Essential Vocabulary



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## Essential Vocabulary

Teaching specific terms in a specific way is probably the strongest action a teacher can take to ensure that students have the academic background knowledge they need to understand the content they will encounter in school. When teachers in a school focus on the same academic vocabulary and teach it using a systematic approach the school powerfully influences students understanding of content. When all teachers in a school division embrace and use the approach, it becomes even more powerful. In Robert Marzano and Debra Pickering's book *Building Academic Vocabulary* (ASCD, 2005) their research explains that students who have direct vocabulary instruction on specific terms increase their understanding from the 50<sup>th</sup> percentile to the 83<sup>rd</sup> percentile.

Many students acquire academic background knowledge outside of school and come to subject-area classes already knowing and using terms essential for understanding content. For example they may have traveled or been exposed to different individuals, experiences or cultures. By contrast, students from families with fewer resources may have lacked such opportunities, and thus, have not acquired important background knowledge. When these two different students enroll in school they enter with discrepancies in their academic knowledge. Unfortunately, as time progresses, the gap in academic knowledge increases. Given the fact that knowledge of vocabulary has a profound effect on student comprehension of academic content a systematic approach to vocabulary instruction is essential. This document attempts to assist Virginia educators in designing instruction for all students that will ensure their mastery of all content regardless of their knowledge when they enter school.

For your benefit, the document has been organized into two sections. The first section provides non-negotiable vocabulary by grade level with each content area separated. The second section lists essential vocabulary by content area and then sub-divided by grade level.

Essential Vocabulary

# SECTION ONE by Grade Level

## Essential Vocabulary

### Kindergarten

#### **ENGLISH**

*Oral:* number words; people; place (places); thing (things); size; color; shape; before; after; next; over; under; between; beside; complete sentence (complete sentences); rhyme; beginning sound; ending sound; word (words); syllable

**Reading:** front cover; back cover; title page of a book; left; right; top; bottom; word (words); letter (letters); space (spaces); period; question mark; exclamation point; sign; logo; uppercase letter; lowercase letter; consonant; vowel; prediction; begin (beginning); middle; end; character; setting; event; author; illustrator; topic; nonfiction

Writing: first; last; left; right; top; bottom

#### **MATHEMATICS**

Number and Number Sense: set; more; fewer; the same; ordinal position: first, second, third

Computation and Estimation: combine (combining); join (joining); take away (taking away); separate (separating)

**Measurement and Geometry:** penny; nickel; dime; quarter; ruler; length; scales; weight; clocks (analog and digital); time; calendar; days, months, and seasons; thermometers; temperature; short (shorter); long (longer); tall (taller); heavy (heavier); light (lighter); hot (hotter); cold (colder); circle; triangle; square; rectangle; side (sides); corner (corners); polygon; quadrilateral; above; below; next to

**Probability and Statistics:** data; greatest; least; the same; more likely; less likely

Patterns, Functions, and Algebra: classify; pattern

## Essential Vocabulary

## Kindergarten

#### **SCIENCE**

*Scientific Investigation, Reasoning, and Logic:* shape: circle, triangle, square, rectangle; size: big, little, large, small; texture: rough, smooth, hard, soft; weight: heavy, light; top; bottom; front; back; five senses: taste-tongue, touch-skin, smell-nose, hearing-ears, sight-eyes; sweet; sour; bitter; salty; rough/smooth; hard/soft; cold; warm; hot; loud/soft; high/low; bright/dull

Force, Motion, Energy, and Matter: magnet; attract; metal; not attracted; attraction; nonattraction; push; pull; repel; nonmetal; matter; solid; liquid; gas; water; colors: red, orange, yellow, green, blue, purple, white, black; shapes: circle, triangle, square, rectangle; forms; flexible; stiff; straight; curved; texture; rough; smooth; feel; hard; soft; size; weight; big; little; large; small; heavy; light; wide; thin; long; short; position; over; under; in; out; above; below; left; right; speed; fast; slow; downhill; float; sink; heat (heating); cool (cooling)

*Life Processes and Living Systems:* life cycle; living things; grow; food; water; air; survive; plant; animal; offspring; parents; leaf (leaves); branch (branches); flower; fruit

*Earth/Space Systems and Cycles:* shadow; sun; electric; light; flashlight; weather; seed; cone; leaf; cloudy; warm; rain; cold; snow; clear; pattern; schedule; change; time; fast; slow; height; weight; color; hair; seasonal change; natural resource; water; energy; recycle (recycling); reuse (reusing); conserve (conserving)

#### HISTORY/SOCIAL SCIENCE

*History:* Pocahontas; George Washington; Betsy Ross; Abraham Lincoln; Thanksgiving Day; Martin Luther King, Jr. Day; Presidents' Day; Independence Day (Fourth of July); long ago; past; present; real; make-believe; history

Geography: near; far; above; below; left; right; behind; in front; map; globe; model; land; water

**Economics:** job; doctor; builder; teacher; cook; farmer; firefighter; basic need (basic needs); want (wants); money; good (goods)

## Essential Vocabulary

### Kindergarten

#### **HISTORY/SOCIAL SCIENCE** (continued)

*Civics:* turn; share (sharing); responsible (responsibility); chore (chores); respect (respecting); rule; consequence; honest (honesty); self-control; kindness; community; good citizen; American flag; Pledge of Allegiance; President; leader; United States

## Essential Vocabulary

### **Grade 1**

#### **ENGLISH**

*Oral:* complete sentence (complete sentences); plural noun; singular noun; first; second; next; on; under; over; beside; mark; circle; color; draw; phonemes (sounds); syllables; rhyme (rhyming)

**Reading:** left to right; top to bottom; letters; words; sentences; capital letter (capital letters), period; question mark; exclamation point; speech bubble; quotation marks; beginning consonant; ending consonant; consonant blends; consonant diagraphs; short vowel sounds; beginning sound; middle sound; ending sound; compound words; title; picture (pictures); topic; prediction; context; story (stories); poem (poems); passage (passages); preview; purpose for reading; predict (predictions); character (characters); setting; event (events); beginning; middle; end; topic; main idea; list (lists); recipes (recipes); newspaper (newspapers), magazine (magazines); letters (as form of writing); alphabetical order; dictionary

Writing: descriptive words; list (lists); letter (letters); story (stories); report (reports); message (messages); poem (poems)

#### **MATHEMATICS**

**Number and Number Sense:** ten (tens); five (fives); two (twos); ordered position; ordinal position; ordinality; ordered number: first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth; fraction; part of a whole; one-half; one-fourth

Computation and Estimation: magnitude; add; addition; adding; sum; subtraction; subtracting; minus, difference

**Measurement and Geometry:** cent (cents); nickel; dime; quarter; penny (pennies); analog clock; digital clock; half hour; length; weight; estimation; volumes; greater than; less than; the same; light (lighter); heavy (heavier); translations (slide, flip, turn); near; far; close by; below; above; up; down; beside; next to; plane geometric figure; triangle; square; rectangle; circle; side; corner; square corner; polygon; quadrilateral

**Probability and Statistics:** data; count (counting); tally (tallying); statistics; picture graph; object graph; more; less; fewer; greater than; less than; equal to

## Essential Vocabulary

### Grade 1

#### **MATHEMATICS** (continued)

Patterns, Functions, and Algebra: sort; classify; patterns; growing patterns

#### **SCIENCE**

Scientific Investigation, Reasoning, and Logic: senses; length; mass; volume; inference; prediction; experiment; thermometer; ruler; magnifying glass

*Force, Motion, Energy, and Matter:* straight motion; circular motion; back-and-forth motion; vibrate; sound; push (pushes); pull (pulls); motion; size; shape; force; curved motion; movement (length/distance); liquid (liquids); separate; water; solid (solids); dissolve; hot; cold

*Life Processes and Living Systems:* plant (plants); life needs; functional parts; needs; food; air; water; light; place to grow; part (parts); seed (seeds); root (roots); stem (stems); leaf (leaves); blossom (blossoms); fruits; characteristics; flowering; non-flowering; place to live; body coverings; body shape; appendage (appendages); movement; wild; tame; water homes; land homes; hair; fur; feathers; scales; shells; arms; legs; wings; fins; tails; walk (walking); crawl (crawling); fly (flying); swim (swimming)

*Earth/Space Systems and Cycles:* heat; light; rotation; sun; Earth; land; air; water; day (daytime); night (nighttime); plant (plant); growth; bud (budding); falling leaves; wilt (wilting); animals; behaviors; hibernate (hibernation); migrate (migration); body covering; habitat; people; dress; work; recreation; precipitation; rain; snow; ice; thickness of fur; spring; summer; winter; fall (autumn); temperature; natural resources; mineral (minerals); forest (forests); soil

## Essential Vocabulary

### Grade 1

#### HISTORY/SOCIAL SCIENCE

*History:* past; present; school; change; transportation; community; family; time line; sequence of events; George Washington; Benjamin Franklin; Abraham Lincoln; George Washington Carver; contribution; Presidents' Day; Columbus Day; Independence Day (Fourth of July); holiday; calendar

*Geography:* map symbol (map symbols); land; water; city (cities); road (roads); cardinal direction; United States; Virginia; map; globe; Washington, D.C.; Richmond; north; east; south; west; map legend; location; climate; physical surroundings; season; geography

**Economics:** good (goods); service (services); need (needs); want (wants); buy (buyer); sell (seller); purchase; money; savings

*Civics:* honest (honesty); truthful (truthfulness); good citizenship, rule (rules); symbol; tradition; patriotic; American flag; bald eagle; Washington Monument; Statue of Liberty; Pledge of Allegiance; community (communities); ethnic origin; contribute (contributions); cultural holiday

## Essential Vocabulary

### Grade 2

#### **ENGLISH**

*Oral:* beginning; middle; end; synonym; antonym; inform; persuade; entertain; summarize

**Reading:** consonant; consonant blend; consonant diagraph; decode; short vowel pattern; long vowel pattern; r-controlled vowel pattern; subject; verb; adjective; title (titles); picture; diagram; prefix; suffix; contraction; singular possessive; simple abbreviation; antonym; synonym; apostrophe; heading; set purpose for reading; story (stories); poem; passage; map; skim; bold type; picture caption; italic; underline (underlining); predict (predictions); character; setting; event; problem; solution; main idea; evidence; character trait (character's traits); sequence of steps; locate; transition word; signal word; first; next; soon; organize; graphic organizer; table of contents; chart; dictionary (dictionaries); indices; page number; table; bar graph; pictograph; alphabetize; guide word; entry word

**Writing:** brainstorm; topic; complete sentence; paragraph; first; next; then; last; singular noun; plural noun; capitalize; proper noun; declarative sentence; interrogative sentence; exclamatory sentence; apostrophe; contraction; singular pronoun; plural pronoun

#### **MATHEMATICS**

**Number and Number Sense:** one (ones); ten (tens); hundred (hundreds); place value; number line (number lines); round (rounding); inequality symbols; greater than; less than; equal to; ordinal number: first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth, fourteenth, fifteenth, sixteenth, seventeenth, eighteenth, nineteenth, twentieth; left to right; right to left; top to bottom; bottom to top; fraction; part of a whole; denominator; numerator; one-half; one-third; one-fourth; one-eighth; one-tenth; pattern (patterns); skip counting

**Computation and Estimation:** add; addition; adding; sum; minus; subtraction; subtracting; addend; minuend; subtrahend; table (tables); bar graph (bar graphs); picture graph (picture graphs)

## Essential Vocabulary

### Grade 2

#### **MATHEMATICS** (continued)

Measurement and Geometry: penny (pennies); nickel (nickels); dime (dimes); quarter (quarters); cent (cents); dollar; decimal point; greater than; less than; equal to; area; estimate; perimeter; volume; mass; balance; pound; U.S. customary weight; kilogram; metric; scale; time; quarter hour; analog clock; digital clock; cup; pint; quart; gallon; liter; more; less; equivalent; month; today; yesterday; next week; last week; calendar; 24-hour period; thermometer; Celsius; Fahrenheit; three-dimensional (solid) shapes; cube; rectangular solid; square pyramid; sphere; cylinder; cone; prism; edge (edges); faces (side, base) corner (corners); symmetry; line symmetry; horizontal; vertical; diagonal; two-dimensional (plane) shapes

**Probability and Statistics:** table (tables); object (objects); pictorial representations; tally marks; chart (charts); graph (graphs); data; axes; probability; outcome (outcomes); impossible; unlikely; as likely; as unlikely; equally likely; certain

**Patterns, Functions, and Algebra:** growing pattern; repeating pattern; numeric pattern; common difference; geometric patterns; rotation (turn); vertex; reflection (flip)

#### **SCIENCE**

Scientific Investigation, Reasoning, and Logic: observation; length; volume; mass; temperature; metric unit; centimeter; meter; liter; degree; Fahrenheit; ounce; pound; size; shape; color; texture; weight

Force, Motion, Energy, and Matter: magnetism; iron; magnetic; nonmagnetic; poles; attract; repel; magnetic compass; north pole; south pole; solid; liquid; gas; mass; volume; condensation; evaporation; melt (melting); freeze (freezing); matter; mass of solid; volume of liquid; solid water; ice; steam

*Life Processes and Living Systems:* system; life cycle; habitat; living; nonliving; water; space; shelter; migration; hibernation; camouflage; adaptation; dormancy; plant (plants); oxygen; food; fiber; cotton; oil; spice (spices); lumber; rubber; medicine; paper; wood fruit; vegetable

## Essential Vocabulary

### Grade 2

#### **SCIENCE** (continued)

*Earth/Space Systems and Cycles:* temperature; wind; precipitation; drought; flood; storm; gas; liquid; rain; solid; snow; sleet; thermometer; rain gauge; weather vane; hurricane; tornado; blizzard; thunderstorm; weathering; erosion; land surface

#### HISTORY/SOCIAL SCIENCE

*History:* China; Egypt; invent (inventions); calendar; ancient; architecture; contribution; American Indians (First Americans); Powhatan; Eastern Woodland Indians; Sioux Indians; Plains Indians; Pueblo Indians; Southwest; region; arts; jewelry; pottery; weaving; legends; story (stories); respect; nature; farming; change; community; population; transportation

*Geography:* world map; United States map; adapt; climate; land; environment; plant life; equator; globe; rivers: James River, Mississippi River, Rio Grande; mountain ranges: Appalachian Mountains, Rocky Mountains; lakes: Great Lakes; seven continents; North America; South America; Europe; Asia; Africa; Australia; Antarctica; four oceans; Arctic Ocean; Atlantic Ocean; Indian Ocean; Pacific Ocean; locate; title; map legend; compass rose

Economics: natural resources; human resources; capital resources; barter; money; scarcity; consumer; producer

*Civics:* vote (voting); contribute (contributions); George Washington; Abraham Lincoln; Susan B. Anthony; Helen Keller; Jackie Robinson; Martin Luther King, Jr.; diverse ethnic origins; customs; traditions; common principle (common principles)

## Essential Vocabulary

### Grade 3

#### **ENGLISH**

*Oral:* summarize; clarify; explain; volume; pitch; rate; organize; sequential (sequentially)

**Reading:** homophone; vowel pattern; diphthong; root; affixes; homonym/homophone; context clue; tense; syllable; poetry; line; stanza; headings; bold face; italic; predict (predictions); folktale; biography; autobiography; sequence; cause-effect; comma; period; exclamation point; question mark; apostrophe; contraction; possession; first; second; next; later; after; finally; dialogue; quotation mark; pronoun; noun; synonym; antonym; fiction; nonfiction; setting; character; event; author's purpose; draw conclusions; plot; fairy tale; myth; folktale; legend; fable; details; main idea; attribute (trait); summarize; Venn diagram; time line; chronological sequence; dictionary; glossary; thesaurus; encyclopedia; atlas (atlases); Internet

**Writing:** central idea; elaborate; revise; clarity; precise noun; verb; adjective; transitional word; first; next; last; brainstorm (brainstorming); story map; story (stories): beginning, middle, end; letters: date, greeting, body, closing; explanation: opening, information presented; short report; verb tense; possessive; comma; abbreviation; contraction; irregular plural; past verb tense; present verb tense; singular possessive

### **MATHEMATICS**

**Number and Number Sense:** standard; written; expanded; period (periods); whole number; ten; hundred; thousand; round; inequality symbols; place value; greater than; less than; equal to; inverse relationships; mixed numbers; fraction; part of a whole; denominator; numerator; half (halves); third (thirds); fourth (fourths); eighth (eighths); tenth (tenths); hundred (hundredths); decimal (decimals)

**Computation and Estimation:** whole number (whole numbers); sum; estimate; difference; division; multiplication; factor; product; proper fraction

## Essential Vocabulary

### Grade 3

#### **MATHEMATICS** (continued)

Measurement and Geometry: make change; coin (coins); bill (bills); length: centimeter, meter, inch, feet, yard; liquid volumes: cup, pint, quart, gallon, liter; weight/mass: ounce, pound, gram, kilogram; five-minute interval; minute; analog clock; digital clock; leap year; calendar; day; month; week; year; hour; temperature; thermometer; Celsius; Fahrenheit; plane geometric figure; circle; square; rectangle; triangle; solid geometric figure; cube; rectangular solid; square pyramid; sphere; cone; cylinder; side; corner; square corner; edge; face; right angle; point; line; infinitely; line segment; angle; endpoint; vertex; ray; congruent figure; noncongruent figure; shape; symmetrical; line of symmetry; transformation; translation (side); rotation (turn); reflection (flip); vertical; horizontal; diagonal

**Probability and Statistics:** data; graph; title; axis; key; increments; number line; probability; favorable outcomes; impossible; outcomes; impossible; unlikely; equally likely; likely; certain

**Patterns, Functions, and Algebra:** pattern (patterns); equal sign; equation; number sentence; commutative property for multiplication; identity property for addition; identity property for multiplication

#### **SCIENCE**

*Scientific Investigation, Reasoning, and Logic:* hypothesis; volume; milliliter; liter; length; centimeter; mass; gram; data; line plot; picture graph; bar graph; temperature; Celsius; time; minute; inferences; predictions

**Force, Motion, Energy, and Matter:** simple machines: lever, screw, pulley, wheel and axle, inclined plane, wedge; compound machines: scissors, wheelbarrow, bicycle; seesaw; crowbar; shovel; ramp; knife; ax; rod; bicycle wheel; roller skates; doorknob; cylinder; cone; jar lid; wood screw; flagpole; physical properties; materials

## Essential Vocabulary

### **Grade 3**

#### **SCIENCE** (continued)

*Life Processes and Living Systems:* physical adaptations; environment; camouflage; mimicry; behavioral adaptations; hibernation; migration; instinct; learned behavior; gather food; store food; find shelter; defend; rear young; producer; consumer; decomposer; herbivore; carnivore; omnivore; predator; prey; water-related environment; dry-land environment; pond; marshland; swamp; stream; river; ocean; desert; grassland; rainforest; forest; population; community; interdependency

**Earth/Space Systems and Cycles:** soil; nutrients; subsoil; bedrock; rock; clay; silt; sand; humus; day; night; seasonal changes; phases of the moon; tides; animal life cycle; plant life cycle; sequence; rotation; Earth's axis; revolution; water cycle; evaporation; condensation; precipitation; pollution; fire; flood; disease; erosion; light energy; heat energy; sunlight; water; wind; fossil fuel; coal; oil; natural gas; wood; renewable energy resources; nonrenewable energy resources

#### HISTORY/SOCIAL SCIENCE

*History:* government; contribution; direct democracy; representative democracy; architecture; Greece; Rome; Arts; mosaics; sculpture; paintings; democracy; Republican; Olympic games; oral tradition; storytelling; kings; economic development; trade; prosperous; empire; Mali; traditions; Christopher Columbus; Juan Ponce de Leon; Jacques Cartier; Christopher Newport; explorer; European

*Geography:* characteristics; physical; Ancient Greece; Ancient Rome; Empire of Mali; human; adapt (adapted); Spain; England; France; hemisphere; equator; Prime meridian; regions; continents; oceans; Europe; North America; map; table; graph; chart

*Economics:* producer; natural resources; human resources; capital resources; goods; services; consumer; specialization; interdependence; economic choice; opportunity cost

*Civics:* community; rules; laws; government; equality; George Washington; Thomas Jefferson; Abraham Lincoln; Rosa Parks; Thurgood Marshall; Martin Luther King, Jr.; Veterans Day; Memorial Day; honor; life; liberty; pursuit of happiness; diverse ethnic origins; customs; tradition; Republican form of government

## Essential Vocabulary

### **Grade 4**

#### **ENGLISH**

*Oral:* opinion; central idea; supporting detail; evidence; accurate directions; clarity

**Reading:** multiple meaning; synonym; antonym; homonym; glossary; thesaurus; context; word origin; author's purpose; fact; fantasy; historical fiction; major event; supporting detail; sensory word; entertain; inform; persuade; narrative poetry; verse; type; heading; graphic; inference; draw conclusion; summarize; cause and effect; fact and opinion; boldface; italic; color; caption under picture; nonfiction; biography (biographies); informational text; dictionary (dictionaries); atlas; almanac; encyclopedia; thesauruses

*Writing:* topic; central idea; paragraph; rhyme (rhymed); unrhymed; pattern poetry; cinquain; limerick; haiku; subject-verb agreement; prepositional phrase; double negative; noun-pronoun agreement; comma; adjective; adverb; article; homophone

#### **MATHEMATICS**

**Number and Number Sense:** period (periods); whole number (whole numbers); greater than; less than; equal to; million (millions); place value; inequality symbols; thousand; ten thousand; hundred thousand; fraction; mixed number; decimal; (decimals); rational number; half (halves); three (third); four (fourths); six (sixths); eight (eighths); ten (tenths); twelve (twelfths); fraction; part of a whole; denominator; numerator; common denominator; like denominator; unlike denominator; least common multiple; decimal point; decimal number: standard, written, expanded; hundredth

**Computation and Estimation:** sum; difference; estimate; compatible numbers; closer to; between; a little more than; front-end estimation; addend; minuend; subtrahend; factor; product; division; dividend; divisor; quotient; like denominator; unlike denominator

## Essential Vocabulary

### **Grade 4**

#### **MATHEMATICS** (continued)

**Measurement and Geometry:** weight/mass; U.S. customary; metric unit (metric units); ounce; pound; gram; kilogram; length; inch; feet; yard; millimeter; centimeter; meter; volume; cup; pint; quart; gallon; milliliter; liter; perimeter; area; point; line; line segment; ray; infinitely; endpoints; vertex; angle; straightedge; ruler; angle ruler; intersecting lines; perpendicular lines; intersect; parallel lines; intersection; parallelism; perpendicularity; plane; two-dimensional (plane); three-dimensional (solid); square; rectangle; triangle; parallelogram; rhombi; circle; sphere; cube; rectangular solids (prisms); congruent; noncongruent; transformations: translations, reflection, rotation; polygon; quadrilateral; equidistant; fixed point; square pyramid; center; coordinate plane; horizontal number line; vertical number line; right angle; x-axis; y-axis; coordinate (coordinates); ordered pair; first quadrant; origin

**Probability and Statistics:** probability; event; favorable outcomes; possible outcomes; certain; likely; unlikely; impossible; predict; as likely; as unlikely; equally likely; data analysis; line graphs; increasing; decreasing; same; continuous data; categorical data; numerical data; bar graph; scale; frequency

*Patterns, Functions, and Algebra:* geometric pattern; numerical pattern; equivalent; communicative property for addition; commutative property for multiplication; associative property for multiplication

#### **SCIENCE**

*Scientific Investigation, Reasoning, and Logic:* inference; prediction; experiment; variable; hypothesis; millimeter; centimeter; meter; kilometer; liter; gram; kilogram; centimeter ruler; meter stick; graduated cylinder; beaker; scale; balance; Celsius thermometer; manipulated variable; responding variable

Force, Motion, Energy, and Matter: motion; direction; speed; force; friction; kinetic energy; position; potential; conductor; insulator; basic circuits; static electricity; electrical energy; heat; light; mechanical energy; electromagnet; magnetism; electron; current; circuit; closed circuit; open circuit; metal; rubber; plastic; wood; electricity; lightning; poles; magnetic force; Ben Franklin; Michael Faraday; Thomas Edison

## Essential Vocabulary

### **Grade 4**

#### **SCIENCE** (continued)

*Life Processes and Living Systems:* plant kingdom; seed; spore; root; stem; leaf; flower; stamen; pistil; sepal; pollination; photosynthesis; chlorophyll; carbon dioxide; oxygen; dormancy; sunlight; water; sugar; organism; community; ecosystem; habitat; niche; life cycle; animal; plant

