

# The Answers: A Parent Handbook

Districtwide Curriculum Standards  
for Cypress-Fairbanks Independent School District  
2009-2010

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# A Letter to Parents

Fall, 2009

Dear Parents:

Teachers, coordinators, and other support personnel joined efforts in setting district academic standards in language arts/reading, mathematics, science, and social studies, K-12. Using the Texas Essential Knowledge and Skills as a framework, they determined the competencies students must develop in one grade-level to be academically prepared for the next grade-level. Additionally, they identified ways that parents can help their children succeed in these subject-areas. Since the initial “Standards Project” in 1998, CFISD has updated this document annually, including adjustments related to the state assessment, the Texas Assessment of Knowledge and Skills (TAKS).

## About this Booklet

This booklet is your copy of the established standards. Grade-level information for each subject-area is divided into these sections.

- **Prerequisites**—what students should know and be able to do before entering the grade-level
- **Competencies**—what students will learn during the grade-level—the major topics of study
- **Outside of School**—what parents can do to help their child succeed

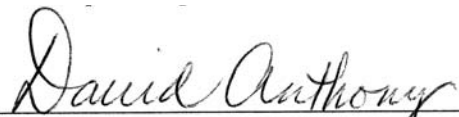
The booklet also contains: (1) general tips for parents; (2) explanations of reading strategies, the writing process, problem-solving strategies, steps in scientific investigations, and geography skills; and (3) glossary of terms for each subject-area.

## Looking to the Future

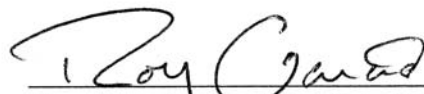
Standards identified in this booklet represent an important step in ensuring that all district students enjoy an equal opportunity to learn a challenging curriculum and to develop the traits described in the *Portrait of a Cypress-Fairbanks I.S.D. Graduate*.

- Effective Communicator
- Competent Problem-solver
- Self-directed Learner
- Responsible Citizen
- Quality Producer

More specific grade-level and course information is available from your child’s teacher(s).



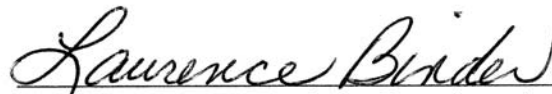
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## General Information: Questions & Answers

**Q** When and why did CFISD decide to establish districtwide standards?

**A** When the State Board of Education adopted the Texas Essential Knowledge and Skills (TEKS) in 1998, our district's Board of Trustees included the development of districtwide curriculum standards as a component of its goals for CFISD. You can find the official TEKS online at this Texas Education Agency site: <http://www.tea.state.tx.us/teks/index.html>.

**Q** How does CFISD continue to implement the standards?

**A** Curriculum staff and instructional leaders work together to conduct thorough, ongoing analysis of the components, revising curriculum guides, instructional materials, lesson-plan frameworks, and test items so that everything aligns to match the established standards. A renewed focus of such efforts began with meetings held throughout the 1998-99 school year, as each Standards Committee started with the TEKS (a very long document) for its subject and created a condensed version to use as districtwide standards. As a result, students at all CFISD campuses have access to the same challenging curriculum. *The Answers* is a parent-friendly version of the Standards Committees' documents.

**Q** Are these competencies the kinds of things students will need to know for the TAKS tests?

**A** Yes. Writers of the statewide test (the TAKS) draw test questions from the TEKS curriculum—in other words, TAKS is aligned with the TEKS. This alignment allows TAKS to serve as a form of measurement for determining how well students have learned the TEKS in the core subject-areas.

**Q** Which students will be learning these standards?

**A** In general, all students will be learning the TEKS curriculum. The districtwide standards are targeted to the on-level student, with the understanding that teachers will make adjustments to address the needs of students in programs such as HORIZONS, Bilingual/ESL, or special education.

**Q** In the lists of standards, why do some competencies appear several years in a row?

**A** Some expectations as summarized in this handbook may appear repetitious at first glance. For the sake of brevity, *The Answers* does not explain details of long-term progression. Some examples of skills that increase in complexity are described below:

- All ages of math students are expected to use graphs. Kindergartners making stacks of teddy-bear counters will eventually work their way up to being sophomores who are graphing a best-fit line for a scatter plot. The same concepts and skills are addressed (using a diagram to represent data), but with increasing difficulty.
- Students will use the writing process throughout their years in school. Beginners will learn about each of the steps in the process. Next, students will put the steps together to create a composition. As students get older, they will use the entire process for increasingly complex assignments.

# Texas Assessment of Knowledge & Skills (TAKS)

During the 2009-2010 school year, CFISD students will participate in three or four rounds of testing related to the state assessment program.

- **Curriculum-based Assessments (Elementary Benchmarks; Secondary Formative Assessments)**  
CFISD curriculum coordinators, working with groups of teachers, construct tests that simulate the official state exams—frequently using actual questions from old TAKS test forms. Because the questions, the format, and the administration procedures mimic the “real” assessments, students get a chance to experience the test-taking environment without the stress-level of the “official” test—which is particularly helpful to third graders, who will be first-time TAKS-takers. Students gain confidence as they become familiar with the situation, learn what to expect, and see that the test covers knowledge and skills that they’re already learning in class. Performance on these tests is a good prediction of performance on TAKS. Detailed score reports from the benchmarks/SFAs clarify which students need extra help with certain skills.
  - Students take benchmarks/SFAs throughout the year, and tests are scored quickly so that any struggling students can be scheduled for reteaching.
- **TAKS Field Tests**  
The Texas Education Agency (TEA) is continually building its bank of questions to be used for future versions of the TAKS test. New test questions are “tried out” during the field-testing process to ensure that they are fair and effective. TEA, hoping to get valid data for its research, selects a sampling of campuses from all across the state, and those schools are required by law to participate. A school may be assigned to field-test only certain subjects or grade-levels. Some campuses will not be required to participate in field testing. The assignments are always a surprise—schools do not know which field tests, if any, they will be giving until just a few weeks beforehand.
  - Field testing schedules vary from year to year. A campus chosen to participate in field testing will notify parents regarding their student’s involvement.
- **Actual TAKS Test**  
The TAKS measures students’ level of expertise in the Texas Essential Knowledge and Skills, which is the state-mandated curriculum in Texas. Special education students may be studying below-grade-level TEKS or may be receiving modifications that would render TAKS inappropriate. In such cases, the student’s ARD committee will decide which test the student will take—TAKS (A), TAKS-M, or TAKS-Alt.
  - Students will take the TAKS tests as shown on the schedule on the following page.
- **TELPAS (Texas English Language Proficiency Assessment System)**  
Assessments administered through this program evaluate bilingual/ESL students’ proficiency in learning English. The program includes two components—a reading proficiency test (Reading Proficiency Test in English, known as RPTE) and the teachers’ evaluation of a student’s listening, speaking, and writing skills in English (Texas Observation Protocol, known as TOP).
  - The testing window for 2010 TELPAS is March 8-April 9.

- For the most up-to-date information available about the TAKS, visit the Texas Education Agency’s Web site at <http://www.tea.state.tx.us/student.assessment/parents.html>.
- To view the CFISD-produced parent handbook *Nailing Down the TAKS*, visit the district’s Web site at <http://www.cfisd.net/dept2/curricu/nailing.pdf>.

# 2010 Testing Schedule for TAKS

Students in Grade	On This Day/Date*	Will Take This TAKS Test
3	Tuesday, April 27	Math
	Wednesday, April 28	Reading
4	Wednesday, March 3	Writing
	Tuesday, April 27	Math
	Wednesday, April 28	Reading
5	Tuesday, April 6	Math
	Wednesday, April 7	Reading
	Thursday, April 29	Science
	Tuesday, May 18	SSI Math, 2 <sup>nd</sup> Try
	Wednesday, May 19	SSI Reading, 2 <sup>nd</sup> Try
	Tuesday, June 29	SSI Math, 3 <sup>rd</sup> Try
	Wednesday, June 30	SSI Reading, 3 <sup>rd</sup> Try
6	Tuesday, April 27	Math
	Wednesday, April 28	Reading
7	Wednesday, March 3	Writing
	Tuesday, April 27	Math
	Wednesday, April 28	Reading
8	Tuesday, April 6	Math
	Wednesday, April 7	Reading
	Thursday, April 29	Science
	Friday, April 30	Social Studies
	Tuesday, May 18	SSI Math, 2 <sup>nd</sup> Try
	Wednesday, May 19	SSI Reading, 2 <sup>nd</sup> Try
	Tuesday, June 29	SSI Math, 3 <sup>rd</sup> Try
	Wednesday, June 30	SSI Reading, 3 <sup>rd</sup> Try
9	Wednesday, March 3	Reading
	Thursday, April 29	Math
10	Wednesday, March 3	English Lang. Arts
	Tuesday, April 27	Math
	Thursday, April 29	Science
	Friday, April 30	Social Studies
11 (exit)	Wednesday, March 3	English Lang. Arts
	Wednesday, April 28	Math
	Thursday, April 29	Science
	Friday, April 30	Social Studies

\* In case TEA later modifies the schedule, check <http://www.tea.state.tx.us/> to verify test dates.

## Notes:

General education students will take TAKS on the dates shown (including, as needed, a Spanish version for grades 3-6).

Special education students will generally follow the same schedule for their tests. The student's ARD committee will have chosen from the following exams.

- TAKS (Accommodated)
- TAKS-Modified
- TAKS-Alternate

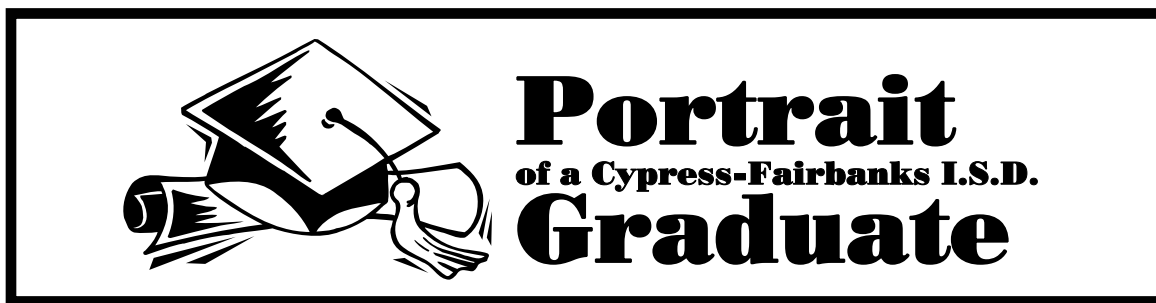
For students who are dyslexic, the dates noted here may be Day 1 of a two-day test setup.

The Student Success Initiative (SSI) applies to the tests listed below.

- Grade 5—reading and math
- Grade 8—reading and math

These students must pass TAKS to be promoted to the next grade. Students who do well the first time do not need to worry about the additional dates. Students who fail these TAKS tests the first time will receive extra help on the skills they don't understand, and they will be given a chance to retake the test(s) on the days indicated.

# Portrait of a Cypress-Fairbanks I.S.D. Graduate



Cypress-Fairbanks I.S.D. is committed to providing the environment and learning opportunities for all students so that, as graduates, they will possess the characteristics which will enable them to live meaningfully and successfully in society and in the workplace.



## **Effective Communicator**

who successfully uses the levels of communication skills demanded by the complex and ever-changing world—skills in listening, speaking, writing, reading, mathematics, and technological presentations.



## **Competent Problem-Solver**

who can identify problems and the information needed to organize, analyze, interpret, evaluate, predict, and make appropriate decisions to resolve or to avoid the problems that so frequently accompany a rapidly-changing world.



## **Self-Directed Learner**

who continually seeks knowledge, creates options for learning that lead toward enhanced productivity, takes responsibility for setting appropriate priorities and achievable goals, and monitors and evaluates own progress in goal attainment.



## **Responsible Citizen**

who is honest, self-disciplined, respectful of others, and not only accepts, understands, and deals with diversity, but also is appreciative of differences; and, in a cooperative manner, contributes to the community's welfare and participates in the political process.



## **Quality Producer**

who is resourceful and creative, has high expectations for own work as an individual or as part of a team, can lead others when called upon, takes pride in own work, and is able to monitor and correct own performance.

