods, asteroid impacts, tsunami) to species extinction.**
- **Relationships Among Organisms**- Similarities among organisms are found in anatomical features, which can be used to infer the degree of relatedness among organisms. In classifying organisms, biologists consider details of internal and external structures to be more important than behavior or general appearance.

- **Relate degree of similarity in anatomical features to the classification of contemporary organisms.**

## **Earth Science**

### ***Earth Systems***

Develop an understanding of the warming of the Earth by the sun as the major source of energy for phenomenon on Earth and how the sun's warming relates to weather, climate, seasons, and the water cycle. Understand how human interaction and use of natural resources affects the environment.

- Seasons- Seasons result from annual variations in the intensity of sunlight and length of day due to the tilt of the axis of the Earth relative to the plane of its yearly orbit around the sun.
  - **Demonstrate and explain seasons using a model.**
  - **Explain how the revolution of the Earth around the sun defines a year.**

### ***Earth in Space and Time***

Develop an understanding that the sun is the central and largest body in the solar system and that Earth and other objects in the sky move in a regular and predictable motion around the sun. Understand that those motions explain the day, year, moon phases, eclipses, and the appearance of motion of objects across the sky. Understand that gravity is the force that keeps the planets in orbit around the sun and governs motion in the solar system. Develop an understanding that fossils and layers of Earth provide evidence of the history of Earth's life forms, changes over long periods of time, and theories regarding Earth's history and continental drift.

- Solar System- The sun is the central and largest body in our solar system. Earth is the third planet from the sun in a system that includes other planets and their moons, as well as smaller objects, such as asteroids and comets.
  - **Design a model that of the solar system that shows the relative order and scale of the planets, dwarf planets, comets, and asteroids to the sun.**
- Solar System Motion- Gravity is the force that keeps most objects in the solar system in regular and predictable motion.
  - **Describe the motion of planets and moons in terms of rotation on axis and orbits due to gravity.**
  - **Explain the phases of the moon.**
  - **Explain the apparent motion of the stars (constellations) and the sun across the sky. \***
  - **Explain lunar and solar eclipses.**
  - **Explain the tides of the oceans as they relate to the gravitational pull and orbit of the moon.**

## **Social Studies Standards**

---

### **Overview**

The fifth grade social studies content expectations mark a departure from the social studies approach taken in previous grades. Building upon the geography, civics and government, and economics concepts of the United States mastered in fourth grade and historical inquiry from earlier grades, the fifth grade expectations begin a more discipline-centered approach concentrating on the early history of the United States. Students begin their study of American history with American Indian peoples before the arrival of European explorers and conclude with the adoption of the Bill of Rights in 1791. Although the content expectations are organized by historical era, they build upon students' understandings of the other social studies disciplines from earlier grades and require students to apply these concepts within the context of American history.

### ***Era 1: Beginnings to 1620***

Beginning with pre-Columbian times, the expectations focus on American Indians living in North America before European exploration. The geographic concepts of spatial awareness, places and regions, human systems, and humanenvironment interactions are addressed throughout the era as students study American history to 1620. The expectations deliberately expand upon students' knowledge of American Indians living in Michigan and the concept of regions from previous grades. In examining European exploration and conquest, the expectations embed geographic, civics, and economic concepts, and revisit the case study method used by historians to explain the technological and political developments that made exploration possible. In deepening understanding of perspective, students also explore the goals, obstacles, motivations, and consequences of European exploration and the subsequent colonization of the Americas. The expectations also include an introduction to life in Africa as a foundation for examining interactions among Europeans, American Indians, and Africans from the 15th through the 17th centuries with a focus on how economic concepts influenced the behavior of people and nations. Students apply the tools of the historian by using primary and secondary sources to compare European and American Indian cultures, using previously established criteria. The expectations also focus on the interaction among Europeans, American Indians, and Africans, by exploring the impact of European contact on American Indian cultures, comparing the approaches of the British and French in their interactions with American Indians, and examining the Columbian Exchange and its impact on all three groups.

### ***Era 2: Colonization and Settlement***

In learning about the regional settlement patterns and significant developments of the three distinct colonial regions prior to the American Revolution, students apply their conceptual understanding of regions and the geography of the United States. They explore how the geography influenced peoples' daily lives and economic activities as three distinct colonial regions developed. The expectations require

students to apply concepts of government and economics to further understand the Southern, New England, and Middle colonies as they learn about the establishment of colonial settlements, development of colonial governments, role of religion, relationships between colonists and American Indians, and development of the institution of slavery. Using geography, students explore how human systems such as religion, movement of people, and ethnic diversity led to the establishment of other colonies within particular regions. Special attention is paid to the European slave trade and slavery in Colonial America as students explore the lives of enslaved peoples and free Africans living in the American colonies. Fifth grade students enhance their understanding of historical perspective by analyzing the perspectives of different groups living in colonial America. By comparing the different colonial regions that developed with respect to politics, economics, religion, social institutions, and human-environment interactions, the expectations prepare students for American history in middle school serving as the precursor for the regional and racial issues that culminated in the Civil War.