Earth/Space Systems and Cycles: air pressure; barometer; wind speed; anemometer; rainfall; rain gauge; temperature; thermometer; weather phenomena; fronts; clouds; storms; cirrus clouds; stratus clouds; cumulus clouds; cumulo-nimbus clouds; thunderstorm; hurricane; tornado; revolution; rotation; seasons; phases of the moon; Earth; moon; sun; axial tilt; new moon; waxing crescent; first quarter; waxing gibbous; full; waning gibbous; last quarter; waning crescent; planets; solar system; Earth-centered model; Aristotle; Ptolemy; sun-centered model; Copernicus; Galileo; NASA Apollo missions; watershed; water resources; minerals; rocks; ores; energy resources; forests; soil; land; Chesapeake Bay watershed; rivers; lakes; bays

#### **VIRGINIA STUDIES**

*History:* English colonization; settlement; stockholder; Virginia Company of London; Jamestown; diverse; impact; indentured servant; tobacco; hardships; starvation; disease; survival; Captain John Smith; agriculture; contribute (contributions); trade (trading); Powhatan; exchange; goods; immigrants; cultural landscape; migration; Revolutionary War; patriots; Continental Army; Yorktown; James Armistead Lafayette; George Washington; Thomas Jefferson; Patrick Henry; surrender; elect (elected); James Madison; Constitutional Convention; conflict; secede; northern states; southern states; economy; Nat Turner; Harriet Tubman; escaped; Underground Railroad; John Brown; United States Armory; Harpers Ferry, Virginia; Civil War; significant role; first battle of Bull Run; Confederate; General Thomas "Stonewall" Jackson; General Robert E. Lee; Commander of the Army of Northern Virginia; Ulysses S. Grant; blockade; Monitor; Merrimack; draw; Maggie L. Walker; Harry F. Byrd, Sr.; Arthur R. Ashe, Jr.; L. Douglas Wilder

*Geography:* next to; near; bordering; Fall Line; geographic regions; Coastal Plain; Tidewater; Piedmont; Blue Ridge Mountains; Valley and Ridge; Appalachian Plateau; peninsula; Atlantic Ocean; Chesapeake Bay; James River; York River; Potomac River; Rappahannock River; American Indians; First Americans; Christopher Columbus; artifacts; arrowhead; pottery; Algonquian; Siouan; Iroquoian; climate; spring; summer; fall; winter; vegetation; forest; shelter; geography; relocation; capital; Jamestown; Williamsburg; Richmond; higher elevation; westward; central

## Essential Vocabulary

### **Grade 4**

#### **VIRGINIA STUDIES (continued)**

**Economics:** agriculture; cash crop; profitable; product; reliable; inexpensive; labor; plantations; slave labor; money; barter; credit; debt; saving; consumer; goods; services; harvested; reconstruction; Freedmen's Bureau; sharecropping; crop; economic growth; Civil War; railroads; expansion; coal; livelihood; industry; rural; urban; coal mining; Coastal Plain; Tidewater; product; Piedmont; Blue Ridge Mountains; Valley and Ridge; Appalachian Plateau; raw material; finished product; export; communication; technology; tourism

*Civics:* charters; New World; Virginia Assembly; legislative body; Virginia House of Burgesses; system of government; elected; Declaration of Independence; colonists; English Parliament; Virginia Declaration of Rights; Virginia Statue for Religious Freedom; segregation; discrimination; "Jim Crow" laws; prejudice; poll taxes; separate; massive resistance; desegregation; integration; U.S. Supreme Court; *Brown v. Board of Education*; Harry F. Byrd, Sr.; state constitution; General Assembly; Senate; House of Delegates; governor; executive branch; judicial branch

## Essential Vocabulary

### Grade 5

#### **ENGLISH**

Oral: sequential (sequentially); summarize; narrow the topic

**Reading:** context; root word; prefix; suffix; dictionary; glossary; thesaurus; chapter development; plot; conflict; free verse; rhyme (rhymed); patterned poetry; type; heading; graphic; opinion; predict (prediction); conclusion; cause-and-effect; compare-and-contrast; skim; boldface; italic; caption; fact; draw conclusion

*Writing:* tone; voice; plural possessive; adjective; adverb; interjection; apostrophe in contraction; apostrophe in possessives; quotation mark; dialogue; comma; hyphen; fragment; run-on sentence; excessive coordination

#### **MATHEMATICS**

**Number and Number Sense:** decimal; decimal forms: standard, written, expanded, place value; greater than; less than; equal to; half (halves); fourth (fourths); fifth (fifths); eighth (eighths); tenth (tenths); decimal number (decimal numbers)

**Computation and Estimation:** addition; subtraction; multiplication; division; estimate (estimation); reasonableness; hundredths; thousandths; ten-thousandths; inverse; dividend; divisor; quotient; remainder; fraction; numerator; denominator; greatest common factor; least common factor; simplest form; mixed number

## Essential Vocabulary

### **Grade 5**

#### **MATHEMATICS** (continued)

Measurement and Geometry: perimeter; polygon; length; area; square units; rectangle; width; square; side; triangle; base; height; right triangle; circle; flat surface (plane); equidistant; center; chord; line segment; diameter; radius; segment; radii; circumference; surface; capacity; length: inch, feet, yard, mile, millimeter, centimeter, meter, kilometer; weight/mass: ounce, pound, ton, gram, kilogram; liquid volume: cup; pint; quart; gallon; milliliter; liter; area: square unit; temperature: Celsius; Fahrenheit; freezes; boils; body temperature; U.S. customary unit; balance (balances); metric unit; degrees; elapsed time; hours; minutes; 24-hour period; angles; complete rotation; protractor; angle ruler; right angle; acute angle; square corner; classify; polygon; scalene; isosceles; equilateral; quadrilateral; parallelogram; opposite sides; parallel; diagonal; vertices; congruent; plane figures; kites; rhombi; trapezoids; noncongruent; similar; line of symmetry; images; geometric transformations: translations, reflection, rotation, base leg, isosceles trapezoid, adjacent, reflected image, line of reflection, preimage, point, size, shape, cylinder, cone, cube, square pyramid, rectangular prism, three-dimensional figure, solids, curved surface, perpendicular, edge, face, opposite faces

**Probability and Statistics:** probability; outcomes; event; favorable outcomes; possible outcomes; ratio; impossible; unlikely; as likely; as unlikely; equally likely; likely; certain; sample space; list; chart; tree diagram; counting principle; bar graph; stem-and-leaf plot; line graph; conclusion; prediction (predictions); ascending order; axis; scale; category (categories); increment; variable; continuous data; title; vertical axis; frequency; same; increase (increased); decrease (decreased); key; mean; median; mode; range

*Patterns, Functions, and Algebra:* infinite number; repeating pattern; growing pattern; function (functions); variable; variable expression; equal sign; verbal quantitative expression; open sentence; mathematical sentence

#### **SCIENCE**

**Scientific Investigation, Reasoning, and Logic:** rocks; minerals; organisms; metric; prediction; estimation; temperature; length; mass; volume; millimeter; centimeter; meter; kilometer; gram; kilogram; milliliter; liter; degree Celsius; variable; independent; dependent; observation; inference

## Essential Vocabulary

### **Grade 5**

#### **SCIENCE** (continued)

Force, Motion, Energy, and Matter: sound; frequency; wave; wavelength; vibration; solid; liquid; gas; voice; sonar; animal sound; musical instrument; pitch; string instrument; woodwind; percussion instrument; brass instrument; red; orange; yellow; green; blue; indigo; violet; ray; reflected; transmitted; transparent; translucent; opaque; prism; atom; element; molecule; compound; mixture; solution; states of matter

*Life Processes and Living Systems:* cell; life process; microscope; organism; kingdom; moneran; protest; fungi; plant; animal; vascular; nonvascular; vertebrate; invertebrate

Earth/Space Systems and Cycles: ocean; continent; continental shelf; continental slope; continental rise; sediment; ocean trench; sodium chloride; salinity; wave; current; tide; ocean current; ocean floor; ocean feature; abyssal plain; depth; formation of waves; investigation; phytoplankton; rock; weathering; erosion; sedimentary; igneous; metamorphic; granite; gneiss; slate; limestone; shale; sandstone; coal; fossil; Appalachian; Piedmont; Coastal Plain; Tidewater; crust; mantle; inner core; outer core; plate tectonic boundaries; divergent; convergent; sliding; plates; faults; horizontally; sliding boundaries; strike-slip; transform boundary; mid-ocean ridges; mountain range

#### **VIRGINIA STUDIES**

*History:* English colonization; settlement; stockholder; Virginia Company of London; Jamestown; diverse; impact; indentured servant; tobacco; hardships; starvation; disease; survival; Captain John Smith; agriculture; contribute (contributions); trade (trading); Powhatan; exchange; goods; immigrants; cultural landscape; migration; Revolutionary War; patriots; Continental Army; Yorktown; James Armistead Lafayette; George Washington; Thomas Jefferson; Patrick Henry; surrender; elect (elected); James Madison; Constitutional Convention; conflict; secede; northern states; southern states; economy; Nat Turner; Harriet Tubman; escaped; Underground Railroad; John Brown; United States Armory; Harpers Ferry, Virginia; Civil War; significant role; first battle of Bull Run; Confederate; General Thomas "Stonewall" Jackson; General Robert E. Lee; Commander of the Army of Northern Virginia; Ulysses S. Grant; blockade; Monitor; Merrimack; draw; Maggie L. Walker; Harry F. Byrd, Sr.; Arthur R. Ashe, Jr.; L. Douglas Wilder

## Essential Vocabulary

### **Grade 5**

#### **VIRGINIA STUDIES (continued)**

*Geography:* next to; near; bordering; Fall Line; geographic regions; Coastal Plain; Tidewater; Piedmont; Blue Ridge Mountains; Valley and Ridge; Appalachian Plateau; peninsula; Atlantic Ocean; Chesapeake Bay; James River; York River; Potomac River; Rappahannock River; American Indians; First Americans; Christopher Columbus; artifacts; arrowhead; pottery; Algonquian; Siouan; Iroquoian; climate; spring; summer; fall; winter; vegetation; forest; shelter; geography; relocation; capital; Jamestown; Williamsburg; Richmond; higher elevation; westward; central

**Economics:** agriculture; cash crop; profitable; product; reliable; inexpensive; labor; plantations; slave labor; money; barter; credit; debt; saving; consumer; goods; services; harvested; reconstruction; Freedmen's Bureau; sharecropping; crop; economic growth; Civil War; railroads; expansion; coal; livelihood; industry; rural; urban; coal mining; Coastal Plain; Tidewater; product; Piedmont; Blue Ridge Mountains; Valley and Ridge; Appalachian Plateau; raw material; finished product; export; communication; technology; tourism

*Civics:* charters; New World; Virginia Assembly; legislative body; Virginia House of Burgesses; system of government; elected; Declaration of Independence; colonists; English Parliament; Virginia Declaration of Rights; Virginia Statue for Religious Freedom; segregation; discrimination; "Jim Crow" laws; prejudice; poll taxes; separate; massive resistance; desegregation; integration; U.S. Supreme Court; *Brown v. Board of Education*; Harry F. Byrd, Sr.; state constitution; General Assembly; Senate; House of Delegates; governor; executive branch; judicial branch

## Essential Vocabulary

### Grade 6

#### **ENGLISH**

*Oral:* summarize; infer; assimilate; fact; opinion; viewpoint (viewpoints); convincing argument; paraphrase; restate; trivia; redundancy

**Reading:** word origin; derivation; inflection; analogy (analogies); figurative language; context; multiple meaning; inflected words; synonym; antonym; object/action; source/product; part/whole; animal/habitat; simile; hyperbole; dictionary; thesaurus; glossary; online source; boldface; italics type; graphic; headings; subheadings; technical vocabulary; atlas; globe; encyclopedia; database; Internet; setting; character; plot; conflict; theme; narrative; poetic structures; imagery; cause-effect relationships; draw conclusions; make inferences; central conflict; paraphrase; summarize; duration; character traits; internal conflict; external conflict; rhyme; rhythm; repetition; alliteration; onomatopoeia; haiku; limerick; ballad; free verse; main idea; details; organizing text; chronological order; sequential order; comparison/contrast; cause-and-effect; problem-solution; generalization; principle; technical vocabulary

**Writing:** prewrite (prewriting); elaborate (elaboration); central idea; organize (organization); unity; tone; voice; clarity; coordination; subordination; revise (revising); comma splice; coordinating conjunction; prepositional phrase; singular verb; first person pronoun; adjective; adverb; dialogue; hyphenate; apostrophe; contraction; possessive; verb tense

#### **MATHEMATICS**

**Number and Number Sense:** percent (percents); percent symbol (%); half (halves); third (thirds); fourth (fourths); fifth (fifths); tenth (tenths); decimal (decimals); fraction (fractions); ratio; part-whole comparison; part-part comparison; whole-whole comparison; least common multiple; greatest common factor; composite number; prime number; even integer; odd integer; prime factorization; natural number; positive integer; negative integer; zero; less than; greater than; equal to; number line

**Computation and Estimation:** reasonableness; unlike denominators; rational number; budget

## Essential Vocabulary

### **Grade 6**

#### **MATHEMATICS** (continued)

Measurement and Geometry: length: inch, foot (feet), yard, mile, millimeter, centimeter, meter, kilometer; weight/mass: ounce, pound, ton, gram, kilogram; liquid volume: cup, pint, quart, gallon, milliliter, liter; area: square unit; perimeter; perimeter of a square; perimeter of a rectangle; polygon; circle; area of a triangle; pi ( $\pi$ ); circumference; diameter; radius; referent; 45° angle; vertex; 90° angle; right angle; 180° angle; straight angle; straight line; protractor; angle ruler; acute angle; square angle; obtuse angle; acute triangle; right triangle; obtuse triangle; scalene triangle; isosceles triangle; equilateral triangle; rectangle; quadrilaterals; parallelogram; rhombus; square; parallel; trapezoid; congruent; isosceles trapezoid; congruent figures; noncongruent figures; corresponding angles; line segments; perpendicular bisector; bisector of an angle; bisect; line of symmetry; solid figures; three dimensional; prism; base; face; edge; rectangular prism; cylinder; cone; pyramid

**Probability and Statistics:** scale; key; title; list (lists); chart (charts); table (tables); bar graph; line graph; circle graph; stem; leaves; stem-and-leaf plot; ascending order; place value; box-and-whisker plot; median; lower extreme; lower quartile; upper quartile; upper extreme; range; interquartile range; horizontal axis; vertical axis; measures of central tendency; mean; median; mode; numerical average; sample space; tree diagram; probability; desired outcomes; possible outcomes; simple event

**Patterns, Functions, and Algebra:** numerical pattern; arithmetic sequence; common difference; linear growth; exponential growth; perfect square; triangular number; polygonal number; Fibonacci number; flip; slide; turn; growth; symmetry; rotation (turn); translation (slide); dilatation (scale increase or decrease); reflection (flip); geometric number pattern; common ratio; power of a number; exponential notation; base; exponent; real number; square root; scientific notation; one-step linear equation; coefficient; equation; mathematical sentence; variable; term

## Essential Vocabulary

### **Grade 6**

#### **SCIENCE**

*Scientific Investigation, Reasoning, and Logic:* observation; scale models; experiment; hypothesis; prediction; inference; independent variable; dependent variable; models; patterns

Force, Motion, Energy, and Matter: potential energy; kinetic energy; mechanical energy; solar energy; fossil fuel; geothermal energy; energy; solar radiation; types of radiation; infrared; visible light; ultraviolet; carbon dioxide; Greenhouse Effect; convection; wavelength; reflection; absorption; atom; electron (electrons); proton (protons); neutron (neutrons); nucleus; element; chemical symbols; compound; chemical formulas; subscript; chemical equations; simple molecule; water; solid; liquid; gas; dissolve; universal solvent; Celsius; physical weathering; chemical weathering; aquifers; irrigation systems; hydroelectric; air; oxygen; nitrogen; argon; carbon dioxide; air pressure; humidity; troposphere; clouds; cumulus; stratus; cirrus; ozone; air quality; thunderstorm; tornado; hurricane; drought; ecosystem; water quality; abiotic factors; water supply; topography; landforms; geology; soil (soils); sunlight; watershed; ridgelines; river systems; tributaries; flood plains; streams; sediment; wetlands; estuaries; parameters; pH; temperature; salinity; dissolved oxygen; turbidity; macroinvertebrate organisms

**Ecosystems:** ecosystems; water quality; abiotic factors; water supply; topography; landforms; geology; soil (soils); sunlight; air quality; watershed; ridgelines; river systems; tributaries; flood plains; streams; sediment; wetland (wetlands); estuary (estuaries); pH; temperature; salinity; dissolved oxygen; turbidity; macroinvertebrate organisms

*Earth/Space Systems and Cycles:* solar system; sun; Earth; planet (planets); moon (moons); meteors; asteroid (asteroids); comet (comets); gravity; universe; axis; nitrogen; oxygen; magnetic field; solar radiation; Ptolemy; Aristotle; Copernicus; Galileo; season (seasons); tide (tides); conserve (conservation); natural resources; forestry; waste management; renewable resources

## Essential Vocabulary

### **Grade 6**

#### **UNITED STATES HISTORY TO 1877**

**Exploration to Revolution:** obstacle (obstacles); explorer (explorers); accomplishment (accomplishments); economic; exploration; religious; competition (competitions); exchange; goods; idea (ideas); navigational tool (navigational tools); cooperation; conflict; cultural interaction; technology (technologies); trade; crop (crops); Roanoke Island; Jamestown Settlement; Plymouth colony; religious persecution; Massachusetts Bay Colony; Quakers; colonial life; social position; large landowners; farmer (farmers); artisan (artisans); women; indentured servants; slave (slaves); taxed; French and Indian War; raw material (raw materials); governor (governors); proprietor; legislature (legislatures)

**Revolution and the New Nation:** American Revolution; representation; Parliament; Proclamation of 1763; King George III; Lord Cornwallis; John Adams; George Washington; Thomas Jefferson; Patrick Henry; Benjamin Franklin; Thomas Paine; Phillis Wheatley; Paul Revere; Boston Massacre; Boston Tea Party; First Continental Congress; Battle of Lexington and Concord; Battle of Saratoga; Surrender at Yorktown; Signing of the Treaty of Paris; federal court system; Benjamin Banneker; Louisiana Purchase; Lewis and Clark; James Madison; James Monroe; War of 1812; Monroe Doctrine

Westward Expansion and the Civil War Era: westward expansion; reform; territorial expansion; acquisition (acquisitions); Louisiana Purchase; Lewis and Clark expedition; abolitionist; suffrage; Harriet Tubman; William Lloyd Garrison; Frederick Douglass; patriotic slogans; Isabel Sojourner Truth; Susan B. Anthony; Elizabeth Cady Stanton; Civil War; slavery; a union; Missouri Compromise (1820); Compromise of 1850; Kansas-Nebraska Act; southern secession; Confederate forces; Abraham Lincoln; Emancipation Proclamation; Gettysburg Address; Jefferson Davis; Ulysses S. Grant; Robert E. Lee; Thomas "Stonewall" Jackson; Clara Barton; perspective (perspectives); American Red Cross; discriminate (discriminated); segregate (segregated); Robert Smalls; bravery; heroism; reconstruction; carpetbaggers; equal rights; Civil Rights Act of 1866

## Essential Vocabulary

### **Grade 6**

#### **UNITED STATES HISTORY TO 1877 (continued)**

Geography: continent (continents); North America; South America; Africa; Asia; Australia; Antarctica; Europe; geographic regions; Coastal Plain; Appalachian Highlands; Canadian Shield; Interior Lowlands; Great Plains; Rocky Mountains; Basin and Range; Coastal Range; ocean (oceans); Atlantic Ocean; Pacific Ocean; river (rivers); Mississippi River; Missouri River; Ohio River; Columbia River; Colorado River; Rio Grande River; lake (lakes); Great Lakes; gulf; Gulf of Mexico; trade; transportation; settlement; American Indians (First Americans); Arctic; Inuit; Northwest; Kwakiutl; Plains; Sioux; Southwest; Pueblo; Eastern Woodland; Iroquois; geography; climate; shelter; New England; economy; social life; political life; civil life; Mid-Atlantic; South; seceded; Fort Sumter, S.C.; the first Battle of Manassas (Bull Run); Battle of Vicksburg; Battle of Gettysburg; surrender; blockade

*Civics and Economics:* Ghana; Mail; Songhai; John Locke; Declaration of Independence; certain unalienable rights; Congress; power; tax; regulate; commerce; currency; vote; executive branch; judicial branch; challenge (challenges); weak (weaknesses); Articles of Confederation; Constitution of the United States of America; Bill of Rights; federal system of government; separation of powers; James Madison's Virginia Plan; legislative branch; ten amendments; political party (political parties); federalist (federalists); Alexander Hamilton; Thomas Jefferson; Democratic Republicans; Manifest Destiny; invention (inventions); new technology; cotton gin; Eli Whitney; Jo Anderson; Cyrus McCormick; reaper; steamboat; Robert Fulton; steam locomotive; ban (bans); 13<sup>th</sup> Amendment; citizenship; 14<sup>th</sup> Amendment; 15<sup>th</sup> Amendment

## Essential Vocabulary

### Grade 7

#### **ENGLISH**

*Oral:* succinct; relevant idea; tone; style; word choice; pitch; feeling; voice; eye contact; posture; gesture; verbal message; nonverbal message; persuasive technique; fact; opinion; viewpoint

**Reading:** root; affix (affixes); analogy (analogies); figurative language; connotation; analogy construction; purpose; cause/effect; sequence; characteristic; product; degree; synonym; simile; personification; hyperbole; setting; character development; plot structure; theme; conflict; short story; novel; play; folk literature; poetry; essay; biography (biographies); rhyme; rhythm; repetition; line structure; draw conclusion; make inference; summarize; external conflict: individual vs. individual vs. nature, individual vs. society, individual vs. supernatural, individual vs. technology; internal conflict; plot; initiating event, rising action, climax, falling action, resolution; theme; voice; mood; haiku; limerick; ballad; free verse; couplet; quatrain; foreshadow (foreshadowing); irony; meter; alliteration; assonance; consonance; onomatopoeia; organizational pattern; fact; opinion; viewpoint; purpose; textual aid: boldface; italic type, type set in color, underline (underlining), indentation, sidebars, illustrations, graphics, photographs, headings, subheading, footnote, annotation, comparison/contrast, enumeration/listing, sequential, chronological, concept/definition, generalization, process; resource tool

**Writing:** prewriting; voice; tone; serious; sarcastic; objective; enthusiastic; solemn; humorous; hostile; personal; impersonal; pronoun; antecedent; subject-verb agreement; complete sentence; compound sentence; simple sentence

#### **MATHEMATICS**

**Number and Number Sense:** fraction (fractions); decimal (decimals); percent (percents); scientific notation; rational number; ratio; integer (integers); expression; order of operations; power of a number; additive identity property; multiplicative inverse property; multiplicative inverse property; multiplicative property for addition; associative property for addition; associative property of multiplication; distributive property

## Essential Vocabulary

### **Grade 7**

#### **MATHEMATICS** (continued)

**Computation and Estimation:** discount (discounts); sales tax; tip (tips); cost; sale price; original price; simple interest; principal; interest; total value; total cost; loan; rational number (rational numbers); whole number (whole numbers); fraction (fractions); decimal (decimals); percent (percents); proportion; scale model; rate

**Measurement and Geometry:** polygon; closed plane figure; perimeter; area; rectangle; triangle; parallelogram; trapezoid; rectangular prism; cylinder; volume; quadrilateral; planar (two-dimensional); congruent; rhombus; parallel; non-parallel; isosceles trapezoid; attributes; diagonals; perpendicular bisectors; pentagon; hexagon; heptagon; octagon; nonagon; decagon; corresponding angles; corresponding sides; congruent polygons; similar polygons; x-axis; y-axis; ordered pair; plane; point; coordinate; quadrant (quadrants); rotation; center of rotation; translation; slide; vertically; horizontally; origin; coordinate plane

**Probability and Statistics:** theoretical probability; event; favorable outcomes; possible outcomes; experimental probability; tree diagrams; Fundamental Counting Principle; outcome (outcomes); sample space; measures of central tendency; mean; median; mode; range; frequency distribution; line plot; histogram; stem-and-leaf plot; box-and-whisker plot; scattergram; lower extreme; lower quartile; upper extreme; interquartile range; inference (inferences); conjecture (conjectures); predict (predictions)

**Patterns, Functions, and Algebra:** function; arithmetic sequence; common difference; geometric sequences; common ratio; verbal expression; verbal sentence; algebraic expression; algebraic equation; is; of; more than; less than; increased by; decreased by; expression; variable expression; numerical expression; equation; mathematical sentence; inequality; inverse operation