# Elementary

## Kindergarten

### Reading/Language Arts

#### *Prerequisites:*

*Before entering kindergarten, students should be able to*

- Use self-help skills (examples: bathroom independently, zip, button, buckle, snap, etc.).
- Speak and share ideas in complete sentences.
- Listen to and talk about stories that were read to them.
- Play with rhyme, rhythm, and repetition in poems, songs, and stories (examples: Dr. Seuss books, Mother Goose Rhymes, etc.).
- Use materials, tools, and toys to develop muscles in fingers and hands (examples: Legos, Play-Doh, scissors, crayons, etc.).
- Think about their experiences with letters and recognize some letters of the alphabet (examples: letters in names, street signs, store names, singing the alphabet, etc.).
- Recognize their first names in print and write them.
- Relate printed words to spoken language.
- Make marks and pictures that look like writing.

#### *Competencies:*

*During kindergarten, students will*

- Identify upper- and lower-case letters.
- Demonstrate one-to-one match between spoken words and printed words in text.
- Know the difference between a letter and a word.
- Recognize that sentences are made up of words separated by spaces.
- Hold a book right side up, turn its pages correctly, and know that reading moves from top to bottom and left to right.
- Speak in complete sentences and listen attentively by facing speakers.
- Make rhyming words and tell rhyming words from non-rhyming words.
- Blend sounds to form one-syllable words.

- Blend spoken first part and last part of words to form simple words.
- Identify syllables in spoken words.
- Break down one-syllable words into separate sounds, clearly saying beginning, middle, and ending sounds.
- Use letter-sound knowledge to match sounds to letters.
- Use letter-sound relationships to decode regular words and to spell consonant-vowel-consonant words.
- Read basic high-frequency words and read aloud from familiar, predictable text.
- Retell important facts from text and predict what might happen next in a story.
- Describe characters in a story and the reasons for their actions.
- Write their own names.
- Form uppercase and lowercase letters so others can read them.
- Plan a first draft of writing by generating ideas in class discussions.
- Develop their writing by putting the details of their stories in order of events.
- Write short poems and experiment with writing in different ways.
- Use punctuation at the end of a sentence.

#### *Outside of School:*

*As parents, you can provide opportunities for your kindergartner to*

- Listen to you read daily, and answer questions you ask.
- Sing songs and recite rhymes.
- Talk with you about letters and words around them (examples: menu at McDonald's, food packaging at Kroger, displays at Target, etc.).
- Draw and create with pencils, crayons, paper, and scissors.
- Practice writing his or her name with uppercase and lowercase letters.
- Watch you write (examples: grocery list, phone message).
- Play letter games (examples: magnetic letters on the refrigerator, find letter 'C' on a can of corn, etc.).

## Mathematics

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### *Prerequisites:*

#### *Before entering kindergarten, students should be able to*

- Count objects to 10.
- Count aloud to 20.
- Recognize numbers 0 through 10.
- Write numbers 0 through 5.
- Know the difference between letters and numbers.
- Make sets of objects (example: 8 blocks).
- Sort objects by color, size, and shape.
- Identify these colors: red, yellow, blue, orange, green, purple, black, and brown.
- Understand and use words that show position (examples: up, down, over, under, beside, behind, and below).
- Begin to understand patterns and create a two-member pattern (example: XOXOXO or +\*\*+\*\*+\*).
- Identify these shapes: circle, triangle, rectangle, and square.
- Use pairs of opposite words such as short and tall, short and long, big and little, hot and cold.
- Understand the idea of more and less.
- Begin to understand the concept of time (example: days of the week).
- Follow simple directions.
- Use numbers that have personal meaning to them (examples: phone number, address, birthday, and age).

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### *Competencies:*

#### *During kindergarten, students will*

- Recognize, count aloud to 100, and write numbers.
- Identify patterns, add to them, and create new ones.
- Sort and arrange items by traits or by category.
- Use numbers to describe how many objects are in a set.
- Use language and one-to-one correspondence to describe relative sizes of sets.
- Make and use graphs of real objects or pictures to answer questions.
- Read a calendar, using days, weeks, and months.

- Describe the order of events or objects, using words such as first, second, before, after, and between.
- Compare situations according to temperature, and use time to compare events according to duration.
- Compare and order objects according to length, weight, or capacity.
- Identify, describe, and compare shapes and solids in real-life objects.
- Show and create simple addition and subtraction in real-life situations, using objects like blocks, buttons, etc.
- Solve problems connected to things that happen in everyday life.
- Write numbers 0 through 10, using correct formation.

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### *Outside of School:*

#### *As parents, you can provide opportunities for your kindergartner to*

- Solve problems in everyday situations.
- Look at and talk about numbers in real-life situations.
- Measure things at home (example: ingredients in a recipe).
- Point out shapes and colors all around you.
- Talk about time (examples: now, later, yesterday, today, and tomorrow).
- Practice identifying and writing numbers.
- Play board games and do other activities that involve counting.
- Read counting and number books with you.
- Sort objects by traits or category (examples: alike and different, color, size).
- Look for patterns in your environment (examples: petals on a flower, bricks on a house, repeating designs on wallpaper, etc.).
- Practice counting aloud.
- Count objects.

## Science

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### *Prerequisites:*

#### *Before entering kindergarten, students should be able to*

- Use the five senses to make observations and discoveries.
- Identify changes in daily life (seasons, weather, temperature).
- Practice and understand science lab safety rules (do not taste unknown items).
- Make predictions.
- Identify patterns.
- Identify and name body parts.
- Ask and answer simple questions.
- Explain decisions and observations in their own words.

### *Competencies:*

#### *During kindergarten, students will*

- Know and practice simple basic safety rules during science investigations.
- Identify the five senses, and use them to make observations and discoveries.
- Gather information using tools such as hand lenses, balances, and cups.
- Observe, identify, and predict what happens next.
- Know that heat causes change.
- Describe, sort, and classify objects from their environment (living and nonliving).
- Explain basic needs of plants and animals.
- Give examples of ways that rocks, soil, and water are useful.

### *Outside of School:*

#### *As parents, you can provide opportunities for your kindergartner to*

- Discuss schoolwork and activity sheets with you.
- Make observations and discuss issues concerning the environment.
- Practice good health habits.
- Watch science-oriented programs on television (the Discovery Channel).
- Read nonfiction books on science topics.
- Read magazines such as *Your Big Backyard* and *Zoo Books*.

- Visit museums, zoos, farms, libraries, etc.
- Observe weather patterns and changes (clouds, storms, puddles).
- Observe and discuss things found in nature (shadows, insects, water, etc.).
- Use directional words (left/right, top/bottom, over/under, etc.).
- Discuss the importance and use of safety gear such as helmets when biking, knee/elbow pads when skating, and life vests when boating.
- Discuss fire safety.

## Social Studies

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### *Prerequisites:*

#### *Before entering kindergarten, students should be able to*

- Obtain information through listening, speaking, and observing.
- Use both words and pictures to express ideas.
- Identify the United States flag and the Texas flag.
- Name self and identify family members.
- Describe family customs and traditions.
- Identify rules and purposes for having rules.

### *Competencies:*

#### *During kindergarten, students will*

- Express ideas orally based on knowledge and experiences.
- Obtain information about a topic using oral sources (conversations, interviews) and using visual sources (pictures, symbols, maps).
- Identify self by name, address, telephone number, and birthday.
- Identify family members, customs, and traditions.
- Place events in order of time (first, next, last).
- Use terms to describe location (over, under, near).
- Distinguish between land and water on a globe and map.
- Explain how basic human needs (food, clothing, shelter) can be met.
- Identify rules that provide order and safety in the home and school.
- Identify American symbols, customs, and celebrations (flag, voting, Independence Day).

- Identify ways technology is used in the home and school.
- Identify authority figures in the home, school, and community.

### ***Outside of School:***

#### ***As parents, you can provide opportunities for your kindergartner to***

- Learn home address, phone number, and full name.
- Talk about the order of daily events using words like *first*, *then*, *next*, and *last*.
- Look at and discuss simple maps.
- Distinguish between needs and wants.
- Visit museums.
- Discuss family traditions and celebrations.
- Discuss the importance of rules in the home and neighborhood.

## Grade 1

### Reading/Language Arts

#### ***Prerequisites:***

#### ***Before entering 1<sup>st</sup> grade, students should be able to***

- Listen carefully and follow one- or two-step instructions.
- Write their names (first and last).
- Recognize all letters in capital and lowercase form.
- Begin to read and write by learning to match letters with sounds for consonants and short vowels.
- Separate one-syllable words into beginning, middle, and ending sounds.
- Name and make rhyming words.
- Read kindergarten high-frequency words alone.
- Show understanding by retelling a story or by acting out the story.

#### ***Competencies:***

#### ***During 1<sup>st</sup> grade, students will***

- Speak clearly at an appropriate pace and to the point, using the conventions of language.
- Share information and ideas about the topic under discussion.

- Work productively with others in teams.
- Use comprehension skills to listen attentively to others in formal and informal settings.
- Understand that spoken words are represented in written English by specific sequences of letters, and that we read these words in text by moving from top to bottom of the page and track words from left to right with return sweep.
- Blend spoken sounds to form one- and two-syllable words
- Isolate beginning, middle, and ending sounds in one-syllable spoken words.
- Segment spoken one-syllable words into individual sounds (examples: /s/, /p/, /l/, /a/, /t/)
- Use phonics skills to decode words in context and in isolation.
- Gain meaning from a variety of texts by drawing on useful strategies such as predicting, asking questions, locating facts and details in text, and making corrections and adjustments when understanding breaks down.
- Analyze, make inferences, and draw conclusions about a variety of different types of text, and show parts of the text that helped their understanding.
- Learn about the following kinds of words and parts of words.
  - contractions (example: can't)
  - compound words (example: popcorn)
  - base words (example: look)
  - endings (examples; -s, -ed, -ing)
- Read grade-level-appropriate text with fluency and understanding.
- Describe the plot (problem and solution) and retell a story's beginning, middle, and end with attention to the order of events.
- Describe characters in a story and the reasons for their actions and feelings.
- Talk about the main idea and the important facts and details in text.
- Determine what words mean from how they are used in a sentence.
- Use basic conventions in their writing.
  - capitalization (examples: first letter of a sentence, the pronoun "I," names)
  - punctuation (examples: periods, exclamation marks, question marks)
- Use the elements of the writing process (planning, drafting, revising, editing, and

publishing) to express their ideas and feelings about real or imagined people, events, or ideas.

- Share their writing with others.
- Write brief stories that include a beginning, middle, and end, and write short friendly letters.
- Use knowledge of letter-sound patterns to spell.
- Develop a research plan with adult help to address a research question and find answers using available resources.
- Organize and present their research ideas and information to others.
- Use computers to learn how images, graphics, and sounds work together to make and change meaning.

### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 1<sup>st</sup> grader to***

- Read to you daily. Sometimes, you may want to record your child's reading progress by camera, videotape, or audiotape.
- Listen to you read aloud each day.
- Talk about the meaning of what was read.
- Practice writing (sight words, letter formation, spelling words), using different media such as markers, sidewalk chalk, watercolors, salt, shaving cream, or Magnadoodle boards.
- Read words all around you (signs, cereal boxes, board games).
- Encourage your child to talk in complete sentences about daily events.
- Develop family awareness by listening to and retelling family stories.

## **Mathematics**

### ***Prerequisites:***

#### ***Before entering 1<sup>st</sup> grade, students should be able to***

- Understand and use kindergarten mathematics vocabulary.
- Follow a plan that uses multiple strategies to solve application-level word problems.
  - act it out
  - draw a picture

#### **Number and Operations**

- Use one-to-one correspondence and language to describe relative sizes of sets of objects

(examples: more than, same number as, two less than).

- Use numbers, spoken or written, to describe how many objects are in a set.
- Use language to describe the sequence of events or objects (examples: before, after, later).
- Name the ordinal positions in a sequence (example: first, second, third).
- Share a whole by separating it into equal parts.
- Model and create addition and subtraction problems with objects.

#### **Patterns and Relationships**

- Identify, extend, and create patterns.
- Count by ones to 100.

#### **Geometry**

- Describe one object in relation to another using such words as over, under, above, and below.
- Describe, compare, and sort objects by their attributes.
- Recognize shapes in real-life objects or models.

#### **Measurement**

- Compare and order three objects according to length (shorter or longer), capacity (holds more or holds less), or weight (lighter or heavier).
- Compare situations or objects according to hotter or colder temperatures.
- Compare events to determine more time than or less time than.
- Read a calendar using days, weeks, and months.