### **Era 3: Revolution and the New Nation**

In studying the American Revolution and the New Nation, the expectations deliberately build upon students' prior knowledge in government and economics. The political and economic aspects of the French and Indian War and its aftermath are stressed. Students deepen their understanding of perspective by comparing patriot and loyalist perspectives with respect to events that eventually culminated in the American Revolution. The expectations in this historical era emphasize significant ideas about government as reflected in the Declaration of Independence and the role of key individuals and groups in declaring independence. Students also apply concepts of power and authority to the perspectives of the colonists and the British during the revolutionary era. Emphasis is placed on how colonial experiences and ideas about government influenced the decision of the colonists to declare independence. Students examine the course, character, and consequences of the American Revolution using geography and economics students to compare the advantages and disadvantages of each side in the war. Students also describe the significant events and turning points during the war. In examining the challenges faced by the new nation under the Articles of Confederation, the expectations continue to build upon students' understanding of government. By exploring the political ideas underlying the Articles of Confederation and the subsequent adoption of the U.S. Constitution and Bill of Rights (with particular emphasis on the rights contained in first four amendments), the values and principles of American democracy are revisited through a historical context. Students examine how the Founders sought to limit the power of government through principles of separation of powers, checks and balances, dual sovereignty (federalism), protection of individual rights, popular sovereignty, and rule of law.

### **Public Discourse, Decision Making, and Citizen Involvement**

The expectations continue to stress the importance of citizen action in a democratic republic as students expand their ability to address public policy issues. Students address contemporary public issues related to the Constitution and identify the

related factual, definitional, and ethical questions. They use graphic data and other sources to analyze information about the issue, evaluate alternative resolutions, and use core democratic values to explain why people may differ on the resolution to a constitutional issue. Students are required to demonstrate increasing sophistication in their abilities to communicate a position on more complex national public policy issue and support it with a reasoned argument.

### **Integrated U.S. History Organized by Era**

#### ***ERA 1 – Beginnings to 1620***

- 1.1 American Indian Life in the Americas<sup>1</sup>
- 1.2 European Exploration
- 1.3 African Life Before the 16th Century
- 1.4 Three World Interactions

#### ***ERA 2 – Colonization and Settlement (1585-1763)***

- 2.1 European Struggle for Control of North America
- 2.2 European Slave Trade and Slavery in Colonial America
- 2.3 Life in Colonial America

#### ***ERA 3 – Revolution and the New Nation (1754-1800)***

- 3.1 Causes of the American Revolution
- 3.2 The American Revolution and its Consequences
- 3.3 Creating New Governments and a New Constitution

### **UI Era I – Beginnings to 1620**

#### ***American Indian Life in the Americas***

*Describe the life of peoples living in North America before European exploration.*

- Use maps to locate peoples in the desert Southwest, the Pacific Northwest, the nomadic nations of the Great Plains, and the woodland peoples east of the Mississippi River (Eastern Woodland). (National Geography Standard 1, p. 144)
- Compare how American Indians in the desert Southwest and the Pacific Northwest adapted to or modified the environment. (National Geography Standard 14, p. 171)
- Describe Eastern Woodland American Indian life with respect to governmental and family structures, trade, and views on property ownership and land use. (National Geography Standard 11, p. 164, C, E)

#### ***European Exploration***

*Identify the causes and consequences of European exploration and colonization.*

- Explain the technological (e.g., invention of the astrolabe and improved maps), and political developments, (e.g., rise of nation-states), that made sea exploration possible. (National Geography Standard 1, p. 144, C)

- Use case studies of individual explorers and stories of life in Europe to compare the goals, obstacles, motivations, and consequences for European exploration and colonization of the Americas (e.g., economic, political, cultural, and religious). (National Geography Standard 13, p. 169, C, E)

### ***African Life Before the 16th Century***

*Describe the lives of peoples living in western Africa prior to the 16th century.*