## Essential Vocabulary

### Grade 7

#### LIFE SCIENCE

*Scientific Investigation, Reasoning, and Logic:* hypothesis; independent variable; dependent variable; International System of Units; constant; variable; trials; observational studies; experimental studies; Scientific Method; problem; data; conclusion

Life Systems: cell theory; organelles; cell membrane; cytoplasm; nucleus; cell wall; vacuole; mitochondria (mitochondrion); endoplasmic reticulum; chloroplast; microscope; mitosis; meiosis; cell cycle; interphase; cytokinesis; unicellular organism; multicellular organism; respiration; waste removal; growth; irritability; reproduction; tissues; osmosis; diffusion; active transport; cell; organ; organ system; experimental design; plant; light; energy source; water; gas; nutrient; animal; food; shelter; space; hierarchy; kingdom; phylum; class; order; family; genus; species; nomenclature; nucleus; phyla; cnidarians; mollusks; annelids; echinoderm; chordates; mosses; ferns; conifers; flowering plants; chlorophyll; photosynthesis; glucose; energy; photosynthesizing organisms; organelle; DNA; double helix molecule; molecule; sugar; nitrogenous bases; phosphates; chromosomes; genes; trait; Mendelian genetics; genetic engineering; genetic trait; Mendel; Franklin; Watson; Crick; evolution; mutation; adaptation; natural selection; extinction; species

**Ecosystems:** ecosystem; trophic level; producer; first-order consumer; second-order consumer; third-order consumer; organism; food web; interdependence; terrestrial; freshwater ecosystem; marine ecosystem; population; social order; territory; experimental design; community (communities); organisms; consumer; decomposer; interaction; symbiotic relationship; mutualism; commensalisms; parasitism; niche; biome; desert; forest; grassland; tundra; biotic; abiotic; phototropism; hibernation; dormancy; ecosystem dynamics

Earth/Space Systems and Cycles: evolution; mutation; adaptation; natural selection; extinction; species

## Essential Vocabulary

### **Grade 7**

#### UNITED STATES HISTORY 1877 TO PRESENT

Experience of Modern America: 1877 to Early 1900s: westward expansion; immigration; invention; industrialization; urbanization; tenements; Settlement house; Hull house; Jane Addams; reservation; Battle of Little Bighorn; Chief Joseph; discrimination; ghetto; political corruption; post-Reconstruction; racial segregation; "Jim Crow" laws; Booker T. Washington; W.E.B. Du Bois; organized labor; strike; progressive movement; women's suffrage; 19<sup>th</sup> Amendment; Susan B. Anthony; Temperance Movement; 18<sup>th</sup> Amendment; union (unions)

Turmoil and Change: 1890s to 1945: Spanish American War; U.S.S. Maine; Yellow Journalism; neutral; Lusitania; Allies; Central Powers; Woodrow Wilson; League of Nations; prohibition; speakeasies; bootleggers; Harlem Renaissance; Georgia O'Keeffe; F. Scott Fitzgerald; John Steinbeck; Aaron Copland; George Gershwin; Jacob Lawrence; Langston Hughes; Duke Ellington; Louis Armstrong; jazz composers; Bessie Smith; blues singer; World War II; Pearl Harbor; inflation; unemployment; Fascism; Adolf Hitler; Benito Mussolini; Hideki Tojo; Axis Powers; Franklin D. Roosevelt; Harry S. Truman; Winston Churchill; Joseph Stalin; neutrality; involvement; isolationism; economic aid; Holocaust; D-Day; Hiroshima; Nagasaki; Anti-Semitism; Aryan supremacy

*United States since World War II:* Marshall Plan; communism; United Nations; Cold War; democratic; capitalist; dictatorial; communist; containment; North Atlantic Treaty Organization (NATO); Warsaw Pact; stalemate; Cuban Missile Crisis; Berlin Wall; "The Baby Boom"; Eleanor Roosevelt; G.I. Bill of Rights

*Geography:* map; globe; photograph; picture; table; physical feature; climate; Great Plains; inventions; adaptation; natural resources; transportation; industrial development; manufacture (manufacturing); textile industry; automobile industry; steel industry; region; Northeast; Southeast; Midwest; Southwest; Rocky mountains; Pacific; noncontiguous; city (cities); Western

*Civics and Economics:* prosperity; national market; captains of industry; John D. Rockefeller; oil; Andrew Carnegie; steel; Henry Ford; automobile; mechanization; industrialization; Wright Brothers; Guglielmo Marconi; David Sarnoff; electrification; Franklin D. Roosevelt's New Deal; Great Depression; Federal Reserve; tariffs; social security; rationing; credit; segregation; *Plessy v. Ferguson*; *Brown v. Board of Education*; Martin Luther King, Jr.; Rosa Parks; organized protests; National Association for the Advancement of Colored People (NAACP); Civil Rights Act of 1964; Voting Rights Act of 1965; National Organization for Women (NOW)

## Essential Vocabulary

### **Grade 8**

#### **ENGLISH**

*Oral:* interview; abbreviate (abbreviation); persuasive technique; public opinion; advertisement; editorial; feature story (featured stories); intent: factual; content

**Reading:** simile; metaphor; personification; hyperbole; connotation; analogy: type or example, characteristics, association, operator, degree, mathematical, number; figurative language; main idea; theme; character; conflict; point of view; tone; word choice; dialogue; form; rhyme; rhythm; voice; author's style; setting; static; dynamic; external conflict: individual vs. individual, individual vs. nature, individual vs. society, individual vs. supernatural, individual vs. technology; internal conflict; plot: initiating event, rising action, climax, falling action, resolution; theme; dialogue; tone; first person; third person limited to a character or narrator; third person omniscient; literary devices; foreshadow (foreshadowing); irony; flashback; symbolism; haiku; limerick; ballad; free verse; couplet; quatrain; meter repetition; alliteration; assonance; consonance; onomatopoeia; credential; viewpoint; impact; relevance; accurate (accuracy); summarize (summary); draw conclusion; explicit information; implied information; make inferences; internal text structure: cause-and-effect, comparison/contrast, enumeration or listing, sequential or chronological, concept/definition, generalization, process; external text structures: boldface; italic type, type set in color, underline (underlining), indentation, sidebars, illustrations, graphics, photographs, headings and subheadings, footnotes; annotations

*Writing:* organize; elaborate; central idea; revise; narrative; persuasive; expository; informational; prewriting; voice; tone; verb tense; comparative degree; superlative degree; adverb; adjective; complete sentence; singular verb; singular subject; singular pronoun; singular antecedent; objective pronoun; prepositional phrase; compound object; tense; comparative adjective; superlative adjective; comparative adverb; superlative adverb; transitional word; conjunction

## Essential Vocabulary

### **Grade 8**

#### **MATHEMATICS**

**Number and Number Sense:** rational number; scientific notation; decimal; fraction; percent; expression; numerical expression; order of operations; power; base; natural number; whole number; integer; rational number; irrational number; real number

Computation and Estimation: discount; percent; discount price; algebraic expression; square root; perfect square

**Measurement and Geometry:** vertical angles; complementary angles; supplementary angles; intersecting lines; polyhedron; pyramid (pyramids); lateral area; surface area; circular cone; vertex; volume; cylinder; square; rotation; fixed point; center of rotation; clockwise; counterclockwise; reflection; flip; translation; slide; dilation; scale factor; geometric solids; three-dimensional models; right triangle; hypotenuse; leg (legs); Pythagorean Theorem; Pythagorean triples

**Probability and Statistics:** probability; comparison; prediction; inference; frequency distribution; box-and-whisker plot; scattergram; line graph; bar graph; circle graph; picture graph; histogram; matrices; row (rows); column (columns)

**Patterns, Functions, and Algebra:** relation; domain; range; function; vertical line; two-step equation; two-step inequality; linear equation; coordinate plane; ordered pair; proportion; formula; independent variable; range; dependent variable; circumference

#### PHYSICAL SCIENCE

**Scientific Investigation, Reasoning, and Logic:** systematic investigation; SI (metric) measure; investigate (investigation); triple beam balance; thermometer; metric ruler; graduated cylinder; electronic balance; spring scale; length; mass; density; weight; volume; temperature; force; independent variable; dependent variable; trial; mathematical mean; liter; milliliter; meter; centimeter; millimeter; gram; degrees Celsius; newton; conclusion; scientific methodology; question; observation; evidence; logic; reasoning

## Essential Vocabulary

### **Grade 8**

#### **PHYSICAL SCIENCE** (continued)

Force, Motion, Energy, and Matter: matter; mass; space; atom; solid; liquid; gas; element; compound; mixture; acid; base; salt; inorganic; organic; hydrogen; solution; neutral; shape; density; solubility; odor; melting point; boiling point; color; Bohr model; Dalton; Thompson; Rutherford; Bohr; electron cloud model; element; atomic number; periodic table of elements; symbol; atomic number; atomic mass; state of matter; valence; metal; metalloid; nonmetal; group; family (families); periods; bond (bonding); ion; electron; isotope; proton; ionic; covalent bonding; nucleus; molecular; chemical reaction; physical change; chemical change; nuclear change; Law of Conservation of Mass; endothermic; exothermic; nuclear fission; nuclear fusion; energy; potential energy; kinetic energy; velocity; light; heat; chemical; electrical; mechanical; sound; absolute zero; conduction; convection; radiation; temperature; freeze (freezing); melt (melting); condensing; boil (boiling); vapor (vaporizing); Celsius; Kelvin; temperature scale; vibrate (vibrations); compression wave; longitudinal; wavelength; rarefaction; frequency; speed of sound; radiant energy; transverse wave; inverse relationship; electromagnetic wave; speed of light; gamma ray; X-ray; ultraviolet; visible sight; infrared; radio; microwave; force; speed; acceleration; deceleration; weight; gravity; work; Law of Motion; power; simple machine; mechanical advantage; friction; efficiency; magnetic field; electric current; static electricity; series circuit; parallel circuit; electromagnet; simple circuit; voltage; resistance; current; generator; motor

#### **CIVICS AND ECONOMICS**

*Principles and Structure of American Constitutional Government:* fundamental political principles; consent of the governed; limited government; rule of law; democracy; representative government; charter; Virginia Company of London; Virginia Declaration of Rights; Declaration of Independence; Articles of Confederation; Virginia Statue for Religious Freedom; Constitution of the United States of America; Bill of Rights; preamble; union; justice; peace; defense; legislative; executive; judicial; amendment; bicameral; Virginia General Assembly; United States Congress; legislative power; expressed; implied; lobbying; Virginia Supreme Court; Court of Appeals of Virginia; Circuit Court; General District Court; Juvenile and Domestic Relations District Court; U.S. Court of Appeals; U.S. Supreme Court; U.S. District Court; judicial review; *Marbury v. Madison*; criminal law; misdemeanor; civil law; felony; guilty verdict; plaintiff; judge; jury; court; juveniles; due process of law; 5<sup>th</sup> Amendment; 14<sup>th</sup> Amendment

## Essential Vocabulary

### **Grade 8**

#### **CIVICS AND ECONOMICS (continued)**

**Rights and Responsibilities of American Citizenship:** citizen (citizenship); Fourteenth Amendment; naturalization; immigration; diverse; First Amendment; laws; taxes; jury; civic responsibilities; voluntary; register; vote; elective office; community service; trustworthiness; honesty; courtesy; respect for the rights of others; responsible (responsibility); accountable (accountability); self-reliance; respect for the law; patriotism

**Political Processes:** political parties; electorate; election; liberal; conservative; platform; campaigning; fact; opinion; bias; propaganda; political action committee (PAC); primary election; general election; electoral college; congressional

*Economic Principles and Systems:* scarcity; resources; choice; opportunity cost; price; incentive; supply; demand; production; consumption; free market; command economy; mixed economy; private property; profit; competition; consumer; sovereignty

*United States Economy:* proprietorship; partnership; corporation; entrepreneur; global economy; trade; goods; services; career planning; work ethic; supply; demand; income

*The Role of Government in the Economy:* antitrust legislation; monopolies; global trade; FCC (Federal Communications Commission); EPA (Environmental Protection Agency); FTC (Federal Trade Commission); public goods; public services; tax revenue; borrowed funds; 16<sup>th</sup> Amendment; spending; borrowing; demand; Federal Reserve System (Fed)

### Essential Vocabulary

### **ENGLISH (End-of-Course)**

#### **GRADE 9**

*Oral:* anecdotes; example; impromptu response; poem; monologue; scene from a play; verbal technique; nonverbal technique; demeanor; voice; language; gestures; clarity of thought; organization of evidence; relevance of information delivered

**Reading:** text structure; main idea; literary form; character; plot; setting; tone; point of view; theme; author's style; literary effect; narrative: short story, anecdote, character sketch, fable, legend, myth, tall tale, allegory, biography, autobiography, novel; poetry: epic, ballad, sonnet, lyric, elegy, ode; drama: comedy, tragedy; essay: editorial, journal entry; diary entry, informative essay; explanatory essay, analytical essay, speech; protagonist; speaker; narrator; figurative language; simile; metaphor; personification; analogy; symbolism; apostrophe; allusion; imagery; paradox; oxymoron; dialogue; foreshadow (foreshadowing); flashback; soliloquy; verse; stanza; couplet; quatrain; sestet; octet (octave); rhetorical question; cliché; connotation; denotation; hyperbole; understatement; irony; dramatic; situational; verbal; dialect; pun; direct exposition; character's actions; character's thoughts; dynamic character; round character; static character; flat character; stereotype; caricature; staging; scripting; monologue; aside

**Writing:** subject; verb; direct object; indirect object; predicate nominative; predicate adjective; parallel structure; correlative conjunction; main clause; subordinate clause; comma; semicolon

**Research:** plagiarism; electronic database; search engine; electronic mail; World Wide Web; Web browser; online services; hotlinks

### Essential Vocabulary

### **ENGLISH (End-of-Course)**

#### **GRADE 10**

*Oral:* outline; summary; organize; evaluate; delivery; critique

**Reading:** predict (predictions); inferences; short story; poem; play; novel; essay; haiku; sonnet; fable; myth; cultural theme; archetypes: hero/heroine, trickster, faithful companion, outsider/outcast, rugged individualist, shrew, innocent, villain, caretaker, Earth mother, rebel, misfit; skim; rhyme; rhythm; alliteration; assonance; consonance; onomatopoeia; blank verse; iambic pentameter; free verse; repetition; refrain; couplet; quatrain; sestet; octet (octave); meter; figurative language; metaphor; simile; diction; tone; aside; monologue; soliloquy; irony; dramatic; verbal; situational

**Writing:** expository text; organizational pattern: compare/contrast, chronological order, spatial layout, cause-and-effect, definition, order of importance, explanation, enumeration, problem/solution; direct quotation; colon; active voice; passive voice; unity; coherence; tone; voice; thesis; main idea; inductive organization

**Research:** organizational pattern: compare/contrast, chronological order, spatial layout, cause-and-effect, definition, order of importance, explanation, enumeration, problem/solution; primary source; secondary source

### Essential Vocabulary

### **ENGLISH (End-of-Course)**

#### **GRADE 11**

*Oral:* rhetorical devices; enunciation; poise; tone; rhythm

**Reading:** themes; motifs; universal character; genre; context; author's intent; viewpoint; Colonialism/Puritanism; Revolutionary movement/Rationalism; Romanticism; Transcendentalism; Regionalism; Realism; Naturalism; Symbolism/Modernism; Harlem Renaissance; Postmodernism; universal character: hero/heroine, trickster, faithful companion, outsider/outcast, rugged individualist, innocent, villain, caretaker, Earth mother, rebel, misfit, lonely orphan looking for a home; major themes: the American Dream, loss of innocence, coming of age, relationship with nature, relationship with society, relationship with science, alienation and isolation, survival of the fittest, disillusionment, rebellion and protest; rhetorical question; sarcasm; satire; parallelism; connotation; denotation; pun; irony; literal; figurative language; tone; diction; dialect; author's intent; viewpoint; jargon; technical terms; main idea; supporting details; draw conclusion; elevated language; elevated style; rhyme; strong regularity in metrical pattern; imagery; word choice; sound devices; metrical patterns; metaphorical language; figurative language; dramatic conventions: stage direction; soliloquy; monologue; aside; irony: verbal, situational, dramatic

*Writing:* verbal; gerund; infinitive; participle; verbal phrase; gerund phrase; infinitive phrase; participial phrase; absolute phrase; business letter; personal letter; memo; proposals; resumes

**Research:** thesis; quality; accuracy; logical sequence; document sources; edit; clarity

### Essential Vocabulary

### **ENGLISH (End-of-Course)**

#### **GRADE 12**

*Oral:* defend; entertain; explain; narrative; logical argument; details; illustrations; statistic; comparison; analogy (analogies); visual aid; anecdotes; analogies; semantics; rhetoric; voice modulation

**Reading:** epic; tragedy; comedy; sonnet; essay; journal/diary; satire; era: Anglo-Saxon/Medieval period, Tudor/Renaissance period, Neoclassical period, Restoration Age, Romantic and Victorian periods, Modern and Postmodern periods; themes: religious diversity, political struggles, ethnic and cultural mores and traditions, individual rights, gender equity, civil rights; technical text: product evaluation, warranty (warranties), instructional manuals, technical manuals, contracts, E-zines; draw conclusions; sound structure: rhyme, rhythm, repetition, alliteration, assonance, consonance, onomatopoeia, parallelism; tone; traditional poetry; contemporary poetry; diction; figures of speech: metaphor, simile, analogy, symbolism, personification, paradox, oxymoron, apostrophe, allusion; conflict; plot; climax; setting; character; scene; dialogue; stage (staging); dramatic conflict: exposition/initiating event, rising action, climax or crisis, falling action, resolution/denouement (conclusion/resolution)

Writing: organize; elaborate; revise; proofread; technical writing; expository writing; thesis

**Research:** ethical issue; accuracy; thesis; logical; cite sources; edit; proofread; validity; quality; plagiarism

### Essential Vocabulary

### **MATHEMATICS** (End-of-Course)

#### **ALGEBRA I**

**Expressions and Operations:** algebra; magnitude; polynomial expression; algebraic expression; laws of exponents; exponent (exponents); scientific notation; base; coefficient; monomial; distributive property; trinomials; factor (factoring); binomials; square root; non-perfect square; radical; radicand

**Relations and Functions:** function; relation; output; input; ordered pair; domain; range; zeros of the function; equation; independent variable; dependent variable; constant; direct variation

**Equations and Inequalities:** equation; inequalities; solution; expression; real number; addition properties; multiplication properties; closure properties; inverse properties; reflexive; symmetric; transitive; substitution properties of equality; linear function; slope; *x*-intercept; *y*-intercept; transformation; dependent variable; independent variable; positive slope; negative slope; zero slope; undefined slope; equation of a line; graph of a line; vertical line; horizontal line; system of linear equations; ordered pair; no solution; infinite solutions; reasonableness; quadrant function; root (roots); quadratic equation; algebraic solution; quadratic expression

Statistics: matrices; scalar multiplication; line of best fit; prediction; measures of central tendency; box-and-whisker plot

#### **GEOMETRY**

*Lines and Angles:* intersecting lines; parallel lines; transversal; exterior angle; corresponding interior angle; linear pair; interior angles; convex polygon; vertical angles; corresponding angles; alternate interior angles; same side interior angles; complementary angles; supplementary angles; proof; slope; property (properties); postulate; theorem; line segment; bisector of a line segment; perpendicular; bisector of a given angle; congruent

### Essential Vocabulary

### **MATHEMATICS** (End-of-Course)

#### **GEOMETRY** (continued)

**Triangles and Logic:** converse; inverse; contrapositive; conditional statement; symbolic form; Venn diagram; valid (validity); logical argument; deductive reasoning; law of syllogism; congruence; similar (similarity); algebraic methods; properties of proportions; coordinate methods; distance formula; slope formula; Pythagorean Theorem; right triangle; 45°-45°-90° triangles; 30°-60°-90° triangles; sine ratio; cosine ratio; tangent ratio; right triangle trigonometry

**Polygons and Circles:** quadrilateral; parallelogram; rectangle; rhombi; square; trapezoid; distance formula; slope; midpoint formula; deductive reasoning; regular polygon; nonregular polygon; tessellations; angle; arcs; secant; chord; tangent

**Three-Dimensional Figures:** three dimensional figure; scale drawing; perspective drawing; surface area; volume; cylinder; prism; pyramid; cone; sphere; area; constant ratio; similar figures

**Coordinate Relations and Transformations:** transformation; distance formula; Pythagorean Theorem; coordinate plane; reflection; rotation; translation; line segment; coordinates; endpoint; midpoint formula; slope of a line; point symmetry; line symmetry

#### **ALGEBRA II**

**Expressions and Operations:** complex number; field property (field properties): commutative, associative, identity, inverse, distributive; axioms of equality: reflexive, symmetric, transitive, substitution, addition, multiplication; axioms of inequality and order: trichotomy, transitive, addition, multiplication; complex numbers; pure imaginary numbers; real numbers; rational numbers; integer; whole numbers; natural numbers; matrices; rational expression; monomials; polynomial expression; factored form; complex fraction; radical expression; rational exponent; radical (radicals); radicand; index; rationalizing the denominators; complete factorization; greatest monomial factor; difference of squares; sum of cubes; difference of cubes; perfect square trinomial; *i* 

### Essential Vocabulary

### **MATHEMATICS** (End-of-Course)

#### **ALGEBRA II (continued)**

**Relations and Functions:** linear function; quadratic function; absolute value function; step function; exponential function; slop-intercept form; quadratic ([h,k] form); domain; range; zeros; inverse of a function; exponential; logarithmic; function; symbolic form; inverse (inverses); composition of a function; identity function; composition of two functions; polynomial; Fundamental Theorem of Algebra; intercepts; turning point; end behavior; arithmetic sequence; geometric sequence; sequence (sequences); series; investigation of patterns;  $\sum$ ; n; n<sup>th</sup> term, a<sub>n</sub>; S<sub>n</sub>; infinite series; scatterplot; data; curve of best fit; model; directly proportional; inversely proportional; varies jointly; constant of proportionality; direct variation; inverse variation

**Equations and Inequalities:** absolute value equation; inequality (inequalities); absolute value inequality; solution; quadratic equation; complex solution; conjugates; quadratic formula; real solution; real root; rational expression; radical expression; algebraic solution; solution of an equation; equation (equations); point of intersection; radical

**Analytical Geometry:** Fundamental Theorem of Algebra;  $n^{th}$  degree polynomial equation; n roots (solution); polynomial equation; xintercept; zeros of a function; polynomial expression; polynomial function; conic sections; circle; ellipse; parabola; hyperbola; transformations

**Systems of Equations/Inequalities:** matrix multiplication; matrix equation; inverse of a matrix; system of linear equations; optimization process; linear programming model; system of linear inequalities; constraint; corner points of a feasibility region; maximum or minimum value for the function; nonlinear systems of equations; coordinates of points of intersection; linear-quadratic; quadratic-quadratic; number of solutions; algebraic (algebraically); graphic (graphically)

### Essential Vocabulary

### **SCIENCE** (End-of-Course)

#### EARTH SCIENCE

**Scientific Investigation:** density; mass; volume; hypothesis; experiment (experiments); scientific law (scientific laws); scientific theory (scientific theories); Earth; dynamic system; conclusion; predict (predictions); scientific method; map (maps); geologic; bathymetic; topographic; weather; aerial photography; satellite images; latitude; longitude; legend (legends); line (lines); topographic contours; elevation

Geology: mineral; rock (rocks); quartz; feldspar; calcite; mica; pyrite; magnetite; hematite; galena; graphite; sulfur; oxygen; silicon; aluminum; iron; silicates; rock cycle; igneous; sedimentary; metamorphic; extrusive igneous rocks; intrusive igneous rocks; crystal (crystals); pumice; obsidian; basalt; granite; clastic; sandstone; conglomerate; shale; limestone; rock salt; foliated; unfoliated; slate; schist; gneiss; marble; quartzite; natural resource (natural resources); extraction; renewable resources; vegetation; sunlight; surface water; nonrenewable resources; coal oil; mineral (minerals); fossil fuel; pollution; gravel; crushed stone; physiographic provinces; Coastal Plain; Piedmont; Blue Ridge; Valley and Ridge; Appalachian Plateau; lithosphere; earthquake (earthquakes); volcano (volcanoes); mountain building; weathering; erosion; deposition; inner core; iron outer core; mantle; crust; plate motions; plate boundaries; convergent; divergent; transform; ocean crust; continental crust; continental drift; plate tectonics; collision zones; subduction zones; rift valleys; mid-ocean ridges; fissure volcano; strike-slip faults; fault; magma; soil; Karst topography; cave (caves); sinkholes; fossil; mold (molds); cast (casts); original bone or shell; Paleozoic; Mesozoic; Cenozoic; absolute time; radioactive decay; superposition; crosscutting