#### **Probability and Statistics**

- Make and/or use information from graphs with pictures or real objects.

### ***Competencies:***

#### ***During 1<sup>st</sup> grade, students will***

- Understand and use first-grade mathematics vocabulary.
- Follow a 4-step problem-solving plan (such as Big Q, window pane, or list) that uses multiple strategies to solve application-level word problems and requires students to justify their thinking.

#### **Numbers and Operations**

- Read, write (using correct formation), compare, and order numbers and number words to 99.
- Recognize and know the value of a penny, nickel, dime, and quarter.
- Count coin combinations to 50 cents.

- Use fractions to represent parts of a whole and parts of a set ( $1/2$ ,  $1/3$ , and  $1/4$ ).
- Add and subtract using various objects, and write number sentences.
- Understand and learn addition facts with sums up to 18.
- Solve addition problems with three addends.
- Understand subtraction concepts.
- Solve two-digit addition problems with and without regrouping.

### **Patterns and Relationships**

- Identify, create, and extend more complex patterns (colors, shapes, numbers).
- Complete patterns with missing parts.
- Skip count by 2's and 5's to 100.
- Identify odd and even numbers to 100.
- Understand that fact families relate addition and subtraction.
- Identify and understand place value for ones place and tens place.

### **Geometry**

- Identify and describe geometric shapes as plane or solid figures. Plane figures include circle, triangle, rectangle, and square. Solid figures include "ball" (sphere), "box" (cube or rectangular prism), "can" (cylinder), and cone.

### **Measurement**

- Use nonstandard units to estimate and measure length, weight, and capacity.
- Tell time to the hour and half-hour.
- Categorize temperatures (example: a hot day or a cold day).
- Understand that the area of one surface is greater than, equal to, or less than the area of another surface.

### **Probability and Statistics**

- Collect, sort, and organize data to construct real-object, picture, and bar graphs in order to interpret information.

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### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 1<sup>st</sup> grader to***

- Practice addition facts to sums of 18, using flashcards, board games, etc.
- Practice counting money.
- Practice telling time, using both digital and stand clocks, to the hour and half-hour.
- Practice problem solving in real-life situations.

- Play games involving counting, shapes, and problem solving.

## **Science**

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### ***Prerequisites:***

#### ***Before entering 1<sup>st</sup> grade, students should be able to***

- Know and practice science safety rules.
  - Identify the five senses, and use them to make observations and discoveries.
  - Gather information using tools such as hand lenses, balances, and cups.
  - Observe, identify, and predict what will happen next.
  - Know that heat causes change.
  - Give examples of ways that rocks, soil, and water are useful.
  - Explain basic needs of plants and animals.
  - Describe, sort, and classify objects into categories such as living and nonliving.
- 

### ***Competencies:***

#### ***During 1<sup>st</sup> grade, students will***

- Follow science safety rules (safety goggles).
- Be aware of four steps in a scientific process.
- Identify and use tools such as hand lenses, balances, rulers, clocks, and thermometers.
- Use standard and nonstandard units of measurement for finding length (centimeters), weight, and capacity.
- Explain the characteristics of living and nonliving objects.
- Explain similarities and differences between the basic needs of plants and animals.
- Understand the interdependence of plants and animals.
- Record observations of events such as weather, seasonal changes, and life cycles.
- Identify solids and liquids.
- Sort objects based on physical properties, including solids and liquids.
- Observe forces such as a push or a pull.

***Outside of School:***

***As parents, you can provide opportunities for your 1<sup>st</sup> grader to***

- Assume responsibility for a living thing such as a plant or pet.
- Keep a journal of daily observations (weather, plant growth, etc.).
- Help you measure and sort ingredients in food preparation, and discuss how the ingredients change as they are mixed and cooked.
- Discuss safety issues related to electrical outlets, chemicals, appliances, etc.
- Discuss fire safety (escape plan, smoke alarms, etc.).
- Read nonfiction books on science topics.
- Watch science programs.
- Discuss and observe weather-related changes.
- Spend time outdoors observing nature.
- Predict outcomes.
- Sort and organize household items, clothing, and toys.

**Social Studies**

***Prerequisites:***

***Before entering 1<sup>st</sup> grade, students should be able to***

- Express ideas orally based on knowledge and experiences.
- Identify self by name, address, telephone number, and birthday.
- Identify family members, customs, and traditions.
- Place events in order of time (first, next, last).
- Use terms to describe location (over, under, near).
- Distinguish between land and water on a globe and map.
- Identify rules that provide order and safety.
- Identify the flag as an American symbol.
- Identify ways technology is used in the home and school.
- Identify authority figures in the home, school, and the community.

***Competencies:***

***During 1<sup>st</sup> grade, students will***

- Describe and identify the origins of holidays and celebrations.
- Distinguish past, present, and future events by using calendars and timelines.
- Identify leaders in the community, state, and nation.
- Locate places on maps and globes using the four basic cardinal directions (north, south, east, west).
- Describe various customs and traditions of families, and explain their importance.
- Explain and give examples of rules and laws in the home, school, and community.
- Give examples of technology's influences on daily life in the past and present.
- Recite the Pledge of Allegiance and the Pledge to the Texas Flag.
- Sequence and categorize information.
- Identify the main idea in a story or picture.
- Write a simple sentence beginning with a capital letter and ending with the appropriate punctuation.
- Spell first-grade words correctly.

***Outside of School:***

***As parents, you can provide opportunities for your 1<sup>st</sup> grader to***

- Visit places in the community (fire station, museum, grocery store, library, post office, etc.).
- Discuss family traditions, customs, and beliefs.
- Update and record events on a calendar.
- Explain the reasons for having rules in the home and school.
- Follow rules at home.
- Relate experiences orally.
- Make choices (selections for dinner, choices of chores, etc.).

# Grade 2

## Reading/Language Arts

### *Prerequisites:*

*Before entering 2<sup>nd</sup> grade, students should be able to*

- Pay attention and use good manners when responding to directions and questions.
- Use a wide variety of words to describe ideas, feelings, and experiences.
- Read aloud with fluency on first-grade materials.
- Understand and identify main characters, setting, problem, and solution in stories.
- Spell high-frequency words and words with short-vowel patterns.
- Write friendly letters, personal stories, and short stories.
- Write in complete sentences with correct use of beginning capitalization and ending punctuation.

### *Competencies:*

*During 2<sup>nd</sup> grade, students will*

- Listen and respond to questions, stories, poems, presentations, and two-step directions.
- Speak clearly when discussing and presenting, using correct grammar and precise word choices.
- Use phonics, word parts, and context clues to read new words with one or more syllables in second-grade material.
- Read silently on the second-grade level for at least 20 minutes daily at a rate of at least 90 words per minute.
- Read second grade high-frequency words easily, and understand the meaning of new words by discussing them and by using resources such as beginning dictionaries.
- Understand second-grade materials by using these strategies: identifying details, finding a stated cause-and-effect, drawing conclusions, making predictions, putting events in order, and looking at cultural factors.
- Use reading strategies such as re-reading, correcting their own mistakes, and pausing often to check for meaning.

- Read stories, poems, fables, and nonfiction, and recognize the features that make these forms different from one another.
- Gather and present information from various sources, such as classroom guests, books, and other media.
- Print letters, using proper size, spacing, and margins.
- Use correct punctuation (commas in a date, between city and state, and after letter parts; apostrophes in contractions).
- Use correct capitalization (days, months, holidays, cities, states, countries, and abbreviations, such as Mr. and Ave.).
- Spell second-grade high-frequency words correctly in all writing.
- Write in complete sentences using correct subject/verb agreement, colorful adjectives, and vivid verbs.
- Write friendly letters, stories, poems, and simple research papers.
- Brainstorm ideas and events to plan for writing; write drafts and revise; edit for capitalization and punctuation; and publish a final copy.
- Use the computer to open, save, and close files during writing.

### *Outside of School:*

*As parents, you can provide opportunities for your 2<sup>nd</sup> grader to*

- Read to you and listen to you read daily for at least 15 minutes and then answer your questions and talk about the material.
- Review sight words and spelling words daily.
- Read a variety of materials such as menus, billboards, cereal boxes, grocery items, and children's magazines.
- See that you enjoy reading.
- Go to the public library regularly.
- Write thank-you notes, letters to relatives, captions for a photo album, lists, diary entries, and travel logs.
- Read a variety of books and listen to tapes.
- Play thinking games with you, such as I Spy, ABC games, rhyming games, or 20 Questions.

## Mathematics

**Prerequisites:**  
*Before entering 2<sup>nd</sup> grade, students should be able to*

- Understand and use first-grade mathematics vocabulary.
- Follow a 4-step problem-solving plan (such as Big Q, window pane, or list) that uses multiple strategies to solve application-level word problems and requires students to justify their thinking.

### Number and Operations

- Read, write (using correction formation), compare, and order number and number words to 99.
- Use fractions to represent parts of a whole and parts of a set ( $\frac{1}{2}$ ,  $\frac{1}{3}$ , and  $\frac{1}{4}$ ).
- Know basic addition facts with sums to 18.
- Solve addition problems with three addends and two-digit addition problems with and without regrouping.
- Add and subtract using various objects, and write number sentences.
- Recognize coin values, and count coin combinations to 50 cents.

### Patterns and Relationships

- Understand the concept of place value for ones and tens place.
- Recognize number and pictorial patterns (skip counting, odd/even, and color/shape).
- Understand that fact families relate addition and subtraction.

### Geometry

- Identify and describe geometric shapes as plane figures (circle, square, triangle, and rectangle) and as solid figures (sphere, cube, cylinder, and cone).

### Measurement

- Tell time to the hour and half-hour.
- Use nonstandard units (paper clips, Popsicle sticks, etc.) to estimate and measure length, weight, and capacity.
- Categorize temperatures.
- Understand that the area of one surface is greater than, equal to, or less than the area of another surface.

### Probability and Statistics

- Collect, sort, and organize data to make real-object, picture, and bar graphs to interpret information.

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### Competencies:

*During 2<sup>nd</sup> grade, students will*

- Understand and use second-grade mathematics vocabulary.
- Follow a 4-step problem-solving plan (such as Big Q, window pane, or list) that uses multiple strategies to solve application-level word problems and requires students to justify their thinking.

### Number and Operations

- Read and write numbers to 999.
- Compare and order numbers through 999, using greater than ( $>$ ), less than ( $<$ ), and equal ( $=$ ).
- Recall and apply addition facts with sums to 18.
- Apply subtraction facts through 18.
- Solve two-digit addition and subtraction problems with and without regrouping.
- Count mixed coin combinations up to one dollar.
- Use fractions to name parts of a whole and parts of sets, up through twelfths (example:  $\frac{5}{12}$  = five eggs out of a dozen eggs).
- Use objects to create and describe multiplication and division concepts.

### Patterns and Relationships

- Use object and number patterns to make predictions or to extend a pattern.
- Understand concepts of place value, through the hundreds place.
- Understand that money amounts can be written using the symbols  $\text{¢}$  and  $\text{\$}$ .
- Show that fact families relate addition and subtraction.

### Geometry

- Compare characteristics of plane figures (hexagon, pentagon, and octagon) and solid figures (rectangular prism and triangular prism).
- Locate and name whole numbers on a number line.

### Measurement

- Tell time in hours and minutes.

- Measure and estimate metric and customary units of measurement for length, weight, temperature, and capacity.
- Use tools such as rulers, thermometers, scales, etc.
- Understand that area is measured in square units.

### **Probability and Statistics**

- Collect and graph data, and draw conclusions from bar and picture graphs.

### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 2<sup>nd</sup> grader to***

- Use flashcards, board games, and calculators to practice addition and subtraction facts to 18.
- Practice telling time.
- Use money in real-life situations.
- Count pocket change.
- Play math games
- Identify geometric shapes in your home or environment.
- Correct mistakes on math papers after you have checked over them.
- Measure for you.
- Use coins instead of bills (example: allowance).
- Make up word problems with you using newspapers and other familiar sources.

## **Science**

### ***Prerequisites:***

#### ***Before entering 2<sup>nd</sup> grade, students should be able to***

- Identify and use tools such as a ruler, hand lens, balance, thermometer, and clock.
- Be aware of four steps in a scientific process.
- Follow science lab safety rules.
- Use standard and nonstandard units of measurement for finding length (cm. and in.), weight, and capacity.
- Explain the characteristics of living and nonliving things.
- Explain similarities and differences between the basic needs of plants and animals.
- Understand the interdependence of plants and animals.