- Use maps to locate the major regions of Africa (northern Africa, western Africa, central Africa, eastern Africa, southern Africa). (National Geography Standard 1, p. 144)
- Describe the life and cultural development of people living in western Africa before the 16th century with respect to economic (the ways people made a living) and family structures, and the growth of states, towns, and trade. (National Geography Standard 10, p. 162)

### ***Three World Interactions***

*Describe the environmental, political, and cultural consequences of the interactions among European, African, and American Indian peoples in the late 15th through the 17th century.*

- Describe the convergence of Europeans, American Indians and Africans in North America after 1492 from the perspective of these three groups. (National Geography Standard 10, p. 162)
- Use primary and secondary sources (e.g., letters, diaries, maps, documents, narratives, pictures, graphic data) to compare Europeans and American Indians who converged in the western hemisphere after 1492 with respect to governmental structure, and views on property ownership and land use. (National Geography Standard 12, p. 167, C, E)
- Explain the impact of European contact on American Indian cultures by comparing the different approaches used by the British and French in their interactions with American Indians. (National Geography Standard 10, p. 162, C, E)
- Describe the Columbian Exchange and its impact on Europeans, American Indians, and Africans. (National Geography Standard 11, p. 164, E)

## **Era 2 – Colonization and Settlement**

### ***European Struggle for Control of North America***

*Compare the regional settlement patterns and describe significant developments in Southern, New England, and the mid-Atlantic colonies.*

- Describe significant developments in the Southern colonies, including
  - patterns of settlement and control including the impact of geography (landforms and climate) on settlement (National Geography Standard 12, p. 167)
  - establishment of Jamestown (National Geography Standard 4, p. 150)
  - development of one-crop economies (plantation land use and growing season for rice in Carolinas and tobacco in Virginia) (National Geography Standard 11, p. 164)

Grandville Public Schools  
Grade 5 Curriculum Standards

- relationships with American Indians (e.g., Powhatan) (National Geography Standard 10, p. 162)
  - development of colonial representative assemblies (House of Burgesses) (National Geography Standard 5, p. 152)
  - development of slavery
- Describe significant developments in the New England colonies, including
  - patterns of settlement and control including the impact of geography (landforms and climate) on settlement (National Geography Standard 12, p. 167)
  - relations with American Indians (e.g., Pequot/King Phillip's War) (National Geography Standard 10, p. 162)
  - growth of agricultural (small farms) and non-agricultural (shipping, manufacturing) economies (National Geography Standard 15, p. 173)
  - the development of government including establishment of town meetings, development of colonial legislatures and growth of royal government (National Geography Standard 13, p. 169)
  - religious tensions in Massachusetts that led to the establishment of other colonies in New England (National Geography Standard 13, p. 169 C, E)
- Describe significant developments in the Middle Colonies, including
  - patterns of settlement and control including the impact of geography (landforms and climate) on settlement (National Geography Standard 12, p. 167)
  - the growth of Middle Colonies economies (e.g., breadbasket) (National Geography Standard 7, p. 156)
  - The Dutch settlements in New Netherlands, Quaker settlement in Pennsylvania, and subsequent English takeover of the Middle Colonies
  - immigration patterns leading to ethnic diversity in the Middle Colonies (National Geography Standard 10, p. 162, C, E)
- Compare the regional settlement patterns of the Southern colonies, New England, and the Middle Colonies. (National Geography Standard 12, p. 167)

***European Slave Trade and Slavery in Colonial America***

*Analyze the development of the slave system in the Americas and its impact upon the life of Africans.*

- Describe Triangular Trade including
  - the trade routes
  - the people and goods that were traded
  - the Middle Passage
  - its impact on life in Africa (National Geography Standards 9, and 11; pp. 160 and 164 E)
- Describe the life of enslaved Africans and free Africans in the American colonies. (National Geography Standard 5, p. 152)
- Describe how Africans living in North America drew upon their African past (e.g., sense of family, role of oral tradition) and adapted elements of new



cultures to develop a distinct African-American culture. (National Geography Standard 10, p. 162)

### ***Life in Colonial America***

*Distinguish among and explain the reasons for regional differences in colonial America.*

- Locate the New England, Middle, and Southern colonies on a map. (National Geography Standard 3 p. 148)
- Describe the daily life of people living in the New England, Middle, and Southern colonies. (National Geography Standards 14 and 15; pp. 171 and 173)
- Describe colonial life in America from the perspectives of at least three different groups of people (e.g., wealthy landowners, farmers, merchants, indentured servants, laborers and the poor, women, enslaved people, free Africans, and American Indians). (National Geography Standard 6, p. 154)
- Describe the development of the emerging labor force in the colonies (e.g., cash crop farming, slavery, indentured servants). (E)
- Make generalizations about the reasons for regional differences in colonial America. (National Geography Standard 6, p. 154)