Meteorology, Oceanography, and Groundwater: permeability; erosion; zone of aeration; zone of saturation; water table; aquifer; hydrologic cycle diagram; evaporation; condensation; precipitation; runoff; Virginia watershed systems; Chesapeake Bay; Gulf of Mexico; North Carolina sounds; wave (waves); tide (tides); gravitational pull; pole (poles); equator; sea level; salinity; estuary (estuaries); algae; convection; topography; seafloor; continent (continents); plate tectonic; topographic; continental shelf (continental shelves); continental slope (continental slopes); abyssal plain; seamount (seamounts); atmosphere; solar system; oxygen; nitrogen; trace gases; carbon dioxide; composition; dynamic (dynamics); density; volcanic activity; meteorite; radiation; weather; climate; sun; wind (winds); rotation; latitude; elevation; proximity; Coriolis effect; polar; temperature; tropical zone (tropical zones); tornado; hurricane; barometer; thermometer; psychomotor; cloud type; temperature; barometric pressure

### Essential Vocabulary

### **SCIENCE** (End-of-Course)

#### **EARTH SCIENCE (continued)**

Astronomy and Space Science: solar system; asteroid belt; axis; equinox; solstice; moon phases; eclipse (eclipses); solar eclipse (solar eclipses); lunar eclipse (lunar eclipses); tide (tides); gravitational pull; solid; liquid; gas; hydrogen gas; nuclear fusion; helium; terrestrial; planet (planets); outer planet (outer planets); moon (moons); comet (comets); asteroid (asteroids); meteor (meteorites); Apollo 11; Hubble Space Telescope; universe; big bang theory; solar nebular theory; star (stars); evolution; interstellar gas; Hertzsprung-Russell; galaxy (galaxies); spiral; elliptical; irregular; Milky Way; light year; astronomy

#### **BIOLOGY**

*Scientific Investigation:* observation (observations); inference (inferences); predict (predictions); hypotheses; independent variable (IV); dependent variable; constant; range; mean; accuracy; confidence; experimental error; trial (trials); variance in the data; theory

Life at the Molecular and Cellular Level: magnifying lens; light microscope; cell theory; cell reproduction; microscopy; cell organelles; ultrastructure; natural selection; Pasteur; Koch; germ theory; microorganism; x-ray; DNA; molecule; double helix; heredity; molecular genetics; water; Earth; mass; water molecules; cohesive; adhesive; pH scale; carbon; hydrogen; nitrogen; oxygen; sulfur; phosphorus; carbon atoms; cell; macromolecules; carbohydrate; lipid; nucleic acid; protein; structural; transport; hemoglobin; movement; muscle fibers; cytoskeletal elements; defense; antibodies; hormones; enzyme; polymers; amino acids; photosynthesis; cell respiration; chlorophyll; eukaryotic cells; ATP; respiration; cell structure; prokaryotes; eubacteria; archaebacteria; cell wall; vacuoles; chloroplast; homeostasis; nucleus; ribosome; mitochondria; Golgi; endoplasmic reticulum; lysosome; cell membrane; single-celled organism; multicellular organism; diffusion; osmosis; active transport; virus (viruses); mitosis; meiosis; cytokinesis; prophase; metaphase; anaphase; telophase; genetic variation; mutation; recombination; deletions; chromosomes; genetic disorder; karyotype charts; inheritance; protein synthesis; nucleic acid; genetic code; polymer; nucleotides; double-stranded molecule; messenger RNA; ribosome (ribosomes); cytoplasm; RNA nucleotide; adenine; guanine; cytosine; uracil; mRNA molecule; forensic identification; eugenics; Human Genome Project; clone (cloning)

### Essential Vocabulary

### **SCIENCE** (End-of-Course)

#### **BIOLOGY** (continued)

Life at the Systems and Organisms Level: magnifying lens; light microscope; cell theory; cell reproduction; microscopy; cell organelles; ultrastructure; natural selection; Pasteur; Koch; germ theory; microorganism; x-ray; DNA; molecule; double helix; heredity; molecular genetics; diversity; autotrophs; heterotrophs; multicellular organism; unicellular organism; motile organism; nonmotile organism; organisms with cell walls; organisms without cell walls; sexually reproducing organisms; asexually reproducing organisms; aquatic organisms; terrestrial organisms; protest; archaebacteria; monerans (eubacteria); fungi; homeostasis; tissue; organ; organ systems; respiratory system; circulatory system; urinary system; immune system; nerve; Mendelian laws of heredity; geneticist (geneticists); genotype; phenotype; homozygous individuals; identical alleles; heterozygous individuals; contrasting alleles; dominant; recessive; gametes; dihybrid cross; parental genotypes; Punnett square; monohybrid cross; binomial nomenclature; genus; species; organism (organisms); dichotomous key; homologous structure (homologous structures)

Interaction of Life Forms: magnifying lens; light microscope; cell theory; cell reproduction; microscopy; cell organelle (cell organelles); ultrastructure; natural selection; Pasteur; Koch; germ theory; microorganism; x-ray; DNA; molecule; double helix; heredity; molecular genetics; diversity; extinct; fossil; zygote; embroyo; clad gram; phylogenic tree; amino acid; nucleotide sequences; population; organism; generation; mutate (mutations); adapt (adaptations); punctuated equilibrium; relative; absolute dating; community; population growth; exponential growth; limiting factors; environment; capacity; abiotic factor (abiotic factors); symbiosis; mutualism; commensalisms; parasitism; ecological succession; ecosystem; nutrient (nutrients); climax community; food chain; food web; producer; autotroph; consumer; primary order; secondary order; decomposer; dynamic equilibria; flora; fauna; microorganisms

#### **CHEMISTRY**

Scientific Investigation: volume; graduated cylinder; pipette; volumetric flask; buret; mass; electronic; dial-a-gram; temperature; thermometer; temperature probe; pressure; barometer; pressure probe; laboratory safety equipment; lab techniques; basic lab equipment; Material Safety Data Sheet warnings; reproducibility; measurement (measurements); scientific notation; significant digits; dimensional analysis; dependent variable; independent variable; scale; regression line; mole ratios; percent composition; conversion (conversions); relative atomic mass

### Essential Vocabulary

### **SCIENCE** (End-of-Course)

#### **CHEMISTRY** (continued)

Atomic Structure and Periodic Relationships: periodic table; atomic number; neutral atom; atomic mass; electron (electrons); proton (protons); neutron (neutrons); nucleus; atom; mass; isotope; half-life; alpha; beta; gamma radiation; penetrating power; shield (shielding); composition; group (groups); series; period (periods); atomic radii; electronegativity; shielding effect; ionization energy; periodicity; Periodic Law; diatomic molecule; Aufbau Principle; orbital; Pauli Exclusion Principle; Hund's Rule; Periodic Table; cation; anion; transition metals; matter; physical property (physical properties); chemical property (chemical properties); element (elements); compound (compounds); mixture (mixtures); homogeneous; heterogeneous; reactivity; Quantum Mechanical Model; atomic model; particle (particles); first atomic theory of matter; discovery of the electron; discovery of charge of electron; planetary model of atom; periodic table by atomic mass; periodic table by atomic number; uncertainty principle; wave theory; quantum nature of energy; discovery of nucleus

**Nomenclature, Chemical Formulas, and Reactions:** nomenclature; subscript (subscripts); coefficient; Law of Multiple Proportions; empirical formula; molecular formula; structural formula; covalent bond; ionic bond; ionization energy; positive ions (cations); negative ions (anions); electronegativity; polar molecule (polar molecules); IUPAC system; binary ionic compounds; molecular shapes; bent; linear; trigonal planar; tetrahedral; trigonal pyramidal; polyatomic ions; Lewis Dot Diagram; oxidation-reduction; exothermic; endothermic; neutralization; reaction; kinetic; activation energy; catalysis; degree of randomness; entrophy; enthalpy; temperature affect spontaneity; chemical reaction (chemical reactions); synthesis; decomposition; single replacement; double replacement; Le Chatelier's Principle; redox reactions

*Molar Relationships:* atom (atoms); mole; molecule (molecules); formula unit; stoichiometry; Avogadro's number; molar volume; reagent; percent yield; solution (solutions); acid/base theory; strong electrolytes; weak electrolytes; nonelectrolytes; dissociation; ionization; pH; pOH; titration process; arrhenius acids; arrhenius bases; Bronsted-Lowry acids; proton donors; proton acceptors; acidity; molar concentration

**Phases of Matter and Kinetic Molecular Theory:** gas; gas particles; gas molecules; Ideal gas; Real gas; solution (solutions); pressure; volume; Boyle's Law; constant pressure; Charles' Law; Dalton's law of partial pressure; Ideal Gas Law; molarity; pressure units; Kinetic Molecular Theory; forces of attraction; vapor pressure; temperature; hydrogen bonding; dipole-dipole attraction; London dispersion; atmospheric pressure; solute (solutes); heating curve; heat capacity; fusion; vaporization; calorimetry calculations; polar molecules

### Essential Vocabulary

### **HISTORY** (End-of-Course)

#### WORLD HISTORY AND GEOGRAPHY TO 1500 A.D.

*Human Origins and Early Civilizations:* nomadic; Neolithic Era; archaeology; fossils; artifact; Stonehenge; Bronze Age; hereditary rulers; rigid class system; centralized government; written law codes; surplus; polytheism; monotheism; Judaism; beliefs; traditions; customs; Torah; Ten Commandments; exile; diaspora; pictogram; hieroglyphics; cuneiform; alphabet

Classical Civilizations and Rise of Religious Traditions: Persia; empire; imperial bureaucracy; Zoroastrianism; caste system; Aryans; Gupta empire; origins; beliefs; traditions; customs; Hindu; Hinduism; deity; reincarnation; karma; Vedas; Upanishads; Buddhism; Siddhartha Gautama; Great Wall of China; Confucianism; Taoism; civil service system; humility; yin/yang; Greek mythology; polytheistic religion; natural phenomena; gods; goddesses; Zeus; Hera; Apollo; Artemis; Athena; Aphrodite; Persian empire; Peloponnesian War; Persian War; Classic Era; Pericles; Golden Age of Pericles; Aeschylus; Sophocles; Homer; Herodotus; Thucydides; Phidas; Doric; Ionian; Corinthian; Archimedes; Hippocrates; Euclid; Pythagoras; Socrates; Plato; Aristotle; Alexander the Great; Hellenistic culture; Phillip II, King of Macedon; Hellenistic Age; Roman mythology; Greek polytheistic; Roman godd; Roman goddesses; Jupiter; Juno; Apollo; Diana; Minerva; Venus; Carthage; Mediterranean basin; Punic Wars; Hannibal; Roman Republic; Julius Caesar; currency; inflation; triumvirate; Augustus Caesar; Marc Anthony; empire; Pax Romana; prosperity; imperial rule; expansion; solidification; civil service; uniform rule of law; Christianity; Judaism; Jesus of Nazareth; Messiah; monotheism; New Testament; Apostles; Emperor Constantine; moral authority; Pantheon; Colosseum; Forum; roads; aqueducts; Roman arches; Ptolemy; economy; moral decay; invasion; Byzantium; Constantinople

**Postclassical Civilizations:** Constantinople; codify; Byzantine Emperor Justinian; reconquest; icons; mosaics; Hagia Sophia; liturgy; celibacy; Black Sea; Baltic Sea; Cyrillic alphabet; Islam; Muhammad; Mecca; Medina; monotheism; Quran; Moses; Jesus; Sunni-Shi'a division; Jerusalem; Damascus; Battle of Tours; Catholic Church; medieval; monasteries; missionaries; Pope; Charlemagne Holy; priests; feudal society; Fief; Vassals; Serfs; Feudal obligations; Manorial system; Frankish kings; Age of Charlemagne; invasion; settlements; migratory groups; Angles; Saxons; Magyars; Vikings

### Essential Vocabulary

### **HISTORY** (End-of-Course)

#### WORLD HISTORY AND GEOGRAPHY TO 1500 A.D. (continued)

**Regional Interactions:** Shinto tradition; Buddhist tradition; proximity; Axum; Zimbabwe; West African kingdoms; Ghana; Mali; Songhai; Niger River; Sahara; Timbuktu; animism; Mayan; Aztec; Incan; civilizations; Chichèn Itzà; polytheistic religion; pyramids; Tenochtitlan; emperor; Machu Picchu; Eurasian powers; Crusades; Mongol conquests; Constantinople; Pope Urban; Saladin; Ottoman Turks; Black Death (bubonic plague); monasteries; Leonardo da Vinci: *Mona Lisa, The Last Supper*; Michelangelo: Sistine Chapel, *David*; petrarch: sonnets; humanist scholarship; humanism; Renaissance writers: Erasmus-*The Praise of Folly*, Sir Thomas More-*Utopia*; religious; secular

Geography: Paleolithic Era; agricultural revolution; homo sapiens; river valley civilizations; Egyptian civilization; Mesopotamian civilization; Indian civilization; Chinese civilization; Hebrews; Phoenicians; Kush; harbor; peninsula; straits; trade; colonization; Aegean Sea; Greek Peninsula; Europe; Asia Minor; Mediterranean Sea; Black Sea; Dardanelles; Athens; Sparta; Troy; Macedonia; agriculture; commerce; Hellenic culture; barter; mountainous terrain; arable land; artifacts; migration; Mediterranean Basin; Italian peninsula; Rome; Alps; sea-borne commerce; Fertile Crescent; silk roads; maritime routes; trans-Saharan routes; Mayan; Aztec; Incan; civilizations; Chichèn Itzà; polytheistic religion; pyramids; Tenochtitlan; emperor; Machu Picchu

Civics and Economics: democracy; Greek polis; Athens; monarchy; aristocracy; tyranny; democracy; tyrants; Draco; Solon; direct democracy; public debate; Sparta; oligarchy; Patricians; plebeians; slaves; democracy; Representative democracy; Assemblies; the senate; consuls; Laws of Rome codified as Twelve Tables; textiles; porcelain; navigation; Buddhism; Hinduism; Islam; nation-states; William the Conqueror; common law; Magna Carta; The Hundred Years' War; Hugh Capet; Joan of Arc; Ferdinand; Isabella; Philip II; Ivan the Great; Mongols; unification; Renaissance; Crusades; acquisition; maintenance; absolute rule; Florence; Venice; Genoa; Machiavelli; worldwide depression in the 1930's; protective tariffs; Stock Market Crash (1929)

### Essential Vocabulary

### **HISTORY** (End-of-Course)

#### WORLD HISTORY AND GEOGRAPHY: 1500 A.D. TO THE PRESENT

*Emergence of a Global Age:* Renaissance; Michelangelo; Leonardo da Vinci; Shakespeare; humanism; Erasmus; textiles; scientific transfer; medicine; astronomy; mathematics; theological; Martin Luther; John Calvin; Henry VIII; usury; noble (nobility); Lutheran tradition; Calvinist tradition; Anglican tradition; Inquisition; Reformation; capitalism; monarchy; Catholic Counter Reformation; doctrine; secularism; individualism; religious tolerance; printing press; explorers; conquistadors; Vasco da Gama; Christopher Columbus; Hernando Cortez; Francisco Pizarro; Ferdinand Magellan; Francis Drake; Jacques Cartier; indigenous; migration; settlement patterns; cultural diffusion; colonized; Aztec Empire; Maya Empire; Inca Empire; class system; colonization; Columbian Exchange; First Americans; small pox; slavery; plantation system; indigenous economics; Mughal Empire; coastal trade; Taj Mahal

Age of Revolutions: scientific revolution; systematic measurement; Nicolaus Copernicus; heliocentric theory; Johannes Kepler; Galileo Galilei; Isaac Newton; William Harvey; Age of Absolution; monarchies of Louis XIV; Frederick the Great; Peter the Great; absolute monarchies; French Revolution; American Revolution; Storming of the Bastille; Reign of Terror; Louis XVI; Napoleon; Toussaint L'Ouverture; Simon Bolivar; The Age of Reason; Johann Sebastian Bach; composer; Wolfgang Amadeus Mozart; Eugène Delacroix; Voltaire; philosopher; Miguel de Cervantes; novelist; Cervantes' Don Quixote; unification; Bismark; Count Cavour; Giuseppe Garibaldi; The Papal States; Otto von Bismark; Realpolitik; The Franco-Prussian War; Industrial Revolution; imperialism; nationalism; missionary; spheres of influence; colonized peoples

*Era of Global Wars:* World War I; Woodrow Wilson; Kaiser Wilhelm II; Treaty of Versailles; Imperialism; assassination; Archduke Ferdinand; Russian Revolution; Bolshevik Revolution; civil war; Vladimir Lenin; Joseph Stalin; League of Nations; mandate system; Joseph Stalin; Adolf Hitler; Benito Mussolini; Hirohito; Hideki Tojo; Great Purge; anit-semitism; fascism; militarism; industrialization; totalitarian (totalitarianism); isolationism; pacifism; Pearl Harbor; D-Day; atomic bombs; Franklin D. Roosevelt; Harry Truman; Dwight D. Eisenhower; Douglas MacArthur; George Marshall; Winston Churchill; Holocaust; genocide; extermination camps; gas chambers; Armenians; Peasants; World War II; Marshall Plan; North Atlantic Treaty Organization (NATO); Warsaw Pact

### Essential Vocabulary

### **HISTORY** (End-of-Course)

#### WORLD HISTORY AND GEOGRAPHY: 1500 A.D. TO THE PRESENT (continued)

**Post World War II Period:** Cold War; nuclear power; Yalta Conference; rivalry; free enterprise; dictatorship; communism; President Truman; Policy of Containment; Iron Curtain; North Atlantic Treaty Organization (NATO); The Warsaw Pact; Cuban Missile Crisis; Berlin Wall; containment; Chiang Kai-shek; Mao Tse-tung; Gandhi; civil disobedience; passive resistance; Kenyatta; League of Nations; Judaism; Christianity; Islam; Buddhism; Hinduism; Monotheism; Ten Commandments; Torah; New Testament; Muhammad; Koran; Mecca and Medina; caste system; reincarnation; karma

*Geography:* Ottoman Empire; Songhai Empire; Incan Empire; Mayan Empire; Aztec Empire; Judaism; Christianity; Islam; Hinduism; Buddhism; trade patterns; Constantinople; Islamic religion

Civics and Economics: triangular trade; precious metal exports; indigenous empires; international trade; global trade; exportation; foreign trade; Commercial Revolution; mercantilism; English Civil War; Glorious Revolution; Oliver Cromwell; Charles I; Charles II; William and Mary; parliamentary power; royal power; English Bill of Rights of 1689; Enlightenment; founders; Thomas Hobbes' Leviathan; John Locke's Two Treatises on Government; sovereign; Montesquieu's The Spirit of Laws; Jean-Jacques Rousseau's The Social Contract; Voltaire; Thomas Jefferson's Declaration of Independence; The Constitution of the United States of America; Bill of Rights; Napoleon; Congress of Vienna; secular society; nationalism; democratic; Napoleonic Code; "Balance of Power" doctrine; liberalism; conservatism; urbanization; Industrial Revolution; James Watt; steam engine; Eli Whitney; cotton gin; Henry Bessemer; Edward Jenner; small pox vaccination; Louis Pasteur; bacteria; capitalism; socialism; communism; Adam Smith's Wealth of Nations; entrepreneurial; Karl Marx's Communist Manifesto; Das Capital; evolution; labor union; factory system; child labor; slavery; suffrage; strike (strikes); lobby (lobbied); collective bargaining; worldwide depression in the 1930s; protective tariffs; Stock Market Crash 1929; refugees; ozone depletion; illiteracy; famine; multinational corporations; international organizations; trade agreements; North American Free Trade Agreement (NATO); World Trade Organization (WTO); United Nations (UN); International Monetary Fund (IMF)

### Essential Vocabulary

### **HISTORY** (End-of-Course)

#### WORLD GEOGRAPHY

*Physical and Regional Geography:* absolute location; compass rose; scale; latitude; longitude; relative location; orientation; GIS (Geographic Information Systems); field work; satellite images; photographs; maps; globes; data bases; primary source; mental map; reference point; geographic feature; land form; human characteristic; symbol; color; line; boundary (boundaries); contours; thematic map: population, economic activity, resource, language, ethnicity, climate, precipitation, vegetation, physical, political; map projection; Mercator; polar; Robinson; low latitude; middle latitude; weather phenomena; monsoon; typhoon; hurricane; tornado; earthquake; flood; volcano; erosion; agricultural terracing; polders; deforestation; desertification; acid rain; pollution; physical regions; cultural regions; gross domestic product (GDP); Eurasia; peninsulas; islands; fjords; mountains; North European plain; rivers; seas; oceans; Straight of Gibraltar

*Cultural Geography:* Hinduism; Buddhism; Judaism; Christianity; Islam; alliances; nationalism; humanitarian initiatives; economic alliances; cultural alliances; military alliances; problem-solving alliances

**Global and Urban Geography:** natural resources; climate; capital resources; religious persecution; natural hazards; customs; traditions; steam engine; internal combustion engine; computer chips; resource depletion; environmental degradation; harbor sites; island sites; fall line sites; confluence sites; hilltop sites; oasis sites; human mobility; social structure; diversity

**Economic Geography:** energy resources; natural resources; human resources; capital resources; economic activity; comparative advantage; industrial labor system; global society; interdependent; economic union; European Union (EU); North American Free Trade Agreement (NAFTA); Association of Southeast Asian Nations (ASEAN); Organization of Petroleum Exporting Countries (OPEC)

### Essential Vocabulary

### **HISTORY** (End-of-Course)

#### VIRGINIA AND UNITED STATES HISTORY

*Early America through the Founding of the New Nation:* colonization; Puritans; covenant community; Mayflower Compact; Jamestown; Virginia Company of London; Virginia House of Burgesses; General Assembly of Virginia; Proclamation of 1763; Boston Tea Party; First Continental Congress; Boston Massacre; Minutemen; patriot; loyalist; neutral; Revolutionary War; Benjamin Franklin; Treaty of Alliance; George Washington; Battle of Yorktown; ratification; Federalists; Anti-Federalists

*Expansion, Reform, Civil War and Reconstruction:* 1801 – 1877: Jacksonian Era; aristocracy; aristocracy; Presidential veto; Spoils System; Panic of 1837; democracy; Civil War Era; Abraham Lincoln; Ulysses S. Grant; Robert E. Lee; Frederick Douglass; Election of Lincoln; Ft. Sumter; Emancipation Proclamation; Gettysburg; Gettysburg Address; Appomattox; Reconstruction; 13<sup>th</sup> Amendment; 14<sup>th</sup> Amendment; 15<sup>th</sup> Amendment; Constitution of the United States of America; Compromise of 1877; "Jim Crow" Era

Emergence of Modern America and World Conflict: 1877 – 1945: Homestead Act of 1862; territorial expansion; westward movement; new immigration; Ellis Island; Statue of Liberty; assimilation; melting pot; Chinese Exclusion Act of 1882; Immigration Restriction Act of 1921; prejudice; discrimination; "Jim Crow"; Booker T. Washington; W.E.B. Du Bois; intimidation; lynchings; Plessy v. Ferguson; Great Migration; Ida B. Wells; Progressive Movement; child labor; antitrust laws; labor unions; women's suffrage movement; Theodore Roosevelt's Square Deal; Woodrow Wilson's New Freedom; referendum; muckraking; Knights of Labor; American Federation of Labor: Samuel Gompers; American Railway Union: Eugene V. Debs; Industrial Ladies' Garment Workers Union; strikes: Haymarket Square, Homestead Strike, Pullman Strike; Sherman Anti-Trust Act; Clayton Anti-Trust Act; Susan B. Anthony; 19<sup>th</sup> Amendment to the Constitution; World War I; Wilson's Fourteen Points; Treaty of Versailles; League of Nations; World War II; Pearl Harbor; Hitler; Battle of Britain; Midway; Stalingrad; Normandy; D-Day; atomic bomb; Allies; Axis; El Alamein; Suez Canal; Normandy landings; Iwo Jima; Okinawa; Tuskegee Airmen; Nisei regiments; Geneva Convention; Bataan Death March; prisoner of war (POW); Holocaust; genocide; final solution; Jews; Poles; Slavs; Gypsies; Undesirables; Nuremberg trials; internment; media