- Record observations of events such as weather, seasonal changes, and life cycles.
- Identify solids and liquids.
- Sort objects based on physical properties, including solids and liquids.
- Observe forces such as a push or a pull.

### ***Competencies:***

#### ***During 2<sup>nd</sup> grade, students will***

- Use a scientific process in investigations.
- Use metric measurement for temperature, length, and mass.
- Recognize stages of cycles, such as plant and animal life, day and night, seasons, and weather.
- Collect and record data using tools such as rulers, meter sticks, measuring cups, hand lenses, computers, clocks, thermometers, and balances.
- Follow science lab safety rules.
- Classify and sequence objects, organisms, and events based on properties and patterns.
- Identify external characteristics of plants and animals, their habitats, and their interdependent relationships.
- Identify uses of and ways to conserve natural resources.
- Demonstrate push and pull forces.

### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 2<sup>nd</sup> grader to***

- Measure while cooking, sewing, or building.
- Discuss natural events (steam, fog, rain, etc.).
- Visit museums, zoos, and parks.
- Raise and observe plants and/or animals.
- Go on nature walks and collect specimens.
- Participate in recycling.
- Watch educational programs.
- Keep a journal.
- Read nonfiction books on science topics.

## **Social Studies**

### ***Prerequisites:***

#### ***Before entering 2<sup>nd</sup> grade, students should be able to***

- Identify holidays and celebrations.
- Distinguish past, present, and future events by using calendars and timelines.

- Locate places on maps and globes using the four basic cardinal directions (north, south, east, west).
- Explain and give examples of rules and laws in the home, school, and community.
- Give examples of technology's influences on daily life in the past and present.
- Identify leaders in the community, state, and nation.
- Describe various customs and traditions of families, and explain their importance.
- Write a simple sentence beginning with a capital letter and ending with the appropriate punctuation.
- Spell first-grade words correctly.

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***Competencies:***

***During 2<sup>nd</sup> grade, students will***

- Identify major landforms of places and regions, including the continents and oceans.
- Use basic geographic tools such as the legend, title, compass rose, and cardinal directions (north, south, east, west) to locate places on maps and globes.
- Identify and locate the continents on a world map.
- Identify and explain the significance of selected Texas symbols and landmarks.
- Identify and explain the significance of selected celebrations of the community, state, and nation, such as Memorial Day and Independence Day.
- Explain how people depend on natural resources to provide for their basic needs of food, clothing, and shelter.
- Identify ways in which people have modified the environment by building roads and clearing land.
- Identify and demonstrate the characteristics of good citizenship as modeled by historic figures and ordinary people.
- Understand the significance of works of art in the local community.
- Distinguish between and among city, state, country, and continent.
- Explain how work provides income to purchase goods and services.
- Distinguish between producers and consumers.
- Trace the development of a product from a natural resource to a finished product.

- Compare the roles of public officials, including mayor, governor, and president.
- Describe how science and technology have changed communication, transportation, recreation, and the ways in which people meet their basic needs.
- Explain how local people and events have shaped local community history.
- Identify historical figures and ordinary people who helped to shape the state and nation.
- Create and interpret timelines, charts, and maps.
- Use vocabulary related to the past, present, and future to interpret timelines and to read calendars.
- Sequence and categorize information.
- Interpret stories and pictures by identifying the main idea, predicting, and comparing/contrasting.
- Demonstrate effective oral and written communication skills.
- Demonstrate both individual and cooperative problem-solving and decision-making skills.

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***Outside of School:***

***As parents, you can provide opportunities for your 2<sup>nd</sup> grader to***

- Recognize and recall his or her complete address, including the city, state, and country.
- Discuss world events on a daily basis, and locate places on a map or globe.
- Discuss the importance of rules and laws.
- Talk about the characteristics of good citizenship.
- Learn about your family's cultural heritage.
- Practice locating the continents on a world map.
- Create maps and map keys.
- Explore the geography of your community and beyond.
- Identify what types of animals, plants, and landforms can be found locally.
- Visit historical sites and museums.
- Attend various cultural activities and festivals.

# Grade 3

## Reading/Language Arts

### *Prerequisites:*

*Before entering 3<sup>rd</sup> grade, students should be able to*

- Listen and respond properly to two-step directions, questions, stories, poems, and presentations.
- Read high-frequency words easily, and apply knowledge of phonics and word parts to read words of more than one syllable.
- Read second-grade-level material silently for at least 20 minutes daily, at a rate of 90 words per minute.
- Show understanding of stories by putting story events in order, finding cause-and-effect, and recalling and locating details.
- Use prewriting, composing, and revising strategies to develop friendly letters, how-to paragraphs, stories, poems, and simple research papers.
- Spell words correctly from second-grade spelling lists.
- Edit sentences for capitalization (proper nouns, first letters in sentences, and "I").
- Edit sentences for punctuation (abbreviations; ends of sentences; commas for date, city/state, greeting and closing of a letter; and apostrophes in contractions).
- Write in complete sentences, and revise to include specific nouns, colorful adjectives, and vivid verbs.
- Show mastery of printing by using proper size, spacing, and margins.

### *Competencies:*

*During 3<sup>rd</sup> grade, students will*

- Listen and respond courteously and properly to multiple-step directions, questions, speakers, and presentations.
- Express ideas by using correct grammar and well-developed sentences in everyday speech, class discussions, and presentations.
- Use phonics, syllables, root words, prefixes and suffixes, and context clues to read new words.

- Read silently from third-grade-level material for at least 30 minutes and at a rate of 110 words per minute.
- Learn new words using prior knowledge, context clues, and dictionary skills to develop an understanding of synonyms, antonyms, and multiple-meaning words.
- Show understanding of reading by finding stated main ideas; summarizing; putting events in order; seeing cause-and-effect relationships, character traits, and cultural influences; and recognizing statements of fact and opinion.
- Check for understanding using strategies, such as rereading, searching for clues, asking for help, and citing portions of the text being discussed to support ideas and inferences.
- Read and recognize different types of literature, such as fiction, nonfiction, poetry, fairy tales, and biographies.
- Take notes from sources, such as classroom guests, encyclopedias, books, and media sources.
- Learn cursive letter formation using correct size, spacing, and margins.
- Apply capitalization rules (friendly letters, titles, and proper nouns).
- Apply punctuation rules (commas in a series, apostrophes in singular possessives, and quotation marks for titles when needed).
- Spell third-grade-level words accurately in all written assignments.
- Write well-developed sentences and correctly-structured paragraphs that include topic and concluding sentences.
- Write stories, poems, and research papers, and check to see that the purpose has been met.
- Use brainstorming, composing, and revising strategies in developing written products.
- Learn keyboarding skills and use the computer to publish writing.

### *Outside of School:*

*As parents, you can provide opportunities for your 3<sup>rd</sup> grader to*

- Read aloud to you and read silently.
- Retell a story he or she has read.
- Keep a journal to record family events.
- Write friendly letters.
- Answer your questions about what is happening during TV shows. (examples: What

do you think will happen next? How do you think that character is feeling?)

- Study spelling words.
- Use the public library.
- Receive books and magazine subscriptions as gifts.

## **Mathematics**

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### *Prerequisites:*

*Before entering 3<sup>rd</sup> grade, students should be able to*

- Understand and use second-grade mathematics vocabulary.
- Follow a 4-step problem-solving plan (such as Big Q, window pane, or list) that uses multiple strategies to solve application-level word problems and requires students to explain and justify their thinking.

#### **Number and Operations**

- Read and write numbers to 999.
- Compare and order numbers through 999, using greater than (>), less than (<), and equal (=).
- Recall and apply addition facts with sums to 18.
- Apply subtraction facts through 18.
- Count mixed coin combinations up to one dollar.
- Use fractions to name parts of a whole and parts of sets, up through twelfths.
- Use knowledge of fact families and place value to add and subtract two-digit numbers with and without regrouping.

#### **Patterns and Relationships**

- Use object and number patterns to make predictions or to extend a pattern.
- Understand concepts of place value, through the hundreds place.

#### **Geometry**

- Compare characteristics of plane figures (hexagon, pentagon, and octagon) and solid figures (rectangular prism and triangular prism).
- Locate and name whole numbers on a number line.

#### **Measurement**

- Tell time in hours and minutes.

- Measure and estimate metric and customary units of measurement for length, weight, temperature, and capacity.
- Use tools such as rulers, thermometers, scales, etc.
- Understand that area is measured in square units.

#### **Probability and Statistics**

- Collect and graph data, and draw conclusions from bar and picture graphs.

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### *Competencies:*

*During 3<sup>rd</sup> grade, students will*

- Understand and use third-grade mathematics vocabulary.
- Follow a 4-step problem-solving plan (such as Big Q, window pane, or list) that uses multiple strategies to solve application-level word problems and requires students to explain and justify their thinking.

#### **Number and Operations**

- Read, write, and identify place values for numbers through 999,999.
- Compare and order numbers through 9,999.
- Round two- and three-digit numbers.
- Use objects to identify, construct, and compare fractional parts of whole objects or sets of objects (up to twelfths).
- Recall all addition facts through 18 with increasing speed.
- Solve addition and subtraction problems with three digits, with and without regrouping.
- Estimate sums and differences.
- Use objects to learn and apply multiplication facts through tens.
- Solve and write multiplication problems with one-digit multipliers (example: 12 x 6 or 21 x 5).
- Use objects or pictures to solve division problems.
- Determine the value of a collection of coins and bills.

#### **Patterns and Relationships**

- Identify number patterns using addition and subtraction.
- Understand that fact families relate multiplication and division.
- Identify and extend number and geometric patterns.

- Make and extend a table of paired numbers such as insects and legs.

### **Geometry**

- Identify congruent shapes and lines of symmetry.
- Describe plane and solid figures, using formal geometric terms (vertices, edges, faces, etc.).
- Locate and name whole numbers and fractions on a number line.

### **Measurement**

- Use a thermometer to measure temperature.
- Estimate and measure length using customary and metric units.
- Solve perimeter problems.
- Use grids to find the areas of shapes.
- Describe time on clocks.
- Understand the concept of volume.
- Know benchmarks for standard units of measure for capacity, length, and weight/mass.

### **Probability and Statistics**

- Collect, organize, record, display, and interpret data in pictographs and bar graphs.
- Use data to describe events as less likely, more likely, or equally likely.

### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 3<sup>rd</sup> grader to***

- Use flashcards, board games, calculators, and computers to practice addition facts.
- Practice using money in situations, such as getting change for purchases at the store or receiving allowance in coins.
- Practice telling time.
- Use measurement skills in real-life situations, such as weighing food at a grocery store, measuring liquids when cooking, charting height or weight, or measuring the distance between points (rooms, houses, stores, etc.).
- Play games that emphasize math skills (dominoes, cards, Monopoly) or logical strategies (chess, cards, Battleship).
- Communicate with you about what he or she learned in school, including math vocabulary.

## **Science**

### ***Prerequisites:***

#### ***Before entering 3<sup>rd</sup> grade, students should be able to***

- Use a scientific process in investigations.
- Follow science lab safety practices and procedures.
- Use metric measurement for temperature, length, and mass.
- Collect and record data using tools such as rulers, meter sticks, measuring cups, hand lenses, computers, clocks, thermometers, and balances.
- Classify and sequence objects, organisms, and events based on properties and patterns.
- Recognize cycles of change.
- Identify uses of natural resources.
- Identify external characteristics of plants and animals, their habitats, and their interdependent relationships.
- Demonstrate push and pull forces.

### ***Competencies:***

#### ***During 3<sup>rd</sup> grade, students will***

- Plan and implement investigations using a scientific process.
- Analyze and interpret information to construct explanations.
- Construct simple graphs, tables, maps, and charts to organize, examine, and evaluate information.
- Collect and analyze information using tools such as rulers, meter sticks, measuring cups, hand lenses, computers, clocks, thermometers, and balances.
- Identify properties of matter—solid, liquid, or gas.
- Identify slow and rapid forces that can change the earth's surface (glaciers, earthquakes).
- Understand the interdependence of plants and animals and the characteristics and adaptations necessary for survival.
- List and describe planets of the solar system.
- Identify and describe the importance of natural resources such as rocks, soil, water, gases of the atmosphere, and heat energy.