### **Era 3 – Revolution and the New Nation (1754 – 1800)**

#### ***Causes of the American Revolution***

*Identify the major political, economic, and ideological reasons for the American Revolution.*

- Describe the role of the French and Indian War, how British policy toward the colonies in America changed from 1763 to 1775, and colonial dissatisfaction with the new policy. (National Geography Standard 13 p. 169 C, E)
- Describe the causes and effects of events such as the Stamp Act, Boston Tea Party, the Intolerable Acts, and the Boston Massacre.
- Using an event from the Revolutionary era (e.g., Boston Tea Party, quartering of soldiers, writs of assistance, closing of colonial legislatures), explain how British and colonial views on authority and the use of power without authority differed (views on representative government).
- Describe the role of the First and Second Continental Congress in unifying the colonies (addressing the Intolerable Acts, declaring independence, drafting the Articles of Confederation). (C)
- Use the Declaration of Independence to explain why the colonists wanted to separate from Great Britain and why they believed they had the right to do so. (C)
- Identify the role that key individuals played in leading the colonists to revolution, including George Washington, Thomas Jefferson, Benjamin Franklin, Patrick Henry, Samuel Adams, John Adams, and Thomas Paine.

Grandville Public Schools  
Grade 5 Curriculum Standards

- Describe how colonial experiences with self-government (e.g., Mayflower Compact, House of Burgesses and town meetings) and ideas about government (e.g., purposes of government such as protecting individual rights and promoting the common good, natural rights, limited government, representative government) influenced the decision to declare independence. (C)
- Identify a problem confronting people in the colonies, identify alternative choices for addressing the problem with possible consequences, and describe the course of action taken.

***The American Revolution and Its Consequences***

*Explain the multi-faceted nature of the American Revolution and its consequences.*

- Describe the advantages and disadvantages of each side during the American Revolution with respect to military leadership, geography, types of resources, and incentives. (National Geography Standard 4, p. 150, E)
- Describe the importance of Valley Forge, Battle of Saratoga, and Battle of Yorktown in the American Revolution.
- Compare the role of women, African Americans, American Indians, and France in helping shape the outcome of the war.
- Describe the significance of the Treaty of Paris (establishment of the United States and its boundaries). (National Geography Standard 13, p. 169, C)

***Creating New Government(s) and a New Constitution***

*Explain some of the challenges faced by the new nation under the Articles of Confederation, and analyze the development of the Constitution as a new plan for governing.*

- Describe the powers of the national government and state governments under the Articles of Confederation. (C)
- Give examples of problems the country faced under the Articles of Confederation (e.g., lack of national army, competing currencies, reliance on state governments for money). (National Geography Standard 13, p. 169, C)
- Explain why the Constitutional Convention was convened and why the Constitution was written. (C)
- Describe the issues over representation and slavery the Framers faced at the Constitutional Convention and how they were addressed in the Constitution (Great Compromise, Three Fifths Compromise). (National Geography Standard 9, p. 160, C)
- Give reasons why the Framers wanted to limit the power of government (e.g., fear of a strong executive, representative government, importance of individual rights). (C)
- Describe the principle of federalism and how it is expressed through the sharing and distribution of power as stated in the Constitution (e.g., enumerated and reserved powers). (C)
- Describe the concern that some people had about individual rights and why the inclusion of a Bill of Rights was needed for ratification. (C)
- Describe the rights found in the First, Second, Third, and Fourth Amendments to the United States Constitution.

## **Public Discourse, Decision Making, and Citizen Involvement**

### ***Identifying and Analyzing Public Issues***

*Clearly state a problem as public policy issue, analyze various perspectives, and generate and evaluate possible alternative resolutions.*

- Identify contemporary public issues related to the United States Constitution and their related factual, definitional, and ethical questions.
- Use graphic data and other sources to analyze information about a contemporary public issue related to the United States Constitution and evaluate alternative resolutions.
- Give examples of how conflicts over core democratic values lead people to differ on contemporary constitutional issues in the United States.

### ***Persuasive Communication About a Public Issue***

*Communicate a reasoned position on a public issue.*

- Compose a short essay expressing a position on a contemporary public policy issue related to the Constitution and justify the position with a reasoned argument.

### ***Citizen Involvement***

*Act constructively to further the public good.*

- Develop and implement an action plan and know how, when, and where to address or inform others about a public issue.
- Participate in projects to help or inform others.