### Essential Vocabulary

### **HISTORY** (End-of-Course)

#### **VIRGINIA AND UNITED STATES HISTORY (continued)**

The United States since World War II: United Nations; Marshall Plan; Cold War; Truman Doctrine; containment of communism; North Atlantic Treaty Organization (NATO); President Nixon; massive retaliation; Vietnam War; President John F. Kennedy; President Lyndon Johnson; Vietnamization; Watergate scandal; Fidel Castro; Bay of Pigs; Cuban Missile Crisis; Alger Hiss; Julius and Ethel Rosenberg; Senator Joseph McCarthy; McCarthyism; Pentagon; assassinated; Ronald Regan; nationalism; Gorbachev; Berlin Wall; Brown v. Board of Education; Thurgood Marshall; Oliver Hill; National Association for the Advancement of Colored People (NAACP); March on Washington; Civil Rights Act of 1964; Voting Rights Act of 1965; Martin Luther King, Jr.; Sandra Day O'Connor; Sally Ride; Pink Collar-ghetto; glass ceiling; bilingual education; English as a Second Language (ESL); John Glenn; Neil Armstrong

Geography and Economics: cash crops; Quakers; Catholics; artisans; entrepreneurs; indentured servitude; slavery; Louisiana Purchase; War of 1812; Lewis and Clark expedition; Sacajawea; The Monroe Doctrine; Manifest Destiny; abolitionist; William Lloyd Garrison; Harriet Beecher Stowe; Nat Turner; Gabriel Prosser; The Missouri Compromise; Compromise of 1850; Kansas-Nebraska Act of 1854; Abraham Lincoln; Stephen Douglas; Dred Scott decision; women's suffrage movement; Seneca Falls Declaration; Elizabeth Cady Stanton; Susan B. Anthony; agrarian; modern industrial economy; invention; Bessemer steel process; light bulb; Thomas Edison; telephone; Alexander Graham Bell; airplane; Wright Brothers; assembly line manufacturing; Henry Ford; Andrew Carnegie; steel; J.P. Morgan; finance; John D. Rockefeller; oil; Cornelius Vanderbilt; railroads; laissez-faire capitalism; open door policy; Secretary of State John Hay; dollar diplomacy; President Taft; Spanish American War; Panama Canal; Theodore Roosevelt; Great Depression; New Deal; Federal Reserve; tariffs; Work Progress Administration (WPA); Agricultural Adjustment Administration (AAA); Federal Deposit Insurance Corporation (FDIC); Social Security Act

*Civics:* Common Sense; Declaration of Independence; John Locke; Thomas Paine; Constitution; Articles of Confederation; James Madison; George Washington; U.S. House of Representatives; legislative; executive; judicial; Chairman of the Convention; Constitutional Convention; Bill of Rights; Virginia Declaration of Rights; Virginia Statue for Religious Freedom; George Mason; Thomas Jefferson

Essential Vocabulary

# SECTION TWO by Content

### Essential Vocabulary

### **ENGLISH**

#### KINDERGARTEN

*Oral:* number words; people; place (places); thing (things); size; color; shape; before; after; next; over; under; between; beside; complete sentence (complete sentences); rhyme; beginning sound; ending sound; word (words); syllable

**Reading:** front cover; back cover; title page of a book; left; right; top; bottom; word (words); letter (letters); space (spaces); period; question mark; exclamation point; sign; logo; uppercase letter; lowercase letter; consonant; vowel; prediction; begin (beginning); middle; end; character; setting; event; author; illustrator; topic; nonfiction

Writing: first; last; left; right; top; bottom

#### **GRADE 1**

*Oral:* complete sentence (complete sentences); plural noun; singular noun; first; second; next; on; under; over; beside; mark; circle; color; draw; phonemes (sounds); syllables; rhyme (rhyming)

**Reading:** left to right; top to bottom; letters; words; sentences; capital letter (capital letters), period; question mark; exclamation point; speech bubble; quotation marks; beginning consonant; ending consonant; consonant blends; consonant diagraphs; short vowel sounds; beginning sound; middle sound; ending sound; compound words; title; picture (pictures); topic; prediction; context; story (stories); poem (poems); passage (passages); preview; purpose for reading; predict (predictions); character (characters); setting; event (events); beginning; middle; end; topic; main idea; list (lists); recipes (recipes); newspaper (newspapers), magazine (magazines); letters (as form of writing); alphabetical order; dictionary

Writing: descriptive words; list (lists); letter (letters); story (stories); report (reports); message (messages); poem (poems)

### Essential Vocabulary

### **ENGLISH**

#### **GRADE 2**

*Oral:* beginning; middle; end; synonym; antonym; inform; persuade; entertain; summarize

**Reading:** consonant; consonant blend; consonant diagraph; decode; short vowel pattern; long vowel pattern; r-controlled vowel pattern; subject; verb; adjective; title (titles); picture; diagram; prefix; suffix; contraction; singular possessive; simple abbreviation; antonym; synonym; apostrophe; heading; set purpose for reading; story (stories); poem; passage; map; skim; bold type; picture caption; italic; underline (underlining); predict (predictions); character; setting; event; problem; solution; main idea; evidence; character trait (character's traits); sequence of steps; locate; transition word; signal word; first; next; soon; organize; graphic organizer; table of contents; chart; dictionary (dictionaries); indices; page number; table; bar graph; pictograph; alphabetize; guide word; entry word

**Writing:** brainstorm; topic; complete sentence; paragraph; first; next; then; last; singular noun; plural noun; capitalize; proper noun; declarative sentence; interrogative sentence; exclamatory sentence; apostrophe; contraction; singular pronoun; plural pronoun

#### **GRADE 3**

*Oral:* summarize; clarify; explain; volume; pitch; rate; organize; sequential (sequentially)

**Reading:** homophone; vowel pattern; diphthong; root; affixes; homonym/homophone; context clue; tense; syllable; poetry; line; stanza; headings; bold face; italic; predict (predictions); folktale; biography; autobiography; sequence; cause-effect; comma; period; exclamation point; question mark; apostrophe; contraction; possession; first; second; next; later; after; finally; dialogue; quotation mark; pronoun; noun; synonym; antonym; fiction; nonfiction; setting; character; event; author's purpose; draw conclusions; plot; fairy tale; myth; folktale; legend; fable; details; main idea; attribute (trait); summarize; Venn diagram; time line; chronological sequence; dictionary; glossary; thesaurus; encyclopedia; atlas (atlases); Internet

### Essential Vocabulary

### **ENGLISH**

#### **GRADE 3 (continued)**

**Writing:** central idea; elaborate; revise; clarity; precise noun; verb; adjective; transitional word; first; next; last; brainstorm (brainstorming); story map; story (stories): beginning, middle, end; letters: date, greeting, body, closing; explanation: opening, information presented; short report; verb tense; possessive; comma; abbreviation; contraction; irregular plural; past verb tense; present verb tense; singular possessive

#### **GRADE 4**

Oral: opinion; central idea; supporting detail; evidence; accurate directions; clarity

**Reading:** multiple meaning; synonym; antonym; homonym; glossary; thesaurus; context; word origin; author's purpose; fact; fantasy; historical fiction; major event; supporting detail; sensory word; entertain; inform; persuade; narrative poetry; verse; type; heading; graphic; inference; draw conclusion; summarize; cause and effect; fact and opinion; boldface; italic; color; caption under picture; nonfiction; biography (biographies); informational text; dictionary (dictionaries); atlas; almanac; encyclopedia; thesauruses

**Writing:** topic; central idea; paragraph; rhyme (rhymed); unrhymed; pattern poetry; cinquain; limerick; haiku; subject-verb agreement; prepositional phrase; double negative; noun-pronoun agreement; comma; adjective; adverb; article; homophone

#### **GRADE 5**

Oral: sequential (sequentially); summarize; narrow the topic

**Reading:** context; root word; prefix; suffix; dictionary; glossary; thesaurus; chapter development; plot; conflict; free verse; rhyme (rhymed); patterned poetry; type; heading; graphic; opinion; predict (prediction); conclusion; cause-and-effect; compare-and-contrast; skim; boldface; italic; caption; fact; draw conclusion

*Writing:* tone; voice; plural possessive; adjective; adverb; interjection; apostrophe in contraction; apostrophe in possessives; quotation mark; dialogue; comma; hyphen; fragment; run-on sentence; excessive coordination

### Essential Vocabulary

#### **ENGLISH**

#### **GRADE 6**

*Oral:* summarize; infer; assimilate; fact; opinion; viewpoint (viewpoints); convincing argument; paraphrase; restate; trivia; redundancy

**Reading:** word origin; derivation; inflection; analogy (analogies); figurative language; context; multiple meaning; inflected words; synonym; antonym; object/action; source/product; part/whole; animal/habitat; simile; hyperbole; dictionary; thesaurus; glossary; online source; boldface; italics type; graphic; headings; subheadings; technical vocabulary; atlas; globe; encyclopedia; database; Internet; setting; character; plot; conflict; theme; narrative; poetic structures; imagery; cause-effect relationships; draw conclusions; make inferences; central conflict; paraphrase; summarize; duration; character traits; internal conflict; external conflict; rhyme; rhythm; repetition; alliteration; onomatopoeia; haiku; limerick; ballad; free verse; main idea; details; organizing text; chronological order; sequential order; comparison/contrast; cause-and-effect; problem-solution; generalization; principle; technical vocabulary

*Writing:* prewrite (prewriting); elaborate (elaboration); central idea; organize (organization); unity; tone; voice; clarity; coordination; subordination; revise (revising); comma splice; coordinating conjunction; prepositional phrase; singular verb; plural verb; first person pronoun; adjective; adverb; dialogue; hyphenate; apostrophe; contraction; possessive; verb tense

#### **GRADE 7**

*Oral:* succinct; relevant idea; tone; style; word choice; pitch; feeling; voice; eye contact; posture; gesture; verbal message; nonverbal message; persuasive technique; fact; opinion; viewpoint

### Essential Vocabulary

### **ENGLISH**

#### **GRADE 7 (continued)**

**Reading:** root; affix (affixes); analogy (analogies); figurative language; connotation; analogy construction; purpose; cause/effect; sequence; characteristic; product; degree; synonym; simile; personification; hyperbole; setting; character development; plot structure; theme; conflict; short story; novel; play; folk literature; poetry; essay; biography (biographies); rhyme; rhythm; repetition; line structure; draw conclusion; make inference; summarize; external conflict: individual vs. individual vs. nature, individual vs. society, individual vs. supernatural, individual vs. technology; internal conflict; plot; initiating event, rising action, climax, falling action, resolution; theme; voice; mood; haiku; limerick; ballad; free verse; couplet; quatrain; foreshadow (foreshadowing); irony; meter; alliteration; assonance; consonance; onomatopoeia; organizational pattern; fact; opinion; viewpoint; purpose; textual aid: boldface; italic type, type set in color, underline (underlining), indentation, sidebars, illustrations, graphics, photographs, headings, subheading, footnote, annotation, comparison/contrast, enumeration/listing, sequential, chronological, concept/definition, generalization, process; resource tool

**Writing:** prewriting; voice; tone; serious; sarcastic; objective; enthusiastic; solemn; humorous; hostile; personal; impersonal; pronoun; antecedent; subject-verb agreement; complete sentence; compound sentence; simple sentence

#### **GRADE 8**

*Oral:* interview; abbreviate (abbreviation); persuasive technique; public opinion; advertisement; editorial; feature story (featured stories); intent; factual; content

**Reading:** simile; metaphor; personification; hyperbole; connotation; analogy: type or example, characteristics, association, operator, degree, mathematical, number; figurative language; main idea; theme; character; conflict; point of view; tone; word choice; dialogue; form; rhyme; rhythm; voice; author's style; setting; static; dynamic; external conflict: individual vs. individual, individual vs. nature, individual vs. society, individual vs. supernatural, individual vs. technology; internal conflict; plot: initiating event, rising action, climax, falling action, resolution; theme; dialogue; tone; first person; third person limited to a character or narrator; third person omniscient; literary devices; foreshadow (foreshadowing); irony; flashback; symbolism; haiku; limerick; ballad; free verse; couplet; quatrain; meter repetition; alliteration; assonance; consonance; onomatopoeia; credential; viewpoint; impact; relevance; accurate (accuracy); summarize (summary); draw conclusion; explicit information; implied information; make inferences; internal text structure: cause-and-effect, comparison/contrast, enumeration or listing, sequential or chronological, concept/definition, generalization, process; external text structures: boldface; italic type, type set in color, underline (underlining), indentation, sidebars, illustrations, graphics, photographs, headings and subheadings, footnotes; annotations

### Essential Vocabulary

### **ENGLISH**

#### **GRADE 8 (continued)**

**Writing:** organize; elaborate; central idea; revise; narrative; persuasive; expository; informational; prewriting; voice; tone; verb tense; comparative degree; superlative degree; adverb; adjective; complete sentence; singular verb; singular subject; singular pronoun; singular antecedent; objective pronoun; prepositional phrase; compound object; tense; comparative adjective; superlative adjective; comparative adverb; superlative adverb; transitional word; conjunction

#### **GRADE 9**

*Oral:* anecdotes; example; impromptu response; poem; monologue; scene from a play; verbal technique; nonverbal technique; demeanor; voice; language; gestures; clarity of thought; organization of evidence; relevance of information delivered

**Reading:** text structure; main idea; literary form; character; plot; setting; tone; point of view; theme; author's style; literary effect; narrative: short story, anecdote, character sketch, fable, legend, myth, tall tale, allegory, biography, autobiography, novel; poetry: epic, ballad, sonnet, lyric, elegy, ode; drama: comedy, tragedy; essay: editorial, journal entry; diary entry, informative essay; explanatory essay, analytical essay, speech; protagonist; speaker; narrator; figurative language; simile; metaphor; personification; analogy; symbolism; apostrophe; allusion; imagery; paradox; oxymoron; dialogue; foreshadow (foreshadowing); flashback; soliloquy; verse; stanza; couplet; quatrain; sestet; octet (octave); rhetorical question; cliché; connotation; denotation; hyperbole; understatement; irony; dramatic; situational; verbal; dialect; pun; direct exposition; character's actions; character's thoughts; dynamic character; round character; static character; flat character; stereotype; caricature; staging; scripting; monologue; aside

**Writing:** subject; verb; direct object; indirect object; predicate nominative; predicate adjective; parallel structure; correlative conjunction; main clause; subordinate clause; comma; semicolon

**Research:** plagiarism; electronic database; search engine; electronic mail; World Wide Web; Web browser; online services; hotlinks

### Essential Vocabulary

### **ENGLISH**

#### **GRADE 10**

*Oral:* outline; summary; organize; evaluate; delivery; critique

**Reading:** predict (predictions); inferences; short story; poem; play; novel; essay; haiku; sonnet; fable; myth; cultural theme; archetypes: hero/heroine, trickster, faithful companion, outsider/outcast, rugged individualist, shrew, innocent, villain, caretaker, Earth mother, rebel, misfit; skim; rhyme; rhythm; alliteration; assonance; consonance; onomatopoeia; blank verse; iambic pentameter; free verse; repetition; refrain; couplet; quatrain; sestet; octet (octave); meter; figurative language; metaphor; simile; diction; tone; aside; monologue; soliloquy; irony; dramatic; verbal; situational

**Writing:** expository text; organizational pattern: compare/contrast, chronological order, spatial layout, cause-and-effect, definition, order of importance, explanation, enumeration, problem/solution; direct quotation; colon; active voice; passive voice; unity; coherence; tone; voice; thesis; main idea; inductive organization

**Research:** organizational pattern: compare/contrast, chronological order, spatial layout, cause-and-effect, definition, order of importance, explanation, enumeration, problem/solution; primary source; secondary source

### Essential Vocabulary

### **ENGLISH**

#### **GRADE 11**

*Oral:* rhetorical devices; enunciation; poise; tone; rhythm

**Reading:** themes; motifs; universal character; genre; context; author's intent; viewpoint; Colonialism/Puritanism; Revolutionary movement/Rationalism; Romanticism; Transcendentalism; Regionalism; Realism; Naturalism; Symbolism/Modernism; Harlem Renaissance; Postmodernism; universal character: hero/heroine, trickster, faithful companion, outsider/outcast, rugged individualist, innocent, villain, caretaker, Earth mother, rebel, misfit, lonely orphan looking for a home; major themes: the American Dream, loss of innocence, coming of age, relationship with nature, relationship with society, relationship with science, alienation and isolation, survival of the fittest, disillusionment, rebellion and protest; rhetorical question; sarcasm; satire; parallelism; connotation; denotation; pun; irony; literal; figurative language; tone; diction; dialect; author's intent; viewpoint; jargon; technical terms; main idea; supporting details; draw conclusion; elevated language; elevated style; rhyme; strong regularity in metrical pattern; imagery; word choice; sound devices; metrical patterns; metaphorical language; figurative language; dramatic conventions: stage direction; soliloquy; monologue; aside; irony: verbal, situational, dramatic

*Writing:* verbal; gerund; infinitive; participle; verbal phrase; gerund phrase; infinitive phrase; participial phrase; absolute phrase; business letter; personal letter; memo; proposals; resumes

**Research:** thesis; quality; accuracy; logical sequence; document sources; edit; clarity

### Essential Vocabulary

### **ENGLISH**

#### **GRADE 12**

*Oral:* defend; entertain; explain; narrative; logical argument; details; illustrations; statistic; comparison; analogy (analogies); visual aid; anecdotes; analogies; semantics; rhetoric; voice modulation

**Reading:** epic; tragedy; comedy; sonnet; essay; journal/diary; satire; era: Anglo-Saxon/Medieval period, Tudor/Renaissance period, Neoclassical period, Restoration Age, Romantic and Victorian periods, Modern and Postmodern periods; themes: religious diversity, political struggles, ethnic and cultural mores and traditions, individual rights, gender equity, civil rights; technical text: product evaluation, warranty (warranties), instructional manuals, technical manuals, contracts, E-zines; draw conclusions; sound structure: rhyme, rhythm, repetition, alliteration, assonance, consonance, onomatopoeia, parallelism; tone; traditional poetry; contemporary poetry; diction; figures of speech: metaphor, simile, analogy, symbolism, personification, paradox, oxymoron, apostrophe, allusion; conflict; plot; climax; setting; character; scene; dialogue; stage (staging); dramatic conflict: exposition/initiating event, rising action, climax or crisis, falling action, resolution/denouement (conclusion/resolution)

Writing: organize; elaborate; revise; proofread; technical writing; expository writing; thesis

**Research:** ethical issue; accuracy; thesis; logical; cite sources; edit; proofread; validity; quality; plagiarism

### Essential Vocabulary

### **MATHEMATICS**

#### KINDERGARTEN

Number and Number Sense: set; more; fewer; the same; ordinal position: first, second, third

Computation and Estimation: combine (combining); join (joining); take away (taking away); separate (separating)

**Measurement and Geometry:** penny; nickel; dime; quarter; ruler; length; scales; weight; clocks (analog and digital); time; calendar; days, months, and seasons; thermometers; temperature; short (shorter); long (longer); tall (taller); heavy (heavier); light (lighter); hot (hotter); cold (colder); circle; triangle; square; rectangle; side (sides); corner (corners); polygon; quadrilateral; above; below; next to

**Probability and Statistics:** data; greatest; least; the same; more likely; less likely

Patterns, Functions, and Algebra: classify; pattern

#### **GRADE 1**

**Number and Number Sense:** ten (tens); five (fives); two (twos); ordered position; ordinal position; ordinality; ordered number: first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth; fraction; part of a whole; one-half; one-fourth

Computation and Estimation: magnitude; add; addition; adding; sum; subtraction; subtracting; minus, difference

**Measurement and Geometry:** cent (cents); nickel; dime; quarter; penny (pennies); analog clock; digital clock; half hour; length; weight; estimation; volumes; greater than; less than; the same; light (lighter); heavy (heavier); translations (slide, flip, turn); near; far; close by; below; above; up; down; beside; next to; plane geometric figure; triangle; square; rectangle; circle; side; corner; square corner; polygon; quadrilateral

### Essential Vocabulary

### **MATHEMATICS**

#### **GRADE 1 (continued)**

**Probability and Statistics:** data; count (counting); tally (tallying); statistics; picture graph; object graph; more; less; fewer; greater than; less than; equal to

Patterns, Functions, and Algebra: sort; classify; patterns; growing patterns

#### **GRADE 2**

**Number and Number Sense:** one (ones); ten (tens); hundred (hundreds); place value; number line (number lines); round (rounding); inequality symbols; greater than; less than; equal to; ordinal number: first, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, thirteenth, fourteenth, fifteenth, sixteenth, seventeenth, eighteenth, nineteenth, twentieth; left to right; right to left; top to bottom; bottom to top; fraction; part of a whole; denominator; numerator; one-half; one-fourth; one-eighth; one-tenth; pattern (patterns); skip counting

**Computation and Estimation:** add; addition; adding; sum; minus; subtraction; subtracting; addend; minuend; subtrahend; table (tables); bar graph (bar graphs); picture graph (picture graphs)

Measurement and Geometry: penny (pennies); nickel (nickels); dime (dimes); quarter (quarters); cent (cents); dollar; decimal point; greater than; less than; equal to; area; estimate; perimeter; volume; mass; balance; pound; U.S. customary weight; kilogram; metric; scale; time; quarter hour; analog clock; digital clock; cup; pint; quart; gallon; liter; more; less; equivalent; month; today; yesterday; next week; last week; calendar; 24-hour period; thermometer; Celsius; Fahrenheit; three-dimensional (solid) shapes; cube; rectangular solid; square pyramid; sphere; cylinder; cone; prism; edge (edges); faces (side, base) corner (corners); symmetry; line symmetry; horizontal; vertical; diagonal; two-dimensional (plane) shapes

**Probability and Statistics:** table (tables); object (objects); pictorial representations; tally marks; chart (charts); graph (graphs); data; axes; probability; outcome (outcomes); impossible; unlikely; as likely; as unlikely; equally likely; certain

### Essential Vocabulary

### **MATHEMATICS**

#### **GRADE 2 (continued)**

**Patterns, Functions, and Algebra:** growing pattern; repeating pattern; numeric pattern; common difference; geometric patterns; rotation (turn); vertex; reflection (flip)

#### **GRADE 3**

**Number and Number Sense:** standard; written; expanded; period (periods); whole number; ten; hundred; thousand; round; inequality symbols; place value; greater than; less than; equal to; inverse relationships; mixed numbers; fraction; part of a whole; denominator; numerator; half (halves); third (thirds); fourth (fourths); eighth (eighths); tenth (tenths); hundred (hundredths); decimal (decimals)

**Computation and Estimation:** whole number (whole numbers); sum; estimate; difference; division; multiplication; factor; product; proper fraction

Measurement and Geometry: make change; coin (coins); bill (bills); length: centimeter, meter, inch, feet, yard; liquid volumes: cup, pint, quart, gallon, liter; weight/mass: ounce, pound, gram, kilogram; five-minute interval; minute; analog clock; digital clock; leap year; calendar; day; month; week; year; hour; temperature; thermometer; Celsius; Fahrenheit; plane geometric figure; circle; square; rectangle; triangle; solid geometric figure; cube; rectangular solid; square pyramid; sphere; cone; cylinder; side; corner; square corner; edge; face; right angle; point; line; infinitely; line segment; angle; endpoint; vertex; ray; congruent figure; noncongruent figure; shape; symmetrical; line of symmetry; transformation; translation (side); rotation (turn); reflection (flip); vertical; horizontal; diagonal

**Probability and Statistics:** data; graph; title; axis; key; increments; number line; probability; favorable outcomes; impossible; outcomes; impossible; unlikely; equally likely; certain

**Patterns, Functions, and Algebra:** pattern (patterns); equal sign; equation; number sentence; commutative property for multiplication; identity property for addition; identity property for multiplication

### Essential Vocabulary

### **MATHEMATICS**

#### **GRADE 4**

**Number and Number Sense:** period (periods); whole number (whole numbers); greater than; less than; equal to; million (millions); place value; inequality symbols; thousand; ten thousand; hundred thousand; fraction; mixed number; decimal; (decimals); rational number; half (halves); three (third); four (fourths); six (sixths); eight (eighths); ten (tenths); twelve (twelfths); fraction; part of a whole; denominator; numerator; common denominator; like denominator; unlike denominator; least common multiple; decimal point; decimal number: standard, written, expanded; hundredth

**Computation and Estimation:** sum; difference; estimate; compatible numbers; closer to; between; a little more than; front-end estimation; addend; minuend; subtrahend; factor; product; division; dividend; divisor; quotient; like denominator; unlike denominator