- Observe simple systems, and describe the roles of their parts, such as ecosystems and simple and complex machines (scissors, yo-yo, gears).
- Follow lab safety procedures.
- Recognize forces, such as gravity, friction, and push or pull.

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### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 3<sup>rd</sup> grader to***

- Read nonfiction books on science topics.
- Visit museums, zoos, parks, or NASA.
- Help at home by preparing food, using recipes, weighing items at the grocery store, and measuring with household tools in real-life situations.
- Watch educational television such as *Bill Nye the Science Guy*, *The Magic School Bus*, *Investigator Alligator*, or the Discovery Channel.
- Discuss cycles and changes in the natural environment.
- Practice conservation and recycling.
- Share homework, science notes, and journals with you.

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## **Social Studies**

### ***Prerequisites:***

#### ***Before entering 3<sup>rd</sup> grade, students should be able to***

- Create timelines, charts, and maps.
- Identify and locate the continents on a world map.
- Identify major landforms of places and regions, including the continents and oceans.
- Distinguish between producers and consumers.
- Explain how people depend on natural resources to provide for their basic needs of food, clothing, and shelter.
- Use basic geographic tools such as the legend, title, compass rose, and cardinal directions (north, south, east, west) to locate places on maps and globes.
- Distinguish between and among city, state, country, and continent.
- Identify and demonstrate the characteristics of good citizenship as modeled by historic figures and ordinary people.

- Explain how work provides income to purchase goods and services.
- Identify the roles of public officials, including mayor, governor, and president.

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### ***Competencies:***

#### ***During 3<sup>rd</sup> grade, students will***

- Describe how individuals, events, and ideas have changed communities over time.
- Identify reasons people have formed communities, including a need for security, law, and material well-being.
- Compare ways people in different communities adapt to or change the physical environment.
- Identify and locate the states of the United States on a map.
- Use basic geographic tools to locate places on maps and globes (compass rose, grids, symbols, hemispheres, legends, and map scale).
- Use cardinal (north, south, east, west) and intermediate (northwest, northeast, southwest, southeast) directions to locate places on maps and globes.
- Create, color, and label maps accurately.
- Locate the 50 states, the seven continents, the five oceans, and the four hemispheres on maps.
- Describe and explain climate, landforms, and natural resources.
- Identify ways of earning, spending, and saving money.
- Explain the concept of a free market.
- Describe how a simple business operates within a free enterprise system.
- Define and identify examples of scarcity.
- Describe the basic structure and function of local government.
- Identify the characteristics of good citizenship, including actions individuals can take to improve the community.
- Explain and compare the significance of cultural celebrations.
- Understand the importance of writers and artists to cultural heritage.
- Use vocabulary related to time, including past, present, and future times.
- Identify individuals who have created or invented new technology that changed life in communities, past and present.

- Locate information in the textbook and other resource materials.
- Understand and use information from a variety of sources by identifying the main idea, identifying cause-and-effect relationships, sequencing and categorizing information, and comparing/contrasting.
- Interpret and create graphs, charts, tables, timelines, and maps.
- Demonstrate effective oral and written communication skills.
- Demonstrate both individual and cooperative problem-solving and decision-making skills.

### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 3<sup>rd</sup> grader to***

- See various places of interest in the Houston area.
- Create maps to show locations.
- Practice locating the states of the United States on a map.
- Use a variety of sources to locate, discuss, and summarize current events.

## **Grade 4**

### **Reading/Language Arts**

#### ***Prerequisites:***

#### ***Before entering 4<sup>th</sup> grade, students should be able to***

- Pay attention and use good manners when responding to multiple-step oral directions, questions, speakers, and presentations.
- Use correct grammar when speaking.
- Read third-grade-level material silently for at least 30 minutes daily, at 110 words per minute.
- Show understanding of third-grade-level reading materials.
- Use proper cursive letter formation and spacing.
- Write paragraphs that are grammatically correct, well-developed and correctly structured.
- Write comparison/contrast papers, stories, instructions, research papers, letters, and poems,

and check to see that the writing purpose has been met.

- Spell third-grade-level words accurately in all written assignments.
- Apply capitalization rules (friendly letters, titles, proper nouns).
- Apply punctuation rules (commas in a series, apostrophes in singular possessives, and quotation marks for titles).

#### ***Competencies:***

#### ***During 4<sup>th</sup> grade, students will***

- Listen with respect and respond to complex oral directions and a variety of presentations.
- Use correct voice tone, eye contact, and standard English in classroom discussions, reports, and presentations.
- Read new multi-syllable words in fourth grade material by using phonics, word parts, and context clues.
- Establish their own purposes for reading, read silently for at least 40 minutes, adjust the reading rate to suit the need, self-correct as necessary, and maintain a rate of 130 words per minute in familiar material.
- Learn new words through word study, context clues, dictionaries, and thesauruses.
- Find implied main idea by noting details and summarizing text.
- Check understanding of grade-level materials and make needed changes by rereading, searching for clues, using reference aids, and asking questions.
- Read realistic fiction, fantasies, mysteries, biographies, nonfiction, poetry, and classic literature, including books with chapters and books from a variety of cultures.
- Use multiple sources, such as dictionaries, encyclopedias, electronic texts, parts of a book, and library tools for researching answers to questions.
- Write legibly (both cursive and printing) for varying purposes.
- Use proper capitalization and punctuation (dialogue and titles).
- Apply spelling rules and patterns with increasing accuracy in all writing.
- Write compositions which contain well-constructed, well-developed paragraphs that

include a topic sentence and supporting details, and feature varying sentence types and correct English usage.

- Write creative stories, personal stories, poetry, editorials, and informative reports.
- Write compositions using all stages of the writing process: prewriting, drafting, revising, proofreading, and editing.
- Improve accuracy in keyboarding skills to use computers as a tool in the writing process.
- Judge how different media formats influence and inform (examples: television, radio, magazines).
- Produce visual-aid materials to support various reports and oral presentations.

### ***Outside of School:***

***As parents, you can provide opportunities for your 4<sup>th</sup> grader to***

- See you use good listening and speaking skills.
- Listen to you read.
- Go to the library with you.
- Talk about and read about current events.
- Write friendly letters and thank-you notes.
- Keep a journal on a family trip.

## **Mathematics**

### ***Prerequisites:***

***Before entering 4<sup>th</sup> grade, students should be able to***

- Understand and use third-grade mathematics vocabulary.
- Follow a 4-step problem-solving plan (such as Big Q, window pane, or list) that uses multiple strategies to solve application-level word problems and requires students to explain and justify their thinking.

### **Numbers and Operations**

- Read, write, and identify place values for numbers through 999,999.
- Compare and order numbers through 9,999.
- Round two and three-digit numbers.
- Use objects to identify, construct, and compare fractional parts of whole objects or sets of objects (up to twelfths).
- Recall all addition facts through 18 with increasing speed.

- Solve addition and subtraction problems with three digits, with and without regrouping.
- Estimate sums and differences.
- Use objects to learn and apply multiplication facts through tens.
- Solve and write multiplication problems with one-digit multipliers.
- Use objects or pictures to solve division problems.
- Determine the value of a collection of coins and bills.

### **Patterns and Relationships**

- Identify number patterns using addition and subtraction.
- Understand that multiplication and division are related by fact families.
- Identify and extend number and geometric patterns.
- Make and extend a table of paired numbers such as insects and legs.

### **Geometry**

- Identify congruent shapes and lines of symmetry.
- Describe plane and solid figures, using formal geometric terms (vertices, edges, faces, etc.).
- Locate and name whole numbers and fractions on a number line.

### **Measurement**

- Use a thermometer to measure temperature.
- Estimate and measure length using customary and metric units.
- Solve perimeter problems.
- Use grids to find the areas of shapes.
- Describe time on clocks.
- Understand the concept of volume.
- Know benchmarks for standard units of measure for capacity, length, and weight/mass.

### **Probability and Statistics**

- Collect, organize, record, display, and interpret data in pictographs and bar graphs.
- Use data to describe events as less likely, more likely, or equally likely.

### ***Competencies:***

***During 4<sup>th</sup> grade, students will***

- Understand and use fourth-grade mathematics vocabulary.
- Follow a 4-step problem-solving plan (such as Big Q, window pane, or list) that uses multiple

strategies to solve application-level word problems and requires students to explain and justify their thinking.

### Numbers and Operations

- Use place value to read, write, compare, and order whole numbers through the millions place.
- Use objects and pictures to read, write, compare, and order decimals through the hundredths place.
- Round numbers to nearest ten, hundred, or thousand.
- Use pictures to recognize and compare fractions.
- Practice addition and multiplication facts with increasing speed.
- Add and subtract whole numbers to solve increasingly complex problems.
- Use pictures to add and subtract decimals to the hundredths place.
- Multiply (three digits by two digits) and divide (three digits by one digit), using whole numbers, to solve increasingly complex problems.
- Estimate sums, differences, products, and quotients to solve problems.

### Patterns and Relationships

- Recognize patterns in multiplication and division, and use these patterns to solve problems.
- Show that multiplication and division problems are related by fact families.
- Describe the relationship between two sets of related data, such as ordered pairs in a table (example: For the ordered pairs shown on this T-chart, the relationship is “multiply by four.”).

1	4
3	12
4	16

### Geometry

- Identify and use formal language to describe right, acute, and obtuse angles; parallel and perpendicular lines; symmetry; and congruence.
- Locate and name points on a number line, using whole numbers, fractions, and decimals.
- Use pictures to show translations, reflections, and rotations of triangles (see glossary).

### Measurement

- Perform simple conversions between different units involving length, capacity, and weight.
- Solve word problems using length, time, temperature, perimeter, and area.
- Use concrete models of standard cubic units to measure volume.

### Probability and Statistics

- Collect, organize, display, and interpret sets of data using bar graphs, pictographs, and line graphs.
- Use concrete objects or pictures to make generalizations about determining all possible combinations of a given set of data or of objects in a problem situation.

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### *Outside of School:*

#### *As parents, you can provide opportunities for your 4<sup>th</sup> grader to*

- Practice addition, subtraction, multiplication, and division facts using flashcards, games, calculators, or computer games.
- Practice problem-solving skills related to tasks such as cooking, shopping, and telling time.
- Spend time doing strategy-related problem-solving activities such as chess, puzzles, Monopoly, or cards.
- Use words to explain math problems.

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## Science

### *Prerequisites:*

#### *Before entering 4<sup>th</sup> grade, students should be able to*

- Identify properties of matter—solid, liquid, or gas.
- Collect and analyze information using tools such as rulers, meter sticks, measuring cups, hand lenses, computers, clocks, thermometers, and balances.
- Plan and implement investigations using a scientific process.
- Follow lab safety rules.
- Understand the interdependence of plants and animals and the characteristics and adaptations necessary for survival.
- Identify slow and rapid forces that can change the earth's surface.
- List and describe the planets of the solar system.
- Construct simple graphs, tables, maps, and charts to organize, examine, and evaluate information.
- Analyze and interpret information to construct explanations.

- Identify and describe the importance of natural resources such as rocks, soil, water, gases of the atmosphere, and heat energy.
- Observe simple systems, and describe the roles of their parts, such as ecosystems and simple and complex machines (scissors, yo-yo, gears).
- Recognize forces such as gravity, friction, and push or pull.

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**Competencies:**

***During 4<sup>th</sup> grade, students will***

- Use a microscope, and identify its parts.
- Collect and analyze data using tools such as hand lenses, calculators, computers, microscopes, sound recorders, stopwatches, thermometers, and metric measurement tools.
- Plan, conduct, and analyze results in investigations.
- Use critical thinking and scientific problem-solving to make informed decisions (impact of research, accuracy of promotional materials describing products and services, critique of scientific explanations for strengths and weaknesses).
- Identify the parts of systems, such as ecosystems and simple and complex machines.
- Make wise choices in the use and conservation of resources, including soil, and in the disposal or recycling of materials.
- Identify weather tools and patterns.
- Investigate physical properties of matter, such as density, buoyancy, and magnetism.
- Investigate electrical energy.
- Determine the characteristics of plants and animals that affect their adaptations for survival.
- Recognize the ocean's effects on land.
- Visit the planetarium to learn about the sun, moon phases, constellations, planets, etc.

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**Outside of School:**

***As parents, you can provide opportunities for your 4<sup>th</sup> grader to***

- Review science vocabulary.
- Review science notes and study guides.
- Read nonfiction books, magazines, and newspaper articles on science topics.
- Discuss natural cycles.
- Use measurement and measurement tools in real-life situations.