**Measurement and Geometry:** weight/mass; U.S. customary; metric unit (metric units); ounce; pound; gram; kilogram; length; inch; feet; yard; millimeter; centimeter; meter; volume; cup; pint; quart; gallon; milliliter; liter; perimeter; area; point; line; line segment; ray; infinitely; endpoints; vertex; angle; straightedge; ruler; angle ruler; intersecting lines; perpendicular lines; intersect; parallel lines; intersection; parallelism; perpendicularity; plane; two-dimensional (plane); three-dimensional (solid); square; rectangle; triangle; parallelogram; rhombi; circle; sphere; cube; rectangular solids (prisms); congruent; noncongruent; transformations: translations, reflection, rotation; polygon; quadrilateral; equidistant; fixed point; square pyramid; center; coordinate plane; horizontal number line; vertical number line; right angle; x-axis; y-axis; coordinate (coordinates); ordered pair; first quadrant; origin

**Probability and Statistics:** probability; event; favorable outcomes; possible outcomes; certain; likely; unlikely; impossible; predict; as likely; as unlikely; equally likely; data analysis; line graphs; increasing; decreasing; same; continuous data; categorical data; numerical data; bar graph; scale; frequency

**Patterns, Functions, and Algebra:** geometric pattern; numerical pattern; equivalent; communicative property for addition; commutative property for multiplication; associative property for multiplication

### Essential Vocabulary

### **MATHEMATICS**

#### **GRADE 5**

**Number and Number Sense:** decimal; decimal forms: standard, written, expanded, place value; greater than; less than; equal to; half (halves); fourth (fourths); fifth (fifths); eighth (eighths); tenth (tenths); decimal number (decimal numbers)

**Computation and Estimation:** addition; subtraction; multiplication; division; estimate (estimation); reasonableness; hundredths; thousandths; ten-thousandths; inverse; dividend; divisor; quotient; remainder; fraction; numerator; denominator; greatest common factor; least common factor; simplest form; mixed number

Measurement and Geometry: perimeter; polygon; length; area; square units; rectangle; width; square; side; triangle; base; height; right triangle; circle; flat surface (plane); equidistant; center; chord; line segment; diameter; radius; segment; radii; circumference; surface; capacity; length: inch, feet, yard, mile, millimeter, centimeter, meter, kilometer; weight/mass: ounce, pound, ton, gram, kilogram; liquid volume: cup; pint; quart; gallon; milliliter; liter; area: square unit; temperature: Celsius, Fahrenheit; freezes; boils; body temperature; U.S. customary unit; balance (balances); metric unit; degrees; elapsed time; hours; minutes; 24-hour period; angles; complete rotation; protractor; angle ruler; right angle; acute angle; square corner; classify; polygon; scalene; isosceles; equilateral; quadrilateral; parallelogram; opposite sides; parallel; diagonal; vertices; congruent; plane figures; kites; rhombi; trapezoids; noncongruent; similar; line of symmetry; images; geometric transformations: translations, reflection, rotation, base leg, isosceles trapezoid, adjacent, reflected image, line of reflection, preimage, point, size, shape, cylinder, cone, cube, square pyramid, rectangular prism, three-dimensional figure, solid figure, solids, curved surface, perpendicular, edge, face, opposite faces

**Probability and Statistics:** probability; outcomes; event; favorable outcomes; possible outcomes; ratio; impossible; unlikely; as likely; as unlikely; equally likely; likely; certain; sample space; list; chart; tree diagram; counting principle; bar graph; stem-and-leaf plot; line graph; conclusion; prediction (predictions); ascending order; axis; scale; category (categories); increment; variable; continuous data; title; vertical axis; frequency; same; increase (increased); decrease (decreased); key; mean; median; mode; range

*Patterns, Functions, and Algebra:* infinite number; repeating pattern; growing pattern; function (functions); variable; variable expression; equal sign; verbal quantitative expression; open sentence; mathematical sentence

### Essential Vocabulary

### **MATHEMATICS**

#### **GRADE 6**

**Number and Number Sense:** percent (percents); percent symbol (%); half (halves); third (thirds); fourth (fourths); fifth (fifths); tenth (tenths); decimal (decimals); fraction (fractions); ratio; part-whole comparison; part-part comparison; whole-whole comparison; least common multiple; greatest common factor; composite number; prime number; even integer; odd integer; prime factorization; natural number; positive integer; negative integer; zero; less than; greater than; equal to; number line

Computation and Estimation: reasonableness; unlike denominators; rational number; budget

Measurement and Geometry: length: inch, foot (feet), yard, mile, millimeter, centimeter, meter, kilometer; weight/mass: ounce, pound, ton, gram, kilogram; liquid volume: cup, pint, quart, gallon, milliliter, liter; area: square unit; perimeter; perimeter of a square; perimeter of a rectangle; polygon; circle; area of a triangle; pi ( $\pi$ ); circumference; diameter; radius; referent; 45° angle; vertex; 90° angle; right angle; 180° angle; straight line; protractor; angle ruler; acute angle; square angle; obtuse angle; acute triangle; right triangle; obtuse triangle; scalene triangle; isosceles triangle; equilateral triangle; quadrilaterals; parallelogram; rhombus; square; parallel; trapezoid; congruent; isosceles trapezoid; congruent figures; noncongruent figures; corresponding angles; line segments; perpendicular bisector; bisector of an angle; bisect; line of symmetry; solid figures; three dimensional; prism; base; face; edge; rectangular prism; cylinder; cone; pyramid

**Probability and Statistics:** scale; key; title; list (lists); chart (charts); table (tables); bar graph; line graph; circle graph; stem; leaves; stem-and-leaf plot; ascending order; place value; box-and-whisker plot; median; lower extreme; lower quartile; upper quartile; upper extreme; range; interquartile range; horizontal axis; vertical axis; measures of central tendency; mean; median; mode; numerical average; sample space; tree diagram; probability; desired outcomes; possible outcomes; simple event

**Patterns, Functions, and Algebra:** numerical pattern; arithmetic sequence; common difference; linear growth; exponential growth; perfect square; triangular number; polygonal number; Fibonacci number; flip; slide; turn; growth; symmetry; rotation (turn); translation (slide); dilatation (scale increase or decrease); reflection (flip); geometric number pattern; common ratio; power of a number; exponential notation; base; exponent; real number; square root; scientific notation; one-step linear equation; coefficient; equation; mathematical sentence; variable; term

### Essential Vocabulary

### **MATHEMATICS**

#### **GRADE 7**

**Number and Number Sense:** fraction (fractions); decimal (decimals); percent (percents); scientific notation; rational number; ratio; integer (integers); expression; order of operations; power of a number; additive identity property; multiplicative inverse property; multiplicative inverse property; multiplicative property for addition; commutative property for multiplication; associative property for addition; associative property

**Computation and Estimation:** discount (discounts); sales tax; tip (tips); cost; sale price; original price; simple interest; principal; interest; total value; total cost; loan; rational number (rational numbers); whole number (whole numbers); fraction (fractions); decimal (decimals); percent (percents); proportion; scale model; rate

**Measurement and Geometry:** polygon; closed plane figure; perimeter; area; rectangle; triangle; parallelogram; trapezoid; rectangular prism; cylinder; volume; quadrilateral; planar (two-dimensional); congruent; rhombus; parallel; non-parallel; isosceles trapezoid; attributes; diagonals; perpendicular bisectors; pentagon; hexagon; heptagon; octagon; nonagon; decagon; corresponding angles; corresponding sides; congruent polygons; similar polygons; x-axis; y-axis; ordered pair; plane; point; coordinate; quadrant (quadrants); rotation; center of rotation; translation; slide; vertically; horizontally; origin; coordinate plane

**Probability and Statistics:** theoretical probability; event; favorable outcomes; possible outcomes; experimental probability; tree diagrams; Fundamental Counting Principle; outcome (outcomes); sample space; measures of central tendency; mean; median; mode; range; frequency distribution; line plot; histogram; stem-and-leaf plot; box-and-whisker plot; scattergram; lower extreme; lower quartile; upper extreme; interquartile range; inference (inferences); conjecture (conjectures); predict (predictions)

**Patterns, Functions, and Algebra:** function; arithmetic sequence; common difference; geometric sequences; common ratio; verbal expression; verbal sentence; algebraic expression; algebraic equation; is; of; more than; less than; increased by; decreased by; expression; variable expression; numerical expression; equation; mathematical sentence; inequality; inverse operation

### Essential Vocabulary

### **MATHEMATICS**

#### **GRADE 8**

**Number and Number Sense:** rational number; scientific notation; decimal; fraction; percent; expression; numerical expression; order of operations; power; base; natural number; whole number; integer; rational number; irrational number; real number

Computation and Estimation: discount; percent; discount price; algebraic expression; square root; perfect square

**Measurement and Geometry:** vertical angles; complementary angles; supplementary angles; intersecting lines; polyhedron; pyramid (pyramids); lateral area; surface area; circular cone; vertex; volume; cylinder; square; rotation; fixed point; center of rotation; clockwise; counterclockwise; reflection; flip; translation; slide; dilation; scale factor; geometric solids; three-dimensional models; right triangle; hypotenuse; leg (legs); Pythagorean Theorem; Pythagorean triples

**Probability and Statistics:** probability; comparison; prediction; inference; frequency distribution; box-and-whisker plot; scattergram; line graph; bar graph; circle graph; picture graph; histogram; matrices; row (rows); column (columns)

**Patterns, Functions, and Algebra:** relation; domain; range; function; vertical line; two-step equation; two-step inequality; linear equation; coordinate plane; ordered pair; proportion; formula; independent variable; range; dependent variable; circumference

#### **ALGEBRA I**

**Expressions and Operations:** algebra; magnitude; polynomial expression; algebraic expression; laws of exponents; exponent (exponents); scientific notation; base; coefficient; monomial; distributive property; trinomials; factor (factoring); binomials; square root; non-perfect square; radical; radicand

**Relations and Functions:** function; relation; output; input; ordered pair; domain; range; zeros of the function; equation; independent variable; dependent variable; constant; direct variation

## Essential Vocabulary

### **MATHEMATICS**

#### **ALGEBRA I (continued)**

**Equations and Inequalities:** equation; inequalities; solution; expression; real number; addition properties; multiplication properties; closure properties; identity properties; inverse properties; reflexive; symmetric; transitive; substitution properties of equality; linear function; slope; *x*-intercept; *y*-intercept; transformation; dependent variable; independent variable; positive slope; negative slope; zero slope; undefined slope; equation of a line; graph of a line; vertical line; horizontal line; system of linear equations; ordered pair; no solution; infinite solutions; reasonableness; quadrant function; root (roots); quadratic equation; algebraic solution; quadratic expression

**Statistics:** matrices; scalar multiplication; line of best fit; prediction; measures of central tendency; box-and-whisker plot

#### **GEOMETRY**

**Lines and Angles:** intersecting lines; parallel lines; transversal; exterior angle; corresponding interior angle; linear pair; interior angles; convex polygon; vertical angles; corresponding angles; alternate interior angles; same side interior angles; complementary angles; supplementary angles; proof; slope; property (properties); postulate; theorem; line segment; bisector of a line segment; perpendicular; bisector of a given angle; congruent

**Triangles and Logic:** converse; inverse; contrapositive; conditional statement; symbolic form; Venn diagram; valid (validity); logical argument; deductive reasoning; law of syllogism; congruence; similar (similarity); algebraic methods; properties of proportions; coordinate methods; distance formula; slope formula; Pythagorean Theorem; right triangle; 45°-45°-90° triangles; 30°-60°-90° triangles; sine ratio; cosine ratio; right triangle trigonometry

**Polygons and Circles:** quadrilateral; parallelogram; rectangle; rhombi; square; trapezoid; distance formula; slope; midpoint formula; deductive reasoning; regular polygon; nonregular polygon; tessellations; angle; arcs; secant; chord; tangent

**Three-Dimensional Figures:** three dimensional figure; scale drawing; perspective drawing; surface area; volume; cylinder; prism; pyramid; cone; sphere; area; constant ratio; similar figures

## Essential Vocabulary

### **MATHEMATICS**

#### **GEOMETRY** (continued)

**Coordinate Relations and Transformations:** transformation; distance formula; Pythagorean Theorem; coordinate plane; reflection; rotation; translation; line segment; coordinates; endpoint; midpoint formula; slope of a line; point symmetry; line symmetry

#### **ALGEBRA II**

**Expressions and Operations:** complex number; field property (field properties): commutative, associative, identity, inverse, distributive; axioms of equality: reflexive, symmetric, transitive, substitution, addition, multiplication; axioms of inequality and order: trichotomy, transitive, addition, multiplication; complex numbers; pure imaginary numbers; real numbers; rational numbers; integer; whole numbers; natural numbers; matrices; rational expression; monomials; polynomial expression; factored form; complex fraction; radical expression; rational exponent; radical (radicals); radicand; index; rationalizing the denominators; complete factorization; greatest monomial factor; difference of squares; sum of cubes; difference of cubes; perfect square trinomial; *i* 

**Relations and Functions:** linear function; quadratic function; absolute value function; step function; exponential function; slop-intercept form; quadratic ([h,k] form); domain; range; zeros; inverse of a function; exponential; logarithmic; function; symbolic form; inverse (inverses); composition of a function; identity function; composition of two functions; polynomial; Fundamental Theorem of Algebra; intercepts; turning point; end behavior; arithmetic sequence; geometric sequence; sequence (sequences); series; investigation of patterns;  $\sum$ ; n; n<sup>th</sup> term, a<sub>n</sub>; S<sub>n</sub>; infinite series; scatterplot; data; curve of best fit; model; directly proportional; inversely proportional; varies jointly; constant of proportionality; direct variation; inverse variation

**Equations and Inequalities:** absolute value equation; inequality (inequalities); absolute value inequality; solution; quadratic equation; complex solution; conjugates; quadratic formula; real solution; real root; rational expression; radical expression; algebraic solution; solution of an equation; equation (equations); point of intersection; radical

**Analytical Geometry:** Fundamental Theorem of Algebra;  $n^{th}$  degree polynomial equation; n roots (solution); polynomial equation; xintercept; zeros of a function; polynomial expression; polynomial function; conic sections; circle; ellipse; parabola; hyperbola; transformations

## Essential Vocabulary

### **MATHEMATICS**

#### **ALGEBRA II (continued)**

**Systems of Equations/Inequalities:** matrix multiplication; matrix equation; inverse of a matrix; system of linear equations; optimization process; linear programming model; system of linear inequalities; constraint; corner points of a feasibility region; maximum or minimum value for the function; nonlinear systems of equations; coordinates of points of intersection; linear-quadratic; quadratic-quadratic; number of solutions; algebraic (algebraically); graphic (graphically)

## Essential Vocabulary

### **SCIENCE**

#### KINDERGARTEN

*Scientific Investigation, Reasoning, and Logic:* shape: circle, triangle, square, rectangle; size: big, little, large, small; texture: rough, smooth, hard, soft; weight: heavy, light; top; bottom; front; back; five senses: taste-tongue, touch-skin, smell-nose, hearing-ears, sight-eyes; sweet; sour; bitter; salty; rough/smooth; hard/soft; cold; warm; hot; loud/soft; high/low; bright/dull

Force, Motion, Energy, and Matter: magnet; attract; metal; not attracted; attraction; nonattraction; push; pull; repel; nonmetal; matter; solid; liquid; gas; water; colors: red, orange, yellow, green, blue, purple, white, black; shapes: circle, triangle, square, rectangle; forms; flexible; stiff; straight; curved; texture; rough; smooth; feel; hard; soft; size; weight; big; little; large; small; heavy; light; wide; thin; long; short; position; over; under; in; out; above; below; left; right; speed; fast; slow; downhill; float; sink; heat (heating); cool (cooling)

*Life Processes and Living Systems:* life cycle; living things; grow; food; water; air; survive; plant; animal; offspring; parents; leaf (leaves); branch (branches); flower; fruit

*Earth/Space Systems and Cycles:* shadow; sun; electric; light; flashlight; weather; seed; cone; leaf; cloudy; warm; rain; cold; snow; clear; pattern; schedule; change; time; fast; slow; height; weight; color; hair; seasonal change; natural resource; water; energy; recycle (recycling); reuse (reusing); conserve (conserving)

#### GRADE 1

Scientific Investigation, Reasoning, and Logic: senses; length; mass; volume; inference; prediction; experiment; thermometer; ruler; magnifying glass

*Force, Motion, Energy, and Matter:* straight motion; circular motion; back-and-forth motion; vibrate; sound; push (pushes); pull (pulls); motion; size; shape; force; curved motion; movement (length/distance); liquid (liquids); separate; water; solid (solids); dissolve; hot; cold

## Essential Vocabulary

### **SCIENCE**

#### **GRADE 1 (continued)**

*Life Processes and Living Systems:* plant (plants); life needs; functional parts; needs; food; air; water; light; place to grow; part (parts); seed (seeds); root (roots); stem (stems); leaf (leaves); blossom (blossoms); fruits; characteristics; flowering; non-flowering; place to live; body coverings; body shape; appendage (appendages); movement; wild; tame; water homes; land homes; hair; fur; feathers; scales; shells; arms; legs; wings; fins; tails; walk (walking); crawl (crawling); fly (flying); swim (swimming)

*Earth/Space Systems and Cycles:* heat; light; rotation; sun; Earth; land; air; water; day (daytime); night (nighttime); plant (plant); growth; bud (budding); falling leaves; wilt (wilting); animals; behaviors; hibernate (hibernation); migrate (migration); body covering; habitat; people; dress; work; recreation; precipitation; rain; snow; ice; thickness of fur; spring; summer; winter; fall (autumn); temperature; natural resources; mineral (minerals); forest (forests); soil

#### **GRADE 2**

Scientific Investigation, Reasoning, and Logic: observation; length; volume; mass; temperature; metric unit; centimeter; meter; liter; degree; Fahrenheit; ounce; pound; size; shape; color; texture; weight

Force, Motion, Energy, and Matter: magnetism; iron; magnetic; nonmagnetic; poles; attract; repel; magnetic compass; north pole; south pole; solid; liquid; gas; mass; volume; condensation; evaporation; melt (melting); freeze (freezing); matter; mass of solid; volume of liquid; solid water; ice; steam

*Life Processes and Living Systems:* system; life cycle; habitat; living; nonliving; water; space; shelter; migration; hibernation; camouflage; adaptation; dormancy; plant (plants); oxygen; food; fiber; cotton; oil; spice (spices); lumber; rubber; medicine; paper; wood fruit; vegetable

*Earth/Space Systems and Cycles:* temperature; wind; precipitation; drought; flood; storm; gas; liquid; rain; solid; snow; sleet; thermometer; rain gauge; weather vane; hurricane; tornado; blizzard; thunderstorm; weathering; erosion; land surface

## Essential Vocabulary

### **SCIENCE**

#### **GRADE 3**

*Scientific Investigation, Reasoning, and Logic:* hypothesis; volume; milliliter; liter; length; centimeter; mass; gram; data; line plot; picture graph; bar graph; temperature; Celsius; time; minute; inferences; predictions

**Force, Motion, Energy, and Matter:** simple machines: lever, screw, pulley, wheel and axle, inclined plane, wedge; compound machines: scissors, wheelbarrow, bicycle; seesaw; crowbar; shovel; ramp; knife; ax; rod; bicycle wheel; roller skates; doorknob; cylinder; cone; jar lid; wood screw; flagpole; physical properties; materials

*Life Processes and Living Systems:* physical adaptations; environment; camouflage; mimicry; behavioral adaptations; hibernation; migration; instinct; learned behavior; gather food; store food; find shelter; defend; rear young; producer; consumer; decomposer; herbivore; carnivore; omnivore; predator; prey; water-related environment; dry-land environment; pond; marshland; swamp; stream; river; ocean; desert; grassland; rainforest; forest; population; community; interdependency

**Earth/Space Systems and Cycles:** soil; nutrients; subsoil; bedrock; rock; clay; silt; sand; humus; day; night; seasonal changes; phases of the moon; tides; animal life cycle; plant life cycle; sequence; rotation; Earth's axis; revolution; water cycle; evaporation; condensation; precipitation; pollution; fire; flood; disease; erosion; light energy; heat energy; sunlight; water; wind; fossil fuel; coal; oil; natural gas; wood; renewable energy resources; nonrenewable energy resources

#### GRADE 4

**Scientific Investigation, Reasoning, and Logic:** inference; prediction; experiment; variable; hypothesis; millimeter; centimeter; meter; kilometer; liter; gram; kilogram; centimeter ruler; meter stick; graduated cylinder; beaker; scale; balance; Celsius thermometer; manipulated variable; responding variable

## Essential Vocabulary

### **SCIENCE**

#### **GRADE 4 (continued)**

Force, Motion, Energy, and Matter: motion; direction; speed; force; friction; kinetic energy; position; potential; conductor; insulator; basic circuits; static electricity; electrical energy; heat; light; mechanical energy; electromagnet; magnetism; electron; current; circuit; closed circuit; open circuit; metal; rubber; plastic; wood; electricity; lightning; poles; magnetic force; Ben Franklin; Michael Faraday; Thomas Edison

*Life Processes and Living Systems:* plant kingdom; seed; spore; root; stem; leaf; flower; stamen; pistil; sepal; pollination; photosynthesis; chlorophyll; carbon dioxide; oxygen; dormancy; sunlight; water; sugar; organism; community; ecosystem; habitat; niche; life cycle; animal; plant

Earth/Space Systems and Cycles: air pressure; barometer; wind speed; anemometer; rainfall; rain gauge; temperature; thermometer; weather phenomena; fronts; clouds; storms; cirrus clouds; stratus clouds; cumulus clouds; cumulo-nimbus clouds; thunderstorm; hurricane; tornado; revolution; rotation; seasons; phases of the moon; Earth; moon; sun; axial tilt; new moon; waxing crescent; first quarter; waxing gibbous; full; waning gibbous; last quarter; waning crescent; planets; solar system; Earth-centered model; Aristotle; Ptolemy; sun-centered model; Copernicus; Galileo; NASA Apollo missions; watershed; water resources; minerals; rocks; ores; energy resources; forests; soil; land; Chesapeake Bay watershed; rivers; lakes; bays

#### **GRADE 5**

*Scientific Investigation, Reasoning, and Logic:* rocks; minerals; organisms; metric; prediction; estimation; temperature; length; mass; volume; millimeter; centimeter; meter; kilometer; gram; kilogram; milliliter; liter; degree Celsius; variable; independent; dependent; observation; inference

Force, Motion, Energy, and Matter: sound; frequency; wave; wavelength; vibration; solid; liquid; gas; voice; sonar; animal sound; musical instrument; pitch; string instrument; woodwind; percussion instrument; brass instrument; red; orange; yellow; green; blue; indigo; violet; ray; reflected; refracted; transmitted; transparent; translucent; opaque; prism; atom; element; molecule; compound; mixture; solution; states of matter

## Essential Vocabulary

### **SCIENCE**

#### **GRADE 5 (continued)**

*Life Processes and Living Systems:* cell; life process; microscope; organism; kingdom; moneran; protest; fungi; plant; animal; vascular; nonvascular; vertebrate; invertebrate

*Earth/Space Systems and Cycles:* ocean; continent; continental shelf; continental slope; continental rise; sediment; ocean trench; sodium chloride; salinity; wave; current; tide; ocean current; ocean floor; ocean feature; abyssal plain; depth; formation of waves; investigation; phytoplankton; rock; weathering; erosion; sedimentary; igneous; metamorphic; granite; gneiss; slate; limestone; shale; sandstone; coal; fossil; Appalachian; Piedmont; Coastal Plain; Tidewater; crust; mantle; inner core; outer core; plate tectonic boundaries; divergent; convergent; sliding; plates; faults; horizontally; sliding boundaries; strike-slip; transform boundary; mid-ocean ridges; mountain range

#### **GRADE 6**

*Scientific Investigation, Reasoning, and Logic:* observation; scale models; experiment; hypothesis; prediction; inference; independent variable; dependent variable; models; patterns

Force, Motion, Energy, and Matter: potential energy; kinetic energy; mechanical energy; solar energy; fossil fuel; geothermal energy; energy; solar radiation; types of radiation; infrared; visible light; ultraviolet; carbon dioxide; Greenhouse Effect; convection; wavelength; reflection; absorption; atom; electron (electrons); proton (protons); neutron (neutrons); nucleus; element; chemical symbols; compound; chemical formulas; subscript; chemical equations; simple molecule; water; solid; liquid; gas; dissolve; universal solvent; Celsius; physical weathering; chemical weathering; aquifers; irrigation systems; hydroelectric; air; oxygen; nitrogen; argon; carbon dioxide; air pressure; humidity; troposphere; clouds; cumulus; stratus; cirrus; ozone; air quality; thunderstorm; tornado; hurricane; drought; ecosystem; water quality; abiotic factors; water supply; topography; landforms; geology; soil (soils); sunlight; watershed; ridgelines; river systems; tributaries; flood plains; streams; sediment; wetlands; estuaries; parameters; pH; temperature; salinity; dissolved oxygen; turbidity; macroinvertebrate organisms