- Start a collection (rocks, shells, leaves, etc.).
- Participate in recycling, conservation of resources, and preservation.
- Practice safety rules at home.
- Discuss with you drug/alcohol abuse and resulting harmful effects on the human body.
- Watch educational programs such as *Bill Nye the Science Guy*.
- Share science journals, daily work, and homework with you.

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## Social Studies

**Prerequisites:**

***Before entering 4<sup>th</sup> grade, students should be able to***

- Locate the 50 states, the seven continents, the five oceans, and the four hemispheres on maps.
- Identify and use cardinal and intermediate directions, compass rose, grids, symbols, and legends with maps and globes.
- Create, color, and label maps accurately.
- Describe and explain climate, landforms, and natural resources.
- Identify reasons people have formed communities, including a need for security, law, and material well-being.
- Identify ways of earning, spending, and saving money.
- Explain the concept of a free market.
- Describe how a simple business operates within a free enterprise system.
- Identify the characteristics of good citizenship, including actions individuals can take to improve the community.
- Describe the basic structure and function of local government.
- Explain and compare the significance of cultural celebrations.
- Locate information in the textbook and other resource materials.
- Demonstrate effective oral and written communication skills.

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**Competencies:**

***During 4<sup>th</sup> grade, students will***

- Compare the ways of life of Native American groups in Texas and the Western Hemisphere.

- Identify European explorers and the reasons for exploration in the settlement of Texas and the Western Hemisphere.
- Analyze causes and effects of the Texas Revolution.
- Describe and compare the regions of Texas and the regions of the United States.
- Identify the settlement patterns and the geographic factors (landforms, climate, vegetation) that influence where people have chosen to live, past and present.
- Use geographic tools (grids, compass rose, map legends, symbols, scale, latitude and longitude) to collect, analyze, and interpret data.
- Explain how people in different regions of Texas earn their living, past and present.
- Explain how Texas, the United States, and other parts of the world are economically interdependent.
- Explain how people organized governments in different ways in early Texas, and explain important ideas in historic documents of Texas.
- Explain how a democratic society works and the importance of effective leadership in that society.
- Identify customs, symbols, and celebrations of Texas.
- Continue to create, color, and label maps accurately.
- Describe major political, economic, and social changes in Texas during the 19<sup>th</sup> and 20<sup>th</sup> centuries.
- Understand the reasons for exploration and colonization and the basic economic patterns of early societies in Texas.
- Understand the characteristics and benefits of the free enterprise system in Texas.
- Identify states and capitals (year-long project).
- Create oral, written, or visual (pictures, maps, charts, graphs, timelines) presentations using social studies information.
- Apply critical thinking skills to locate, organize, and use information from a variety of sources, including technology.
- Demonstrate effective oral and written communication skills using standard grammar, spelling, sentence structure, and punctuation.

- Use problem-solving and decision-making skills, working as individuals and with others, in a variety of settings.

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### *Outside of School:*

#### *As parents, you can provide opportunities for your 4<sup>th</sup> grader to*

- Use reference materials such as a dictionary, atlas, newspaper, magazines, and encyclopedias.
- Talk about appropriate current events using newspapers and television as sources.
- Demonstrate ways to find answers to questions in written material.
- Watch movies or documentaries of historical value.
- Practice and play games to learn states and capitals.
- Use the “Texas State Travel Information” to plan vacations in Texas (1-800-452-9292).
- Visit the public library and local museums.
- Read non-fiction books and materials such as biographies.

## Grade 5

### Reading/Language Arts

#### *Prerequisites:*

#### *Before entering 5<sup>th</sup> grade, students should be able to*

- Follow complex directions.
- Read silently on the fourth-grade level for at least 40 minutes daily at a rate of 130 words per minute in familiar material.
- Read and understand material written on grade level.
- Write legibly with correct grammar, punctuation, and capitalization.
- Use many reference tools.
- Write well-organized, multiple-paragraph compositions which include rich supporting detail.
- Write to inform, influence, and entertain.
- Judge messages found in a variety of media (examples: television, radio, and magazines).
- Make oral presentations with suitable visual-aid materials.

### ***Competencies:***

#### ***During 5<sup>th</sup> grade, students will***

- Listen closely in a variety of settings to judge methods of persuasion, learn about cultures, and recognize fact and opinion.
- Speak in a variety of settings, such as while interviewing, reporting, and giving precise directions.
- Read words in fifth-grade-level material by using knowledge of phonics, context clues, prefixes/suffixes/root words, and syllable analysis.
- Establish their own purposes for reading, read silently for at least 50 minutes, adjust the reading rate to suit the need, self-correct as necessary, and maintain a rate of 130 words per minute in familiar material.
- Learn new words by studying word meanings, reading different types of literature, practicing word lists, and using vocabulary strategies (context clues, prefixes, suffixes, and root words).
- Understand written material by making predictions, analyzing characters, finding implied meanings, and summarizing.
- Use reading strategies, such as establishing a purpose for reading, creating mental images during reading, and reading aloud.
- Read a variety of classic and contemporary literature, including historical fiction, suspense stories, autobiographies, biographies, and nonfiction.
- Read and write cursive fluently.
- Write precisely, using standard English with correct spelling, punctuation, and grammar.
- Spell words correctly in all written assignments by applying spelling rules and recognizing exceptions.
- Write multiple-paragraph compositions that feature varied sentence structure and correct English usage.
- Produce well-developed written products in a variety of formats, including informative reports, editorials, and narrative writing.
- Write compositions using all stages of the writing process: prewriting, drafting, revising, proofreading, and editing.
- Use revision and editing strategies to produce a clear, well-developed, error-free final product.

- Continue improving accuracy in keyboarding skills, and use computers as a tool in the writing process to create pieces for publication.
- Research topics, using various reference sources; take notes and formulate questions for further investigation.
- Interpret and analyze visual images, messages, and meaning in graphics, video segments, computer presentations, graphic art, illustrations, and news photographs.

### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 5<sup>th</sup> grader to***

- Attend cultural events and talk about school cultural arts activities.
- Read and talk about a variety of materials with your child, asking him or her to explain, describe, compare, summarize, and/or predict.
- Read silently for a 45-minute time period.
- Increase his or her vocabulary each week.
- Write a new word and an easily-understood definition or synonym on a wipe-off chart or paper and post it on the refrigerator. Celebrate occasions when the word is used.
- Read practical materials, such as food labels, catalogs, the newspaper weather page, sports statistics, recipes, and the phone book.
- Practice using the Internet, if available, as a reference for planning vacations, getting information for school units, and communication by e-mail.
- Write by hand or use a computer to compose letters and thank-you notes.
- Give your child a spiral notebook to write about daily events, vacations, and/or exciting activities, and encourage your child to illustrate his or her work with drawings or photos.
- Talk about television programs and commercials with you.

## **Mathematics**

### ***Prerequisites:***

#### ***Before entering 5<sup>th</sup> grade, students should be able to***

- Understand and use fourth-grade mathematics vocabulary.

- Follow a 4-step problem-solving plan (such as Big Q, window pane, or list) that uses multiple strategies to solve application-level word problems and requires students to explain and justify their thinking.

### **Number and Operations**

- Use place value to read, write, compare, and order whole numbers through the millions place.
- Use objects and pictures to read, write, compare, and order decimals through the hundredths place.
- Round numbers to nearest ten, hundred, or thousand.
- Use pictures to recognize and compare fractions.
- Practice addition, subtraction, multiplication, and division facts with increasing speed.
- Add and subtract whole numbers to solve increasingly complex problems.
- Use pictures to add and subtract decimals to the hundredths place.
- Multiply (three digits by two digits) and divide (three digits by one digit) using whole numbers to solve increasingly complex problems.
- Estimate sums, differences, products, and quotients to solve problems.

### **Patterns and Relationships**

- Recognize patterns in multiplication and division, and use these patterns to solve problems.
- Show that multiplication and division problems are related by fact families.
- Describe the relationship between two sets of related data, such as ordered pairs in a table.

### **Geometry**

- Identify and use formal language to describe right, acute, and obtuse angles; parallel and perpendicular lines; symmetry; and congruence.
- Locate and name points on a number line, using whole numbers, fractions, and decimals.
- Use pictures to show translations, reflections, and rotations of triangles.

### **Measurement**

- Solve problems using metric and customary units of measurement.
- Perform simple conversions between different units involving length, capacity, and weight.
- Solve word problems using length, time, temperature, perimeter, and area.

### **Probability and Statistics**

- Collect, organize, display, and interpret sets of data using bar graphs, pictographs, and line graphs.
- Use concrete objects or pictures to make generalizations about determining all possible combinations of a given set of data or of objects in a problem situation.

### ***Competencies:***

#### ***During 5<sup>th</sup> grade, students will***

- Understand and use fifth-grade mathematics vocabulary.
  - Follow a 4-step problem-solving plan (such as Big Q, window pane, or list) that uses multiple strategies to solve application-level word problems and requires students to explain and justify their thinking.
- ### **Numbers and Operations**
- Use place value to read, write, compare, and order whole numbers through the billions place.
  - Use place value to read, write, compare, and order decimals through the thousandths place.
  - Generate equivalent fractions.
  - Compare and order fractions.
  - Use objects and pictures to relate fractions and decimals (to the thousandths place).
  - Add and subtract whole numbers and decimals.
  - Multiply (three digits by two digits) and divide (three digits by two digits) whole numbers.
  - Estimate to solve problems by rounding whole numbers and decimals (to the tenths place).

### **Patterns and Relationships**

- Identify prime and composite numbers using models and factor pairs.
- Use pictures to make generalizations about determining all possible combinations.
- Use lists, tables, charts, and diagrams to find patterns and make generalizations.
- Select from and use diagrams and number sentences to represent real-life situations.

### **Geometry**

- Use objects and pictures to show transformations (rotations, reflections, and translations).
- Recognize the connections between ordered pairs of numbers and locations of points on a coordinate grid.

- Identify critical attributes of geometric shapes and solids including parallel, perpendicular, and congruent parts.
- Use critical attributes to define geometric shapes and solids.

### **Measurement**

- Connect models for perimeter, area, and volume with their respective formulas.
- Use formulas to measure perimeter, area, and volume.
- Solve problems involving temperature and elapsed time.
- Perform simple conversions within the same measurement system.

### **Probability and Statistics**

- Use fractions to describe and predict the results of a probability experiment.
- Use tables of related number pairs to make line graphs.
- Describe the characteristics of data (range, median, mode) in tables and graphs.
- Graph a given set of data using an appropriate graphical representation such as a picture or line.
- Make predictions using results of experiments.
- List all possible outcomes of a probability experiment.

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### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 5<sup>th</sup> grader to***

- Practice addition, subtraction, multiplication, and division facts until they become automatic.
- Use concepts, such as measurement, money, and estimation in real-world applications (examples: recipes, shopping, discounts, etc.).
- Spend time doing problem-solving activities, such as puzzles, chess, computer, and board games.
- Practice making change.
- Calculate elapsed time. Have your child calculate how much time has passed, given a starting and ending time.
- Explain problem-solving strategies to you.
- See your positive attitude about math.

## **Science**

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### ***Prerequisites:***

#### ***Before entering 5<sup>th</sup> grade, students should be able to***

- Use a microscope, and identify its parts.
- Collect and analyze data using tools such as hand lenses, calculators, computers, microscopes, sound recorders, stopwatches, thermometers, and metric measurement tools.
- Plan, conduct, and analyze results in investigations.
- Use critical thinking and scientific problem-solving to make informed decisions (impact of research, accuracy of promotional materials describing products and services, critique of scientific explanations for strengths and weaknesses).
- Identify the parts of systems, such as ecosystems and simple and complex machines.
- Make wise choices in the use and conservation of resources, including soil, and in the disposal or recycling of materials.
- Identify weather tools and patterns.
- Investigate physical properties of matter, such as density, buoyancy, and magnetism.
- Investigate electrical energy.
- Determine the characteristics of plants and animals that affect their adaptations for survival.
- Recognize the ocean's effects on land.
- Visit the planetarium to learn about the sun, moon phases, constellations, planets, etc.

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### ***Competencies:***

#### ***During 5<sup>th</sup> grade, students will***

- Explain the advantages and disadvantages of using various forms of energy (potential, kinetic, light, sound, heat, solar, electrical, chemical, etc.).
- Continue to plan, conduct, and analyze results in investigations.
- Collect and analyze data using metric units.
- Collect and analyze information using a variety of tools such as calculators, binoculars, microscopes, digital cameras, computers, magnets, compasses, collecting nets, triple-beam balances, and metric measurement tools.

- Describe and compare the characteristics and adaptations of plants and animals (vertebrates vs. invertebrates).
- Explain the interdependence of plants and animals in food webs and chains.
- Visit the nature trails to identify native plants and to study ecosystems and plant and animal adaptations.
- Identify inherited traits in plants and animals.
- Distinguish between learned and instinctive behaviors.
- Classify matter according to its physical properties (mixtures, solutions).
- Identify the significance of the rock cycle, and explain how forces change the earth over time.
- Identify changes that occur in cycles (lunar, seasonal).
- Develop an understanding of space travel and exploration.
- Develop an understanding that forces cause change.

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### ***Outside of School:***

***As parents, you can provide opportunities for your 5<sup>th</sup> grader to***

- Review science vocabulary.
- Review science notes and study guides.
- Read nonfiction books on science topics.
- Go on nature walks, and discuss natural cycles.
- Use measurement and measurement tools in real-life situations such as cooking.
- Start or add to a collection.
- Care for a pet, or plant a garden.
- Participate in recycling, conservation of resources, and preservation.
- Practice safety rules at home.
- Discuss science journals, daily work, and homework with you.
- Watch educational programs such as *Bill Nye the Science Guy*.

## **Social Studies**

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### ***Prerequisites:***

***Before entering 5<sup>th</sup> grade, students should be able to***

- Identify all 50 states and capitals.

- Explain how Texas, the United States, and other parts of the world are economically interdependent.
- Identify the settlement patterns and the geographic factors (landforms, climate, vegetation) that influence where people have chosen to live, past and present.
- Locate, describe, and compare the regions of Texas and the regions of the United States.
- Obtain and use a variety of reference/resource materials.
- Use geographic tools (grids, compass rose, map legends, symbols, scale, latitude and longitude) to collect, analyze, and interpret data.
- Create and interpret timelines, graphs, charts, tables, and grids.
- Compare the ways of life of Native American groups in Texas and the Western Hemisphere.
- Identify European explorers and the reasons for exploration in the settlement of Texas and the Western Hemisphere.
- Describe major political, economic, and social changes in Texas during the 19<sup>th</sup> and 20<sup>th</sup> centuries.
- Create, color, and label maps accurately.

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### ***Competencies:***

***During 5<sup>th</sup> grade, students will***

- Recognize causes and effects of the major events in American history from early colonization through the 20<sup>th</sup> century (colonization and growth of America through independence, the formation of a democratic government, contributions by significant individuals, civil rights, social changes, and major wars).
- Apply geographic tools, including grid systems, legends, symbols, scales, and compass roses, in constructing and interpreting maps.
- Describe a variety of regions in the United States using characteristics such as landform, climate, vegetation, politics, population, and economy.
- Continue to create, color, and label maps accurately, using TODALS as a guide.
- Describe the characteristics and benefits of the free enterprise system in the United States.
- Analyze the ways people in different parts of the U.S. earn a living.

- Understand the reasons for exploration and colonization and the basic economic patterns of early societies in the U.S.
- Evaluate the effects of supply and demand on business, industry, and agriculture.
- Identify the purposes and explain the importance of the *Declaration of Independence* and the *U.S. Constitution*.
- Identify and explain basic functions of the branches of the United States federal government.
- Explain how individuals can participate in civic affairs and in political parties at the national level.
- Explain the significance of selected United States patriotic symbols and landmarks.
- Identify and compare leadership qualities of national leaders, past and present.
- Know the presidents of the United States and their importance.
- Identify examples of representative government in the American colonies, including the Mayflower Compact.
- Understand types of settlement and patterns and the ways geographic factors influence people's decisions about where to live.
- Understand how people adapt to and modify their environment.
- Identify similarities and differences among various racial, ethnic, and religious groups, their contributions, and their effects on our society.
- Explain the impact of science and technology on life in the United States, past and present.
- Create oral, written, and visual (pictures, maps, charts, graphs, timelines) presentations using social studies information.
- Apply critical thinking skills to locate, organize, and use information from a variety of sources including technology.
- Demonstrate effective oral and written communication skills using standard grammar, spelling, sentence structure, and punctuation.
- Use problem-solving and decision-making skills, working as an individual and with others, in a variety of settings.
- Share family traditions and customs.
- Keep a journal of travels, trips, and activities.
- Reinforce map-reading skills when planning family outings and trips.
- Use resources at home (computer, books, other reference materials) to discuss historical and current events.
- Learn at least three major facts about U.S. presidents.
- Practice good citizenship skills.
- Visit the public library.
- Observe you perform civic duties such as voting, serving on a jury, or working on a civic committee.

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***Outside of School:***

***As parents, you can provide opportunities for your 5<sup>th</sup> grader to***

- Watch the news and discuss current issues and events.

# Middle School

## Grade 6

### Language Arts/Reading

#### *Prerequisites:*

*Before entering 6<sup>th</sup> grade, students should be able to*

- Read alone for a sustained period of time.
- Use a variety of strategies to read words and figure out what they mean.
- Read and understand grade-level materials with fluency.
- Gather, locate, and present important information using various reference sources and technology.
- Write fluently and legibly, in both cursive and manuscript, for various purposes.
- Use the writing process to create a variety of products that apply standard spelling, punctuation, grammar, and usage with increasing accuracy.
- Produce well-developed written products in a variety of formats, including informative reports and persuasive and narrative writing.
- Listen to, evaluate, and assess oral information.

#### *Competencies:*

*During 6<sup>th</sup> grade, students will*

- Listen and speak for a variety of purposes and audiences, adjusting content and delivery to fit.
- Use word recognition/definition strategies to learn new words found in their reading of fiction and nonfiction.
- Read to develop higher-level thinking skills by using a variety of strategies to comprehend when reading.
- Recognize the unique features of various kinds of literature and other reading materials.
- Respond to, apply, and evaluate various types of literary devices.
- Read about, describe, compare/contrast, and talk about themes and connections within and across cultures and texts.

- Use all stages of the writing process (prewriting, drafting, revising, proofreading, and editing) to compose for a variety of purposes (to inform, to influence, to entertain) and audiences.
- Use revision and editing strategies to produce a clear, well-developed, error-free final product.
- Use research skills to formulate questions, to summarize and organize information, and to create graphic organizers.
- Use correct grammar in speaking and writing.
- Use several media (including technology) to interpret, analyze, and produce visual images and messages.

#### *Outside of School:*

*As parents, you can provide opportunities for your 6<sup>th</sup> grader to*

- Read aloud with you on a regular basis.
- Observe and talk about your real-life applications of reading and writing.
- Read from an ample supply of magazines, newspapers, and books.
- Visit the library and bookstores.
- Communicate in writing (letters, thank-you notes, to-do lists, etc.).
- Keep a journal or personal diary.
- Talk about the plots of movies and TV shows to enhance the sense of story.
- Use television program listings for examples of summaries.
- Use news headlines for examples of main idea.

## Mathematics

#### *Prerequisites:*

*Before entering 6<sup>th</sup> grade, students should be able to*

- Know and instantly recall all basic facts: addition, subtraction, multiplication, and division.
- Read, write, compare, and order whole numbers to the hundred-billions place.
- Read, write, compare, and order decimals to the thousandths place.
- Explain the concept of a fraction.
- Make equivalent fractions.

- Show where fractions go on a number line.
- Add and subtract fractions with the same denominators in a problem-solving situation.
- Add, subtract, multiply, and divide all whole numbers.
- Add and subtract decimals.
- Choose from among addition, subtraction, multiplication, and division to solve word problems with whole numbers.
- Identify prime factors of whole numbers and common factors of groups of numbers.
- Round to the nearest tenth and to the nearest whole number.
- Identify types of angles: right, acute, and obtuse.
- Distinguish from among these transformations: rotation (“turn”), translation (“slide”), and reflection (“flip”).
- Recognize and draw lines of symmetry.
- Identify parallel and perpendicular lines and congruent parts of geometric shapes and solids.
- List features that define geometric shapes and solids.
- Measure objects with a ruler.
- Find perimeter by counting units of length.
- Figure out the area of a square or rectangle by counting square units.
- Figure out volume by using cubes to build a solid figure.
- Make bar, line, and picture graphs.
- Identify, explain, and use problem-solving strategies.
- Figure out the probability of simple events (examples: flipping a coin, rolling a die).
- Use objects to show understanding of addition and subtraction of fractions.
- Add and subtract fractions with unlike denominators, using regrouping.
- Solve problems using addition and subtraction of decimals.
- Use multiplication to find equivalent ratios.
- Use division to calculate rates.
- Estimate solutions to real-life problems involving fractions, decimals, and whole numbers.
- Create proportions in a problem-solving situation.
- Match ratios, percents, fractions, and decimals.
- Create tables to represent data.
- Use tables to develop formulas for perimeter, area, and volume.
- Simplify expressions using the proper order of operations.
- Measure and draw angles using a protractor and classify them as acute, obtuse, or right.
- Identify and analyze the features of quadrilaterals and triangles.
- Identify parts of a circle and understand their relationships (example:  $2 \text{ radii} = 1 \text{ diameter}$ ).
- Calculate circumference.
- Plot points on a graph and record coordinates of a given point (using positive numbers only).
- Estimate units of length, weight, and volume.
- Calculate perimeter and area of squares, parallelograms, rectangles, and triangles.
- Convert measurements within the system of customary units.
- Convert measurements within the metric system.
- Arrange data into lists, tables, and tree diagrams to represent combinations resulting from experiments (example: rolling a die, spinning a spinner, flipping a coin, etc.).
- Determine simple probability and its complement.
- Collect, organize, display, and interpret data using various kinds of graphs.
- Determine the mean of a set of data using models.
- Determine median, mode, and range.
- Sketch circle graphs.

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### ***Competencies:***

#### ***During 6<sup>th</sup> grade, students will***

- Compare and order fractions and decimals.
- Make fraction, decimal, and whole-number equivalencies, and show how they relate.
- Change mixed numbers to improper fractions and vice versa.
- Read, write, and compare integers on a number line, and use them to represent real-life situations.
- Write the prime factors of a number, using exponents.
- List common factors and common multiples for a set of numbers.
- Identify prime and composite numbers.

***Outside of School:******As parents, you can provide opportunities for your 6<sup>th</sup> grader to***

- Find practical applications of math concepts.
- Explain his or her thinking or processes for problem solving (ideas, steps in a process, and memory-aids).
- Practice doing things in sequence (reading maps, following recipes, assembling products).
- See you using math in daily living (estimation, shopping, budgeting, checking, measuring, applications at work, etc.).
- Review and practice basic facts.

**Science*****Prerequisites:******Before entering 6<sup>th</sup> grade, students should be able to***

- Conduct investigations.
- Collect and analyze data using metric units.
- Interpret and label graphs.
- Classify matter according to its physical properties.
- Identify the significance of the rock cycle, and explain how forces change the earth over time.
- Explain the advantages and disadvantages of using various forms of energy.
- Determine the characteristics and adaptations that help plants and animals survive.
- Understand and identify parts of a system and their interdependent relationships.
- Use effective communication skills in speaking, listening, reading, and writing appropriate responses.

***Competencies:******During 6<sup>th</sup> grade, students will***

- Conduct safe field and laboratory investigations using scientific methods to solve problems.
- Choose and use a variety of tools to conduct scientific investigations.
- Explain the interactions that occur between matter and energy.
- Research and describe how obtaining, transforming, and distributing energy affects the environment.

- Recognize the relationships between force and motion.
- Construct and label bar and line graphs.
- Design experiments using control, manipulated, and responding variables.
- Recognize the interactions of systems and their parts (Earth science systems may include ecosystems, weather, plate tectonics, and the water cycle.).
- Investigate the relationship between structure and function in living systems (cell parts).
- Identify substances by their physical and chemical properties.
- Recognize that traits of species can change through generations and that the instructions for traits are contained in genetic material.
- Describe the components of the solar system and equipment needed for space travel.