## Essential Vocabulary

### **SCIENCE**

#### **GRADE 6 (continued)**

**Ecosystems:** ecosystems; water quality; abiotic factors; water supply; topography; landforms; geology; soil (soils); sunlight; air quality; watershed; ridgelines; river systems; tributaries; flood plains; streams; sediment; wetland (wetlands); estuary (estuaries); parameter (parameters); pH; temperature; salinity; dissolved oxygen; turbidity; macroinvertebrate organisms

*Earth/Space Systems and Cycles:* solar system; sun; Earth; planet (planets); moon (moons); meteors; asteroid (asteroids); comet (comets); gravity; universe; axis; nitrogen; oxygen; magnetic field; solar radiation; Ptolemy; Aristotle; Copernicus; Galileo; season (seasons); tide (tides); conserve (conservation); natural resources; forestry; waste management; renewable resources

#### LIFE SCIENCE

*Scientific Investigation, Reasoning, and Logic:* hypothesis; independent variable; dependent variable; International System of Units; constant; variable; trials; observational studies; experimental studies; Scientific Method; problem; data; conclusion

Life Systems: cell theory; organelles; cell membrane; cytoplasm; nucleus; cell wall; vacuole; mitochondria (mitochondrion); endoplasmic reticulum; chloroplast; microscope; mitosis; meiosis; cell cycle; interphase; cytokinesis; unicellular organism; multicellular organism; respiration; waste removal; growth; irritability; reproduction; tissues; osmosis; diffusion; active transport; cell; organ; organ system; experimental design; plant; light; energy source; water; gas; nutrient; animal; food; shelter; space; hierarchy; kingdom; phylum; class; order; family; genus; species; nomenclature; nucleus; phyla; cnidarians; mollusks; annelids; echinoderm; chordates; mosses; ferns; conifers; flowering plants; chlorophyll; photosynthesis; glucose; energy; photosynthesizing organisms; organelle; DNA; double helix molecule; molecule; sugar; nitrogenous bases; phosphates; chromosomes; genes; trait; Mendelian genetics; genetic engineering; genetic trait; Mendel; Franklin; Watson; Crick; evolution; mutation; adaptation; natural selection; extinction; species

## Essential Vocabulary

### **SCIENCE**

#### **LIFE SCIENCE** (continued)

**Ecosystems:** ecosystem; trophic level; producer; first-order consumer; second-order consumer; third-order consumer; organism; food web; interdependence; terrestrial; freshwater ecosystem; marine ecosystem; population; social order; territory; experimental design; community (communities); organisms; consumer; decomposer; interaction; symbiotic relationship; mutualism; commensalisms; parasitism; niche; biome; desert; forest; grassland; tundra; biotic; abiotic; phototropism; hibernation; dormancy; ecosystem dynamics

Earth/Space Systems and Cycles: evolution; mutation; adaptation; natural selection; extinction; species

#### PHYSICAL SCIENCE

*Scientific Investigation, Reasoning, and Logic:* systematic investigation; SI (metric) measure; investigate (investigation); triple beam balance; thermometer; metric ruler; graduated cylinder; electronic balance; spring scale; length; mass; density; weight; volume; temperature; force; independent variable; dependent variable; trial; mathematical mean; liter; milliliter; meter; centimeter; millimeter; gram; degrees Celsius; newton; conclusion; scientific methodology; question; observation; evidence; logic; reasoning

Force, Motion, Energy, and Matter: matter; mass; space; atom; solid; liquid; gas; element; compound; mixture; acid; base; salt; inorganic; organic; hydrogen; solution; neutral; shape; density; solubility; odor; melting point; boiling point; color; Bohr model; Dalton; Thompson; Rutherford; Bohr; electron cloud model; element; atomic number; periodic table of elements; symbol; atomic number; atomic mass; state of matter; valence; metal; metalloid; nonmetal; group; family (families); periods; bond (bonding); ion; electron; isotope; proton; ionic; covalent bonding; nucleus; molecular; chemical reaction; physical change; chemical change; nuclear change; Law of Conservation of Mass; endothermic; exothermic; nuclear fission; nuclear fusion; energy; potential energy; kinetic energy; velocity; light; heat; chemical; electrical; mechanical; sound; absolute zero; conduction; convection; radiation; temperature; freeze (freezing); melt (melting); condensing; boil (boiling); vapor (vaporizing); Celsius; Kelvin; temperature scale; vibrate (vibrations); compression wave; longitudinal; wavelength; rarefaction; frequency; speed of sound; radiant energy; transverse wave; inverse relationship; electromagnetic wave; speed of light; gamma ray; X-ray; ultraviolet; visible sight; infrared; radio; microwave; force; speed; acceleration; deceleration; weight; gravity; work; Law of Motion; power; simple machine; mechanical advantage; friction; efficiency; magnetic field; electric current; static electricity; series circuit; parallel circuit; electromagnet; simple circuit; voltage; resistance; current; generator; motor

## Essential Vocabulary

### **SCIENCE**

#### **EARTH SCIENCE**

**Scientific Investigation:** density; mass; volume; hypothesis; experiment (experiments); scientific law (scientific laws); scientific theory (scientific theories); Earth; dynamic system; conclusion; predict (predictions); scientific method; map (maps); geologic; bathymetic; topographic; weather; aerial photography; satellite images; latitude; longitude; legend (legends); line (lines); topographic contours; elevation

Geology: mineral; rock (rocks); quartz; feldspar; calcite; mica; pyrite; magnetite; hematite; galena; graphite; sulfur; oxygen; silicon; aluminum; iron; silicates; rock cycle; igneous; sedimentary; metamorphic; extrusive igneous rocks; intrusive igneous rocks; crystal (crystals); pumice; obsidian; basalt; granite; clastic; sandstone; conglomerate; shale; limestone; rock salt; foliated; unfoliated; slate; schist; gneiss; marble; quartzite; natural resource (natural resources); extraction; renewable resources; vegetation; sunlight; surface water; nonrenewable resources; coal oil; mineral (minerals); fossil fuel; pollution; gravel; crushed stone; physiographic provinces; Coastal Plain; Piedmont; Blue Ridge; Valley and Ridge; Appalachian Plateau; lithosphere; earthquake (earthquakes); volcano (volcanoes); mountain building; weathering; erosion; deposition; inner core; iron outer core; mantle; crust; plate motions; plate boundaries; convergent; divergent; transform; ocean crust; continental crust; continental drift; plate tectonics; collision zones; subduction zones; rift valleys; mid-ocean ridges; fissure volcano; strike-slip faults; fault; magma; soil; Karst topography; cave (caves); sinkholes; fossil; mold (molds); cast (casts); original bone or shell; Paleozoic; Mesozoic; Cenozoic; absolute time; radioactive decay; superposition; crosscutting

Meteorology, Oceanography, and Groundwater: permeability; erosion; zone of aeration; zone of saturation; water table; aquifer; hydrologic cycle diagram; evaporation; condensation; precipitation; runoff; Virginia watershed systems; Chesapeake Bay; Gulf of Mexico; North Carolina sounds; wave (waves); tide (tides); gravitational pull; pole (poles); equator; sea level; salinity; estuary (estuaries); algae; convection; topography; seafloor; continent (continents); plate tectonic; topographic; continental shelf (continental shelves); continental slope (continental slopes); abyssal plain; seamount (seamounts); atmosphere; solar system; oxygen; nitrogen; trace gases; carbon dioxide; composition; dynamic (dynamics); density; volcanic activity; meteorite; radiation; weather; climate; sun; wind (winds); rotation; latitude; elevation; proximity; Coriolis effect; polar; temperature; tropical zone (tropical zones); tornado; hurricane; barometer; thermometer; psychomotor; cloud type; temperature; barometric pressure

## Essential Vocabulary

### **SCIENCE**

#### **EARTH SCIENCE (continued)**

Astronomy and Space Science: solar system; asteroid belt; axis; equinox; solstice; moon phases; eclipse (eclipses); solar eclipse (solar eclipses); lunar eclipse (lunar eclipses); tide (tides); gravitational pull; solid; liquid; gas; hydrogen gas; nuclear fusion; helium; terrestrial; planet (planets); outer planet (outer planets); moon (moons); comet (comets); asteroid (asteroids); meteor (meteorites); Apollo 11; Hubble Space Telescope; universe; big bang theory; solar nebular theory; star (stars); evolution; interstellar gas; Hertzsprung-Russell; galaxy (galaxies); spiral; elliptical; irregular; Milky Way; light year; astronomy

#### **BIOLOGY**

**Scientific Investigation:** observation (observations); inference (inferences); predict (predictions); hypotheses; independent variable (IV); dependent variable; constant; range; mean; accuracy; confidence; experimental error; trial (trials); variance in the data; theory

Life at the Molecular and Cellular Level: magnifying lens; light microscope; cell theory; cell reproduction; microscopy; cell organelles; ultrastructure; natural selection; Pasteur; Koch; germ theory; microorganism; x-ray; DNA; molecule; double helix; heredity; molecular genetics; water; Earth; mass; water molecules; cohesive; adhesive; pH scale; carbon; hydrogen; nitrogen; oxygen; sulfur; phosphorus; carbon atoms; cell; macromolecules; carbohydrate; lipid; nucleic acid; protein; structural; transport; hemoglobin; movement; muscle fibers; cytoskeletal elements; defense; antibodies; hormones; enzyme; polymers; amino acids; photosynthesis; cell respiration; chlorophyll; eukaryotic cells; ATP; respiration; cell structure; prokaryotes; eubacteria; archaebacteria; cell wall; vacuoles; chloroplast; homeostasis; nucleus; ribosome; mitochondria; Golgi; endoplasmic reticulum; lysosome; cell membrane; single-celled organism; multicellular organism; diffusion; osmosis; active transport; virus (viruses); mitosis; meiosis; cytokinesis; prophase; metaphase; anaphase; telophase; genetic variation; mutation; recombination; deletions; chromosomes; genetic disorder; karyotype charts; inheritance; protein synthesis; nucleic acid; genetic code; polymer; nucleotides; double-stranded molecule; messenger RNA; ribosome (ribosomes); cytoplasm; RNA nucleotide; adenine; guanine; cytosine; uracil; mRNA molecule; forensic identification; eugenics; Human Genome Project; clone (cloning)

## Essential Vocabulary

### **SCIENCE**

#### **BIOLOGY** (continued)

Life at the Systems and Organisms Level: magnifying lens; light microscope; cell theory; cell reproduction; microscopy; cell organelles; ultrastructure; natural selection; Pasteur; Koch; germ theory; microorganism; x-ray; DNA; molecule; double helix; heredity; molecular genetics; diversity; autotrophs; heterotrophs; multicellular organism; unicellular organism; motile organism; nonmotile organism; organisms with cell walls; organisms without cell walls; sexually reproducing organisms; asexually reproducing organisms; aquatic organisms; terrestrial organisms; protest; archaebacteria; monerans (eubacteria); fungi; homeostasis; tissue; organ; organ systems; respiratory system; circulatory system; urinary system; immune system; nerve; Mendelian laws of heredity; geneticist (geneticists); genotype; phenotype; homozygous individuals; identical alleles; heterozygous individuals; contrasting alleles; dominant; recessive; gametes; dihybrid cross; parental genotypes; Punnett square; monohybrid cross; binomial nomenclature; genus; species; organism (organisms); dichotomous key; homologous structure (homologous structures)

Interaction of Life Forms: magnifying lens; light microscope; cell theory; cell reproduction; microscopy; cell organelle (cell organelles); ultrastructure; natural selection; Pasteur; Koch; germ theory; microorganism; x-ray; DNA; molecule; double helix; heredity; molecular genetics; diversity; extinct; fossil; zygote; embroyo; clad gram; phylogenic tree; amino acid; nucleotide sequences; population; organism; generation; mutate (mutations); adapt (adaptations); punctuated equilibrium; relative; absolute dating; community; population growth; exponential growth; limiting factors; environment; capacity; abiotic factor (abiotic factors); symbiosis; mutualism; commensalisms; parasitism; ecological succession; ecosystem; nutrient (nutrients); climax community; food chain; food web; producer; autotroph; consumer; primary order; secondary order; decomposer; dynamic equilibria; flora; fauna; microorganisms

#### **CHEMISTRY**

Scientific Investigation: volume; graduated cylinder; pipette; volumetric flask; buret; mass; electronic; dial-a-gram; temperature; thermometer; temperature probe; pressure; barometer; pressure probe; laboratory safety equipment; lab techniques; basic lab equipment; Material Safety Data Sheet warnings; reproducibility; measurement (measurements); scientific notation; significant digits; dimensional analysis; dependent variable; independent variable; scale; regression line; mole ratios; percent composition; conversion (conversions); relative atomic mass

## Essential Vocabulary

### **SCIENCE**

#### **CHEMISTRY** (continued)

Atomic Structure and Periodic Relationships: periodic table; atomic number; neutral atom; atomic mass; electron (electrons); proton (protons); neutron (neutrons); nucleus; atom; mass; isotope; half-life; alpha; beta; gamma radiation; penetrating power; shield (shielding); composition; group (groups); series; period (periods); atomic radii; electronegativity; shielding effect; ionization energy; periodicity; Periodic Law; diatomic molecule; Aufbau Principle; orbital; Pauli Exclusion Principle; Hund's Rule; Periodic Table; cation; anion; transition metals; matter; physical property (physical properties); chemical property (chemical properties); element (elements); compound (compounds); mixture (mixtures); homogeneous; heterogeneous; reactivity; Quantum Mechanical Model; atomic model; particle (particles); first atomic theory of matter; discovery of the electron; discovery of charge of electron; planetary model of atom; periodic table by atomic mass; periodic table by atomic number; uncertainty principle; wave theory; quantum nature of energy; discovery of nucleus

**Nomenclature, Chemical Formulas, and Reactions:** nomenclature; subscript (subscripts); coefficient; Law of Multiple Proportions; empirical formula; molecular formula; structural formula; covalent bond; ionic bond; ionization energy; positive ions (cations); negative ions (anions); electronegativity; polar molecule (polar molecules); IUPAC system; binary ionic compounds; molecular shapes; bent; linear; trigonal planar; tetrahedral; trigonal pyramidal; polyatomic ions; Lewis Dot Diagram; oxidation-reduction; exothermic; endothermic; neutralization; reaction; kinetic; activation energy; catalysis; degree of randomness; entrophy; enthalpy; temperature affect spontaneity; chemical reaction (chemical reactions); synthesis; decomposition; single replacement; double replacement; Le Chatelier's Principle; redox reactions

*Molar Relationships:* atom (atoms); mole; molecule (molecules); formula unit; stoichiometry; Avogadro's number; molar volume; reagent; percent yield; solution (solutions); acid/base theory; strong electrolytes; weak electrolytes; nonelectrolytes; dissociation; ionization; pH; pOH; titration process; arrhenius acids; arrhenius bases; Bronsted-Lowry acids; proton donors; proton acceptors; acidity; molar concentration

**Phases of Matter and Kinetic Molecular Theory:** gas; gas particles; gas molecules; Ideal gas; Real gas; solution (solutions); pressure; volume; Boyle's Law; constant pressure; Charles' Law; Dalton's law of partial pressure; Ideal Gas Law; molarity; pressure units; Kinetic Molecular Theory; forces of attraction; vapor pressure; temperature; hydrogen bonding; dipole-dipole attraction; London dispersion; atmospheric pressure; solute (solutes); heating curve; heat capacity; fusion; vaporization; calorimetry calculations; polar molecules

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### KINDERGARTEN

*History:* Pocahontas; George Washington; Betsy Ross; Abraham Lincoln; Thanksgiving Day; Martin Luther King, Jr. Day; Presidents' Day; Independence Day (Fourth of July); long ago; past; present; real; make-believe; history

Geography: near; far; above; below; left; right; behind; in front; map; globe; model; land; water

**Economics:** job; doctor; builder; teacher; cook; farmer; firefighter; basic need (basic needs); want (wants); money; good (goods)

*Civics:* turn; share (sharing); responsible (responsibility); chore (chores); respect (respecting); rule; consequence; honest (honesty); self-control; kindness; community; good citizen; American flag; Pledge of Allegiance; President; leader; United States

#### **GRADE 1**

*History:* past; present; school; change; transportation; community; family; time line; sequence of events; George Washington; Benjamin Franklin; Abraham Lincoln; George Washington Carver; contribution; Presidents' Day; Columbus Day; Independence Day (Fourth of July); holiday; calendar

*Geography:* map symbol (map symbols); land; water; city (cities); road (roads); cardinal direction; United States; Virginia; map; globe; Washington, D.C.; Richmond; north; east; south; west; map legend; location; climate; physical surroundings; season; geography

**Economics:** good (goods); service (services); need (needs); want (wants); buy (buyer); sell (seller); purchase; money; savings

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### **GRADE 1 (continued)**

*Civics:* honest (honesty); truthful (truthfulness); good citizenship, rule (rules); symbol; tradition; patriotic; American flag; bald eagle; Washington Monument; Statue of Liberty; Pledge of Allegiance; community (communities); ethnic origin; contribute (contributions); cultural holiday

#### **GRADE 2**

*History:* China; Egypt; invent (inventions); calendar; ancient; architecture; contribution; American Indians (First Americans); Powhatan; Eastern Woodland Indians; Sioux Indians; Plains Indians; Pueblo Indians; Southwest; region; arts; jewelry; pottery; weaving; legends; story (stories); respect; nature; farming; change; community; population; transportation

*Geography:* world map; United States map; adapt; climate; land; environment; plant life; equator; globe; rivers: James River, Mississippi River, Rio Grande; mountain ranges: Appalachian Mountains, Rocky Mountains; lakes: Great Lakes; seven continents; North America; South America; Europe; Asia; Africa; Australia; Antarctica; four oceans; Arctic Ocean; Atlantic Ocean; Indian Ocean; Pacific Ocean; locate; title; map legend; compass rose

**Economics:** natural resources; human resources; capital resources; barter; money; scarcity; consumer; producer

*Civics:* vote (voting); contribute (contributions); George Washington; Abraham Lincoln; Susan B. Anthony; Helen Keller; Jackie Robinson; Martin Luther King, Jr.; diverse ethnic origins; customs; traditions; common principle (common principles)

#### **GRADE 3**

*History:* government; contribution; direct democracy; representative democracy; architecture; Greece; Rome; Arts; mosaics; sculpture; paintings; democracy; Republican; Olympic games; oral tradition; storytelling; kings; economic development; trade; prosperous; empire; Mali; traditions; Christopher Columbus; Juan Ponce de Leon; Jacques Cartier; Christopher Newport; explorer; European

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### **GRADE 3 (continued)**

*Geography:* characteristics; physical; Ancient Greece; Ancient Rome; Empire of Mali; human; adapt (adapted); Spain; England; France; hemisphere; equator; Prime meridian; regions; continents; oceans; Europe; North America; map; table; graph; chart

*Economics:* producer; natural resources; human resources; capital resources; goods; services; consumer; specialization; interdependence; economic choice; opportunity cost

*Civics:* community; rules; laws; government; equality; George Washington; Thomas Jefferson; Abraham Lincoln; Rosa Parks; Thurgood Marshall; Martin Luther King, Jr.; Veterans Day; Memorial Day; honor; life; liberty; pursuit of happiness; diverse ethnic origins; customs; tradition; Republican form of government

#### **VIRGINIA STUDIES**

*History:* English colonization; settlement; stockholder; Virginia Company of London; Jamestown; diverse; impact; indentured servant; tobacco; hardships; starvation; disease; survival; Captain John Smith; agriculture; contribute (contributions); trade (trading); Powhatan; exchange; goods; immigrants; cultural landscape; migration; Revolutionary War; patriots; Continental Army; Yorktown; James Armistead Lafayette; George Washington; Thomas Jefferson; Patrick Henry; surrender; elect (elected); James Madison; Constitutional Convention; conflict; secede; northern states; southern states; economy; Nat Turner; Harriet Tubman; escaped; Underground Railroad; John Brown; United States Armory; Harpers Ferry, Virginia; Civil War; significant role; first battle of Bull Run; Confederate; General Thomas "Stonewall" Jackson; General Robert E. Lee; Commander of the Army of Northern Virginia; Ulysses S. Grant; blockade; Monitor; Merrimack; draw; Maggie L. Walker; Harry F. Byrd, Sr.; Arthur R. Ashe, Jr.; L. Douglas Wilder

*Geography:* next to; near; bordering; Fall Line; geographic regions; Coastal Plain; Tidewater; Piedmont; Blue Ridge Mountains; Valley and Ridge; Appalachian Plateau; peninsula; Atlantic Ocean; Chesapeake Bay; James River; York River; Potomac River; Rappahannock River; American Indians; First Americans; Christopher Columbus; artifacts; arrowhead; pottery; Algonquian; Siouan; Iroquoian; climate; spring; summer; fall; winter; vegetation; forest; shelter; geography; relocation; capital; Jamestown; Williamsburg; Richmond; higher elevation; westward; central

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### **VIRGINIA STUDIES (continued)**

**Economics:** agriculture; cash crop; profitable; product; reliable; inexpensive; labor; plantations; slave labor; money; barter; credit; debt; saving; consumer; goods; services; harvested; reconstruction; Freedmen's Bureau; sharecropping; crop; economic growth; Civil War; railroads; expansion; coal; livelihood; industry; rural; urban; coal mining; Coastal Plain; Tidewater; product; Piedmont; Blue Ridge Mountains; Valley and Ridge; Appalachian Plateau; raw material; finished product; export; communication; technology; tourism

*Civics:* charters; New World; Virginia Assembly; legislative body; Virginia House of Burgesses; system of government; elected; Declaration of Independence; colonists; English Parliament; Virginia Declaration of Rights; Virginia Statue for Religious Freedom; segregation; discrimination; "Jim Crow" laws; prejudice; poll taxes; separate; massive resistance; desegregation; integration; U.S. Supreme Court; *Brown v. Board of Education*; Harry F. Byrd, Sr.; state constitution; General Assembly; Senate; House of Delegates; governor; executive branch; judicial branch

#### **UNITED STATES HISTORY TO 1877**

**Exploration to Revolution:** obstacle (obstacles); explorer (explorers); accomplishment (accomplishments); economic; exploration; religious; competition (competitions); exchange; goods; idea (ideas); navigational tool (navigational tools); cooperation; conflict; cultural interaction; technology (technologies); trade; crop (crops); Roanoke Island; Jamestown Settlement; Plymouth colony; religious persecution; Massachusetts Bay Colony; Quakers; colonial life; social position; large landowners; farmer (farmers); artisan (artisans); women; indentured servants; slave (slaves); taxed; French and Indian War; raw material (raw materials); governor (governors); proprietor; legislature (legislatures)

**Revolution and the New Nation:** American Revolution; representation; Parliament; Proclamation of 1763; King George III; Lord Cornwallis; John Adams; George Washington; Thomas Jefferson; Patrick Henry; Benjamin Franklin; Thomas Paine; Phillis Wheatley; Paul Revere; Boston Massacre; Boston Tea Party; First Continental Congress; Battle of Lexington and Concord; Battle of Saratoga; Surrender at Yorktown; Signing of the Treaty of Paris; federal court system; Benjamin Banneker; Louisiana Purchase; Lewis and Clark; James Madison; James Monroe; War of 1812; Monroe Doctrine

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### **UNITED STATES HISTORY TO 1877 (continued)**

Westward Expansion and the Civil War Era: westward expansion; reform; territorial expansion; acquisition (acquisitions); Louisiana Purchase; Lewis and Clark expedition; abolitionist; suffrage; Harriet Tubman; William Lloyd Garrison; Frederick Douglass; patriotic slogans; Isabel Sojourner Truth; Susan B. Anthony; Elizabeth Cady Stanton; Civil War; slavery; a union; Missouri Compromise (1820); Compromise of 1850; Kansas-Nebraska Act; southern secession; Confederate forces; Abraham Lincoln; Emancipation Proclamation; Gettysburg Address; Jefferson Davis; Ulysses S. Grant; Robert E. Lee; Thomas "Stonewall" Jackson; Clara Barton; perspective (perspectives); American Red Cross; discriminate (discriminated); segregate (segregated); Robert Smalls; bravery; heroism; reconstruction; carpetbaggers; equal rights; Civil Rights Act of 1866

Geography: continent (continents); North America; South America; Africa; Asia; Australia; Antarctica; Europe; geographic regions; Coastal Plain; Appalachian Highlands; Canadian Shield; Interior Lowlands; Great Plains; Rocky Mountains; Basin and Range; Coastal Range; ocean (oceans); Atlantic Ocean; Pacific Ocean; river (rivers); Mississippi River; Missouri River; Ohio River; Columbia River; Colorado River; Rio Grande River; lake (lakes); Great Lakes; gulf; Gulf of Mexico; trade; transportation; settlement; American Indians (First Americans); Arctic; Inuit; Northwest; Kwakiutl; Plains; Sioux; Southwest; Pueblo; Eastern Woodland; Iroquois; geography; climate; shelter; New England; economy; social life; political life; civil life; Mid-Atlantic; South; seceded; Fort Sumter, S.C.; the first Battle of Manassas (Bull Run); Battle of Vicksburg; Battle of Gettysburg; surrender; blockade

*Civics and Economics:* Ghana; Mail; Songhai; John Locke; Declaration of Independence; certain unalienable rights; Congress; power; tax; regulate; commerce; currency; vote; executive branch; judicial branch; challenge (challenges); weak (weaknesses); Articles of Confederation; Constitution of the United States of America; Bill of Rights; federal system of government; separation of powers; James Madison's Virginia Plan; legislative branch; ten amendments; political party (political parties); federalist (federalists); Alexander Hamilton; Thomas Jefferson; Democratic Republicans; Manifest Destiny; invention (inventions); new technology; cotton gin; Eli Whitney; Jo Anderson; Cyrus McCormick; reaper; steamboat; Robert Fulton; steam locomotive; ban (bans); 13<sup>th</sup> Amendment; citizenship; 14<sup>th</sup> Amendment; 15<sup>th</sup> Amendment

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### UNITED STATES HISTORY 1877 TO PRESENT

**Experience of Modern America:** 1877 to Early 1900s: westward expansion; immigration; invention; industrialization; urbanization; tenements; Settlement house; Hull house; Jane Addams; reservation; Battle of Little Bighorn; Chief Joseph; discrimination; ghetto; political corruption; post-Reconstruction; racial segregation; "Jim Crow" laws; Booker T. Washington; W.E.B. Du Bois; organized labor; strike; progressive movement; women's suffrage; 19<sup>th</sup> Amendment; Susan B. Anthony; Temperance Movement; 18<sup>th</sup> Amendment; union (unions)

Turmoil and Change: 1890s to 1945: Spanish American War; U.S.S. Maine; Yellow Journalism; neutral; Lusitania; Allies; Central Powers; Woodrow Wilson; League of Nations; prohibition; speakeasies; bootleggers; Harlem Renaissance; Georgia O'Keeffe; F. Scott Fitzgerald; John Steinbeck; Aaron Copland; George Gershwin; Jacob Lawrence; Langston Hughes; Duke Ellington; Louis Armstrong; jazz composers; Bessie Smith; blues singer; World War II; Pearl Harbor; inflation; unemployment; Fascism; Adolf Hitler; Benito Mussolini; Hideki Tojo; Axis Powers; Franklin D. Roosevelt; Harry S. Truman; Winston Churchill; Joseph Stalin; neutrality; involvement; isolationism; economic aid; Holocaust; D-Day; Hiroshima; Nagasaki; Anti-Semitism; Aryan supremacy

*United States since World War II:* Marshall Plan; communism; United Nations; Cold War; democratic; capitalist; dictatorial; communist; containment; North Atlantic Treaty Organization (NATO); Warsaw Pact; stalemate; Cuban Missile Crisis; Berlin Wall; "The Baby Boom"; Eleanor Roosevelt; G.I. Bill of Rights

*Geography:* map; globe; photograph; picture; table; physical feature; climate; Great Plains; inventions; adaptation; natural resources; transportation; industrial development; manufacture (manufacturing); textile industry; automobile industry; steel industry; region; Northeast; Southeast; Midwest; Southwest; Rocky mountains; Pacific; noncontiguous; city (cities); Western

*Civics and Economics:* prosperity; national market; captains of industry; John D. Rockefeller; oil; Andrew Carnegie; steel; Henry Ford; automobile; mechanization; industrialization; Wright Brothers; Guglielmo Marconi; David Sarnoff; electrification; Franklin D. Roosevelt's New Deal; Great Depression; Federal Reserve; tariffs; social security; rationing; credit; segregation; *Plessy v. Ferguson; Brown v. Board of Education*; Martin Luther King, Jr.; Rosa Parks; organized protests; National Association for the Advancement of Colored People (NAACP); Civil Rights Act of 1964; Voting Rights Act of 1965; National Organization for Women (NOW)

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### **CIVICS AND ECONOMICS**

*Principles and Structure of American Constitutional Government:* fundamental political principles; consent of the governed; limited government; rule of law; democracy; representative government; charter; Virginia Company of London; Virginia Declaration of Rights; Declaration of Independence; Articles of Confederation; Virginia Statue for Religious Freedom; Constitution of the United States of America; Bill of Rights; preamble; union; justice; peace; defense; legislative; executive; judicial; amendment; bicameral; Virginia General Assembly; United States Congress; legislative power; expressed; implied; lobbying; Virginia Supreme Court; Court of Appeals of Virginia; Circuit Court; General District Court; Juvenile and Domestic Relations District Court; U.S. Court of Appeals; U.S. Supreme Court; U.S. District Court; judicial review; *Marbury v. Madison*; criminal law; misdemeanor; civil law; felony; guilty verdict; plaintiff; judge; jury; court; juveniles; due process of law; 5<sup>th</sup> Amendment; 14<sup>th</sup> Amendment

**Rights and Responsibilities of American Citizenship:** citizen (citizenship); Fourteenth Amendment; naturalization; immigration; diverse; First Amendment; laws; taxes; jury; civic responsibilities; voluntary; register; vote; elective office; community service; trustworthiness; honesty; courtesy; respect for the rights of others; responsible (responsibility); accountable (accountability); self-reliance; respect for the law; patriotism

**Political Processes:** political parties; electorate; election; liberal; conservative; platform; campaigning; fact; opinion; bias; propaganda; political action committee (PAC); primary election; general election; electoral college; congressional

**Economic Principles and Systems:** scarcity; resources; choice; opportunity cost; price; incentive; supply; demand; production; consumption; free market; command economy; mixed economy; private property; profit; competition; consumer; sovereignty

*United States Economy:* proprietorship; partnership; corporation; entrepreneur; global economy; trade; goods; services; career planning; work ethic; supply; demand; income

**The Role of Government in the Economy:** antitrust legislation; monopolies; global trade; FCC (Federal Communications Commission); EPA (Environmental Protection Agency); FTC (Federal Trade Commission); public goods; public services; tax revenue; borrowed funds; 16<sup>th</sup> Amendment; spending; borrowing; demand; Federal Reserve System (Fed)

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### WORLD HISTORY AND GEOGRAPHY TO 1500 A.D.

*Human Origins and Early Civilizations:* nomadic; Neolithic Era; archaeology; fossils; artifact; Stonehenge; Bronze Age; hereditary rulers; rigid class system; centralized government; written law codes; surplus; polytheism; monotheism; Judaism; beliefs; traditions; customs; Torah; Ten Commandments; exile; diaspora; pictogram; hieroglyphics; cuneiform; alphabet

Classical Civilizations and Rise of Religious Traditions: Persia; empire; imperial bureaucracy; Zoroastrianism; caste system; Aryans; Gupta empire; origins; beliefs; traditions; customs; Hindu; Hinduism; deity; reincarnation; karma; Vedas; Upanishads; Buddhism; Siddhartha Gautama; Great Wall of China; Confucianism; Taoism; civil service system; humility; yin/yang; Greek mythology; polytheistic religion; natural phenomena; gods; goddesses; Zeus; Hera; Apollo; Artemis; Athena; Aphrodite; Persian empire; Peloponnesian War; Persian War; Classic Era; Pericles; Golden Age of Pericles; Aeschylus; Sophocles; Homer; Herodotus; Thucydides; Phidas; Doric; Ionian; Corinthian; Archimedes; Hippocrates; Euclid; Pythagoras; Socrates; Plato; Aristotle; Alexander the Great; Hellenistic culture; Phillip II, King of Macedon; Hellenistic Age; Roman mythology; Greek polytheistic; Roman gods; Roman goddesses; Jupiter; Juno; Apollo; Diana; Minerva; Venus; Carthage; Mediterranean basin; Punic Wars; Hannibal; Roman Republic; Julius Caesar; currency; inflation; triumvirate; Augustus Caesar; Marc Anthony; empire; Pax Romana; prosperity; imperial rule; expansion; solidification; civil service; uniform rule of law; Christianity; Judaism; Jesus of Nazareth; Messiah; monotheism; New Testament; Apostles; Emperor Constantine; moral authority; Pantheon; Colosseum; Forum; roads; aqueducts; Roman arches; Ptolemy; economy; moral decay; invasion; Byzantium; Constantinople

**Postclassical Civilizations:** Constantinople; codify; Byzantine Emperor Justinian; reconquest; icons; mosaics; Hagia Sophia; liturgy; celibacy; Black Sea; Baltic Sea; Cyrillic alphabet; Islam; Muhammad; Mecca; Medina; monotheism; Quran; Moses; Jesus; Sunni-Shi'a division; Jerusalem; Damascus; Battle of Tours; Catholic Church; medieval; monasteries; missionaries; Pope; Charlemagne Holy; priests; feudal society; Fief; Vassals; Serfs; Feudal obligations; Manorial system; Frankish kings; Age of Charlemagne; invasion; settlements; migratory groups; Angles; Saxons; Magyars; Vikings

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### **WORLD HISTORY AND GEOGRAPHY TO 1500 A.D. (continued)**

**Regional Interactions:** Shinto tradition; Buddhist tradition; proximity; Axum; Zimbabwe; West African kingdoms; Ghana; Mali; Songhai; Niger River; Sahara; Timbuktu; animism; Mayan; Aztec; Incan; civilizations; Chichèn Itzà; polytheistic religion; pyramids; Tenochtitlan; emperor; Machu Picchu; Eurasian powers; Crusades; Mongol conquests; Constantinople; Pope Urban; Saladin; Ottoman Turks; Black Death (bubonic plague); monasteries; Leonardo da Vinci: *Mona Lisa, The Last Supper*; Michelangelo: Sistine Chapel, *David*; petrarch: sonnets; humanist scholarship; humanism; Renaissance writers: Erasmus-*The Praise of Folly*, Sir Thomas More-*Utopia*; religious; secular

Geography: Paleolithic Era; agricultural revolution; homo sapiens; river valley civilizations; Egyptian civilization; Mesopotamian civilization; Indian civilization; Chinese civilization; Hebrews; Phoenicians; Kush; harbor; peninsula; straits; trade; colonization; Aegean Sea; Greek Peninsula; Europe; Asia Minor; Mediterranean Sea; Black Sea; Dardanelles; Athens; Sparta; Troy; Macedonia; agriculture; commerce; Hellenic culture; barter; mountainous terrain; arable land; artifacts; migration; Mediterranean Basin; Italian peninsula; Rome; Alps; sea-borne commerce; Fertile Crescent; silk roads; maritime routes; trans-Saharan routes; Mayan; Aztec; Incan; civilizations; Chichèn Itzà; polytheistic religion; pyramids; Tenochtitlan; emperor; Machu Picchu

*Civics and Economics:* democracy; Greek polis; Athens; monarchy; aristocracy; tyranny; democracy; tyrants; Draco; Solon; direct democracy; public debate; Sparta; oligarchy; Patricians; plebeians; slaves; democracy; Representative democracy; Assemblies; the senate; consuls; Laws of Rome codified as Twelve Tables; textiles; porcelain; navigation; Buddhism; Hinduism; Islam; nation-states; William the Conqueror; common law; Magna Carta; The Hundred Years' War; Hugh Capet; Joan of Arc; Ferdinand; Isabella; Philip II; Ivan the Great; Mongols; unification; Renaissance; Crusades; acquisition; maintenance; absolute rule; Florence; Venice; Genoa; Machiavelli; worldwide depression in the 1930's; protective tariffs; Stock Market Crash (1929)

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### WORLD HISTORY AND GEOGRAPHY: 1500 A.D. TO THE PRESENT

*Emergence of a Global Age:* Renaissance; Michelangelo; Leonardo da Vinci; Shakespeare; humanism; Erasmus; textiles; scientific transfer; medicine; astronomy; mathematics; theological; Martin Luther; John Calvin; Henry VIII; usury; noble (nobility); Lutheran tradition; Calvinist tradition; Anglican tradition; Inquisition; Reformation; capitalism; monarchy; Catholic Counter Reformation; doctrine; secularism; individualism; religious tolerance; printing press; explorers; conquistadors; Vasco da Gama; Christopher Columbus; Hernando Cortez; Francisco Pizarro; Ferdinand Magellan; Francis Drake; Jacques Cartier; indigenous; migration; settlement patterns; cultural diffusion; colonized; Aztec Empire; Maya Empire; Inca Empire; class system; colonization; Columbian Exchange; First Americans; small pox; slavery; plantation system; indigenous economics; Mughal Empire; coastal trade; Taj Mahal

Age of Revolutions: scientific revolution; systematic measurement; Nicolaus Copernicus; heliocentric theory; Johannes Kepler; Galileo Galilei; Isaac Newton; William Harvey; Age of Absolution; monarchies of Louis XIV; Frederick the Great; Peter the Great; absolute monarchies; French Revolution; American Revolution; Storming of the Bastille; Reign of Terror; Louis XVI; Napoleon; Toussaint L'Ouverture; Simon Bolivar; The Age of Reason; Johann Sebastian Bach; composer; Wolfgang Amadeus Mozart; Eugène Delacroix; Voltaire; philosopher; Miguel de Cervantes; novelist; Cervantes' Don Quixote; unification; Bismark; Count Cavour; Giuseppe Garibaldi; The Papal States; Otto von Bismark; Realpolitik; The Franco-Prussian War; Industrial Revolution; imperialism; nationalism; missionary; spheres of influence; colonized peoples

*Era of Global Wars:* World War I; Woodrow Wilson; Kaiser Wilhelm II; Treaty of Versailles; Imperialism; assassination; Archduke Ferdinand; Russian Revolution; Bolshevik Revolution; civil war; Vladimir Lenin; Joseph Stalin; League of Nations; mandate system; Joseph Stalin; Adolf Hitler; Benito Mussolini; Hirohito; Hideki Tojo; Great Purge; anit-semitism; fascism; militarism; industrialization; totalitarian (totalitarianism); isolationism; pacifism; Pearl Harbor; D-Day; atomic bombs; Franklin D. Roosevelt; Harry Truman; Dwight D. Eisenhower; Douglas MacArthur; George Marshall; Winston Churchill; Holocaust; genocide; extermination camps; gas chambers; Armenians; Peasants; World War II; Marshall Plan; North Atlantic Treaty Organization (NATO); Warsaw Pact

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### WORLD HISTORY AND GEOGRAPHY: 1500 A.D. TO THE PRESENT (continued)

**Post World War II Period:** Cold War; nuclear power; Yalta Conference; rivalry; free enterprise; dictatorship; communism; President Truman; Policy of Containment; Iron Curtain; North Atlantic Treaty Organization (NATO); The Warsaw Pact; Cuban Missile Crisis; Berlin Wall; containment; Chiang Kai-shek; Mao Tse-tung; Gandhi; civil disobedience; passive resistance; Kenyatta; League of Nations; Judaism; Christianity; Islam; Buddhism; Hinduism; Monotheism; Ten Commandments; Torah; New Testament; Muhammad; Koran; Mecca and Medina; caste system; reincarnation; karma

*Geography:* Ottoman Empire; Songhai Empire; Incan Empire; Mayan Empire; Aztec Empire; Judaism; Christianity; Islam; Hinduism; Buddhism; trade patterns; Constantinople; Islamic religion

Civics and Economics: triangular trade; precious metal exports; indigenous empires; international trade; global trade; exportation; foreign trade; Commercial Revolution; mercantilism; English Civil War; Glorious Revolution; Oliver Cromwell; Charles I; Charles II; William and Mary; parliamentary power; royal power; English Bill of Rights of 1689; Enlightenment; founders; Thomas Hobbes' Leviathan; John Locke's Two Treatises on Government; sovereign; Montesquieu's The Spirit of Laws; Jean-Jacques Rousseau's The Social Contract; Voltaire; Thomas Jefferson's Declaration of Independence; The Constitution of the United States of America; Bill of Rights; Napoleon; Congress of Vienna; secular society; nationalism; democratic; Napoleonic Code; "Balance of Power" doctrine; liberalism; conservatism; urbanization; Industrial Revolution; James Watt; steam engine; Eli Whitney; cotton gin; Henry Bessemer; Edward Jenner; small pox vaccination; Louis Pasteur; bacteria; capitalism; socialism; communism; Adam Smith's Wealth of Nations; entrepreneurial; Karl Marx's Communist Manifesto; Das Capital; evolution; labor union; factory system; child labor; slavery; suffrage; strike (strikes); lobby (lobbied); collective bargaining; worldwide depression in the 1930s; protective tariffs; Stock Market Crash 1929; refugees; ozone depletion; illiteracy; famine; multinational corporations; international organizations; trade agreements; North American Free Trade Agreement (NATO); World Trade Organization (WTO); United Nations (UN); International Monetary Fund (IMF)

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### WORLD GEOGRAPHY

*Physical and Regional Geography:* absolute location; compass rose; scale; latitude; longitude; relative location; orientation; GIS (Geographic Information Systems); field work; satellite images; photographs; maps; globes; data bases; primary source; mental map; reference point; geographic feature; land form; human characteristic; symbol; color; line; boundary (boundaries); contours; thematic map: population, economic activity, resource, language, ethnicity, climate, precipitation, vegetation, physical, political; map projection; Mercator; polar; Robinson; low latitude; middle latitude; weather phenomena; monsoon; typhoon; hurricane; tornado; earthquake; flood; volcano; erosion; agricultural terracing; polders; deforestation; desertification; acid rain; pollution; physical regions; cultural regions; gross domestic product (GDP); Eurasia; peninsulas; islands; fjords; mountains; North European plain; rivers; seas; oceans; Straight of Gibraltar

*Cultural Geography:* Hinduism; Buddhism; Judaism; Christianity; Islam; alliances; nationalism; humanitarian initiatives; economic alliances; cultural alliances; military alliances; problem-solving alliances

**Global and Urban Geography:** natural resources; climate; capital resources; religious persecution; natural hazards; customs; traditions; steam engine; internal combustion engine; computer chips; resource depletion; environmental degradation; harbor sites; island sites; fall line sites; confluence sites; hilltop sites; oasis sites; human mobility; social structure; diversity

**Economic Geography:** energy resources; natural resources; human resources; capital resources; economic activity; comparative advantage; industrial labor system; global society; interdependent; economic union; European Union (EU); North American Free Trade Agreement (NAFTA); Association of Southeast Asian Nations (ASEAN); Organization of Petroleum Exporting Countries (OPEC)

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### VIRGINIA AND UNITED STATES HISTORY

*Early America through the Founding of the New Nation:* colonization; Puritans; covenant community; Mayflower Compact; Jamestown; Virginia Company of London; Virginia House of Burgesses; General Assembly of Virginia; Proclamation of 1763; Boston Tea Party; First Continental Congress; Boston Massacre; Minutemen; patriot; loyalist; neutral; Revolutionary War; Benjamin Franklin; Treaty of Alliance; George Washington; Battle of Yorktown; ratification; Federalists; Anti-Federalists

*Expansion, Reform, Civil War and Reconstruction:* 1801 – 1877: Jacksonian Era; aristocracy; aristocracy; Presidential veto; Spoils System; Panic of 1837; democracy; Civil War Era; Abraham Lincoln; Ulysses S. Grant; Robert E. Lee; Frederick Douglass; Election of Lincoln; Ft. Sumter; Emancipation Proclamation; Gettysburg; Gettysburg Address; Appomattox; Reconstruction; 13<sup>th</sup> Amendment; 14<sup>th</sup> Amendment; 15<sup>th</sup> Amendment; Constitution of the United States of America; Compromise of 1877; "Jim Crow" Era

Emergence of Modern America and World Conflict: 1877 – 1945: Homestead Act of 1862; territorial expansion; westward movement; new immigration; Ellis Island; Statue of Liberty; assimilation; melting pot; Chinese Exclusion Act of 1882; Immigration Restriction Act of 1921; prejudice; discrimination; "Jim Crow"; Booker T. Washington; W.E.B. Du Bois; intimidation; lynchings; Plessy v. Ferguson; Great Migration; Ida B. Wells; Progressive Movement; child labor; antitrust laws; labor unions; women's suffrage movement; Theodore Roosevelt's Square Deal; Woodrow Wilson's New Freedom; referendum; muckraking; Knights of Labor; American Federation of Labor: Samuel Gompers; American Railway Union: Eugene V. Debs; Industrial Ladies' Garment Workers Union; strikes: Haymarket Square, Homestead Strike, Pullman Strike; Sherman Anti-Trust Act; Clayton Anti-Trust Act; Susan B. Anthony; 19<sup>th</sup> Amendment to the Constitution; World War I; Wilson's Fourteen Points; Treaty of Versailles; League of Nations; World War II; Pearl Harbor; Hitler; Battle of Britain; Midway; Stalingrad; Normandy; D-Day; atomic bomb; Allies; Axis; El Alamein; Suez Canal; Normandy landings; Iwo Jima; Okinawa; Tuskegee Airmen; Nisei regiments; Geneva Convention; Bataan Death March; prisoner of war (POW); Holocaust; genocide; final solution; Jews; Poles; Slavs; Gypsies; Undesirables; Nuremberg trials; internment; media

## Essential Vocabulary

### HISTORY/SOCIAL SCIENCE

#### **VIRGINIA AND UNITED STATES HISTORY (continued)**

The United States since World War II: United Nations; Marshall Plan; Cold War; Truman Doctrine; containment of communism; North Atlantic Treaty Organization (NATO); President Nixon; massive retaliation; Vietnam War; President John F. Kennedy; President Lyndon Johnson; Vietnamization; Watergate scandal; Fidel Castro; Bay of Pigs; Cuban Missile Crisis; Alger Hiss; Julius and Ethel Rosenberg; Senator Joseph McCarthy; McCarthyism; Pentagon; assassinated; Ronald Regan; nationalism; Gorbachev; Berlin Wall; Brown v. Board of Education; Thurgood Marshall; Oliver Hill; National Association for the Advancement of Colored People (NAACP); March on Washington; Civil Rights Act of 1964; Voting Rights Act of 1965; Martin Luther King, Jr.; Sandra Day O'Connor; Sally Ride; Pink Collar-ghetto; glass ceiling; bilingual education; English as a Second Language (ESL); John Glenn; Neil Armstrong

Geography and Economics: cash crops; Quakers; Catholics; artisans; entrepreneurs; indentured servitude; slavery; Louisiana Purchase; War of 1812; Lewis and Clark expedition; Sacajawea; The Monroe Doctrine; Manifest Destiny; abolitionist; William Lloyd Garrison; Harriet Beecher Stowe; Nat Turner; Gabriel Prosser; The Missouri Compromise; Compromise of 1850; Kansas-Nebraska Act of 1854; Abraham Lincoln; Stephen Douglas; Dred Scott decision; women's suffrage movement; Seneca Falls Declaration; Elizabeth Cady Stanton; Susan B. Anthony; agrarian; modern industrial economy; invention; Bessemer steel process; light bulb; Thomas Edison; telephone; Alexander Graham Bell; airplane; Wright Brothers; assembly line manufacturing; Henry Ford; Andrew Carnegie; steel; J.P. Morgan; finance; John D. Rockefeller; oil; Cornelius Vanderbilt; railroads; laissez-faire capitalism; open door policy; Secretary of State John Hay; dollar diplomacy; President Taft; Spanish American War; Panama Canal; Theodore Roosevelt; Great Depression; New Deal; Federal Reserve; tariffs; Work Progress Administration (WPA); Agricultural Adjustment Administration (AAA); Federal Deposit Insurance Corporation (FDIC); Social Security Act

*Civics:* Common Sense; Declaration of Independence; John Locke; Thomas Paine; Constitution; Articles of Confederation; James Madison; George Washington; U.S. House of Representatives; legislative; executive; judicial; Chairman of the Convention; Constitutional Convention; Bill of Rights; Virginia Declaration of Rights; Virginia Statue for Religious Freedom; George Mason; Thomas Jefferson