***Outside of School:******As parents, you can provide opportunities for your 6<sup>th</sup> grader to***

- Develop time-management and organizational strategies.
- Visit science-oriented exhibits at NASA, museums, etc.
- Discuss current science and technology events in the news.
- Read and interpret graphs and charts in the newspaper.
- Attend science activities offered through summer school programs, scouts, YMCA, community colleges, museums, etc.
- Read scientific publications such as *Popular Science*, *Ranger Rick*, *National Geographic World*, etc.
- Watch the Discovery Channel, PBS, and nature and science programs on television.
- Investigate science-oriented Web sites.

**Social Studies:  
World Cultures*****Prerequisites:******Before entering 6<sup>th</sup> grade, students should be able to***

- Read and interpret a variety of graphic organizers (tables, timelines, flow charts).

- Make oral presentations about social studies information to a group.
- Locate and use a variety of sources when doing research.
- Demonstrate basic geographic knowledge such as the seven continents and five oceans.
- Read and interpret maps.
- Read and comprehend on grade level.
- Write a complete sentence using standard grammar, spelling, and punctuation.
- Listen and follow directions.
- Demonstrate organizational skills.

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**Competencies:**

***During 6<sup>th</sup> grade, students will***

- Analyze characteristics of various contemporary cultures and societies.
- Explain how changes in technology, communication, and transportation have influenced societies of select regions of the world.
- Identify and analyze ways people have adapted to and modified the physical environment.
- Describe the nature of citizenship in various societies.
- Compare/contrast different ways of organizing economic and governmental systems.
- Continue to practice reading skills appropriate to the grade-level, such as locating the main idea, sequencing, comparing/contrasting, etc.
- Write for a variety of audiences and purposes, using on-level standard grammar, spelling, sentence structure, and punctuation.
- Use social studies terminology correctly.
- Use critical-thinking skills appropriate to the content and grade level, including problem-solving and decision-making skills.
- Analyze information by comparing and contrasting.
- Transfer information from statistical to written or visual forms (using computer software as appropriate).
- Demonstrate basic computer proficiency.
- Use main and supporting ideas in oral and written communication.
- Identify different points of view about an issue or topic.

- Locate and use a variety of primary and secondary sources to create oral, written, and visual presentations on social studies topics.
- Continue to practice reading and interpreting a variety of graphic organizers (examples: tables, timelines, flow charts).

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***Outside of School:***

***As parents, you can provide opportunities for your 6<sup>th</sup> grader to***

- Watch the news, read newspapers, and discuss current issues and events with you.
- Visit historical Web sites such as virtual tours of museums, libraries, and historical sites.
- Watch the weathercast, and discuss the impact of climate and weather in the regions of the world.
- Observe appropriate civic responsibilities, such as voting, writing letters to the editor, completing jury duty, and having civic pride.
- View history-oriented television programs, and discuss them with you.
- Interview various family members about their life experiences and family history.
- Visit historical sites, and attend cultural activities in your area to understand cultural diversity.
- Use social studies software on your home computer.
- Read historical and cultural novels and biographies.

## Grade 7

### Language Arts/Reading

***Prerequisites:***

***Before entering 7<sup>th</sup> grade, students should be able to***

- Use additional word-recognition strategies such as language structure and context clues.
- Read and understand a variety of grade-level materials with fluency.
- Use the writing process to create a variety of products that apply standard punctuation, spelling, grammar and usage with increasing accuracy.

- Listen to oral information to analyze and judge it with increasing detail.
- Gather, analyze, and present information from a variety of sources in a format that fits the audience and purpose.

**Competencies:**

***During 7<sup>th</sup> grade, students will***

- Study a variety of novels, plays, short stories, poems, and nonfiction.
- Increase understanding of information by analyzing how it is organized (example: cause/effect, compare/contrast).
- Learn new words using word-recognition strategies, including Greek and Latin roots and prefixes/suffixes.
- Use a variety of study strategies to learn and recall important ideas from readings.
- Recognize and interpret an author's use of various literary devices, such as style, tone, mood, foreshadowing, and flashback.
- Read assigned material, draw valid conclusions about the information, and support conclusions with "text evidence" found in the material.
- Read about, describe, and compare/contrast themes, ideas, and connections within and across cultures and texts.
- Write to inform, to influence, and to entertain.
- Add interest to writing by using simple, compound, and complex sentences.
- Use the writing process to create, revise, and edit written work, paying special attention to organization, sentence fluency, transition, and development of ideas.
- Use standard grammar to achieve error-free speaking and writing (example: correct spelling and punctuation, subject-verb agreement, verb tenses, and pronoun case and reference).
- Use technology to interpret, critique, and produce visual images and messages.
- Use research skills to paraphrase, summarize, and organize ideas.
- Listen carefully to understand major ideas and supporting evidence and to analyze and judge a speaker's message.
- Speak clearly, in a manner that fits the audience and purpose, to support ideas with evidence, elaboration, and examples.

***Outside of School:***

***As parents, you can provide opportunities for your 7<sup>th</sup> grader to***

- Observe you reading.
- Develop daily reading habits by providing reading material at home.
- Communicate in writing by thank-you notes, a daily journal, etc.

**Mathematics**

***Prerequisites:***

***Before entering 7<sup>th</sup> grade, students should be able to***

- Read, write, compare, and order positive decimals and fractions.
- Read, write, compare, and order integers using a number line.
- Add and subtract decimals.
- Make fraction, decimal, and whole-number equivalencies, and show how they relate.
- Understand that positive exponents are repeated multiplication.
- Add and subtract fractions and mixed numbers with unlike denominators and regrouping.
- Create proportions in problem-solving situations.
- Match ratios, percents, fractions, and decimals.
- Identify special features of quadrilaterals and triangles.
- Identify parts of a circle and understand their relationships.
- Calculate circumference.
- Calculate perimeter and area of squares, parallelograms, rectangles, and triangles.
- Convert among customary measures.
- Convert among metric measures.
- Determine simple probability.
- Find mean, median, mode, and range.

**Competencies:**

***During 7<sup>th</sup> grade, students will***

- Compare and order integers, fractions, and decimals.
- Convert among fractions, decimals, and percents.
- Represent and calculate squares and square roots with and without objects.

- Use objects to represent all four math operations with integers, fractions, and decimals.
- Use all four math operations to solve problems with fractions, decimals, and integers.
- Divide with decimal dividends.
- Divide with decimals in quotients (example:  $1 \div 2 = 0.5$ ).
- Solve problems using decimal divisors.
- Use division to find unit rates and ratios in proportional relationships (examples: unit price, doubling a recipe).
- Solve application problems involving proportional relationships (examples: similarity, scaling, unit costs, and unit measurement).
- Apply the order of operations to numerical expressions.
- Use models to solve equations (one- and two-step).
- Solve percent application problems.
- Generate geometric formulas for area (parallelogram, rhombus, trapezoid, and circle).
- Define similarity, using geometric applications.
- Write a numerical expression to describe a pattern, and graph the relationship.
- Describe sequences in patterns and relationships in functions.
- Graph in all four quadrants on the coordinate plane.
- Show translations (“slides”) in the coordinate plane.
- Classify angles as complementary or supplementary.
- Classify triangles and quadrilaterals.
- Classify solids as pyramids, cones, prisms, or cylinders.
- Sketch solids and design nets from various perspectives.
- Apply geometry to real-life situations.
- Estimate measurements and solve real-world problems involving length (perimeter and circumference), area, and volume.
- Model probability of real-life events.
- Describe data using mean, median, mode, and range, and choose the best one of those to use for a given data set.
- Find the probability of independent events by constructing sample spaces and collecting data from an experiment.

- Gather, display, measure, interpret, justify, and make predictions about statistical information in a particular situation.
- Apply routine and non-routine problem-solving strategies with appropriate tools.

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### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 7<sup>th</sup> grader to***

- Find practical applications of math concepts.
- Apply math in real-life situations.
- Talk with you about math.

## **Science**

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### ***Prerequisites:***

#### ***Before entering 7<sup>th</sup> grade, students should be able to***

- Demonstrate safe practices during lab investigations.
- Use basic math skills, including adding, subtracting, multiplying, dividing, and working with decimals.
- Measure using metric units (rulers, balances, and graduated cylinders).
- Follow written instructions such as lab activities.
- Conduct investigations to solve problems.
- Construct graphs, tables, and charts to analyze data.
- Identify parts of a cell and describe their functions.

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### ***Competencies:***

#### ***During 7<sup>th</sup> grade, students will***

- Continue to conduct safe field and laboratory investigations using scientific methods to solve problems.
- Collect, analyze, and record data using common scientific tools such as graduated cylinders, balances, metric rulers, and thermometers.
- Construct and interpret charts, graphs, and tables to present observations and data gathered during scientific investigations.
- Identify, recognize, and explain the relationships between science and technology.

- Describe how systems may reach equilibrium, such as when a volcano erupts.
- Show the relationship between force and motion as applied to simple machines.
- Explain how properties affect physical and chemical changes, reactions, and placement on the periodic table.
- Describe the relationships between matter and energy as found in daily life.
- Understand that matter is composed of atoms.
- Describe the relationship between structure and function in the human body.
- Discover the role of genetic material in the production of offspring.
- Recognize that plants and animals respond to both internal and external stimuli.
- Recognize the importance of communicating with parents about human sexuality.
- Describe the human reproduction process.
- Define abstinence as the healthiest choice and the only 100% effective means of preventing pregnancy and sexually-transmitted diseases.
- Learn techniques for preventing sexual abuse.
- Describe the relationship between plants and animals and their surroundings.
- Demonstrate the interactions of systems and their parts, such as Earth and body systems.
- Recognize that various cycles exist on Earth.
- Explain how natural events and human activities affect Earth.
- Analyze and predict the sequence of events in the lunar cycle.
- Explain why there are seasons on Earth.

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### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 7<sup>th</sup> grader to***

- Spend time doing problem-solving activities such as puzzles, games, etc.
- Discuss current issues in science, and relate real-life experiences, both past and present, to topics being studied.
- Research answers to his or her own questions.
- Predict the outcome of various situations, and discuss cause and effect of everyday situations.
- Visit local museums and nature centers.
- Discuss environmentally-friendly choices made at home such as recycling, conserving resources, and using environmentally-safe products.

- Watch the Discovery Channel, PBS, and nature and science programs on television.

## **Social Studies: Texas History**

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### ***Prerequisites:***

#### ***Before entering 7<sup>th</sup> grade, students should be able to***

- Identify similarities and differences between and among cultures.
- Describe the rights and responsibilities of a citizen in a democratic society.
- Identify the three main branches of the United States federal government.
- Read and interpret maps.
- Read and comprehend on grade level.
- Listen and follow directions.
- Read and interpret graphic organizers (timelines, charts, and graphs).
- Use a variety of sources to create presentations.
- Continue to practice reading skills appropriate to the grade-level, such as locating the main idea, sequencing, comparing/contrasting, etc.
- Write for a variety of audiences and purposes, using on-level standard grammar, spelling, sentence structure, and punctuation.
- Use social studies terminology correctly.
- Use critical-thinking skills appropriate to the content and grade level, including problem-solving and decision-making skills.
- Analyze information by comparing and contrasting.
- Transfer information from statistical to written or visual forms (using computer software as appropriate).
- Use main and supporting ideas in oral and written communication.
- Identify different points of view about an issue or topic.
- Locate and use a variety of primary and secondary sources to create oral, written and visual presentations on social studies topics.

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### ***Competencies:***

#### ***During 7<sup>th</sup> grade, students will***

- Locate and identify the characteristics of places and regions of Texas.

- Identify how individuals, events, and issues shaped the history of Texas.
- Describe how people from selected racial, ethnic, and religious groups attempt to maintain their cultural heritage while adapting to the larger Texas culture.
- Examine the rights and responsibilities of a Texas citizen.
- Explain the structure and function of Texas government.
- Analyze the impact of scientific discoveries and technological innovations on Texas.
- Understand the basic principles of a free enterprise system.
- Explain the interdependence of the Texas economy with that of the United States and the world.
- Continue to practice grade-level reading skills, such as locating the main idea, sequencing, comparing/contrasting, etc.
- Write for a variety of audiences and purposes, using on-level standard grammar, spelling, sentence structure, and punctuation.
- Use social studies terminology correctly.
- Use critical-thinking skills appropriate to content and grade level, including problem-solving and decision-making skills.
- Organize and interpret information from outlines and reports.
- Transfer information from statistical to written or visual forms (using computer software as appropriate).
- Demonstrate basic computer proficiency.
- Locate and use a variety of primary and secondary sources to create oral, written, and visual presentations on social studies topics.
- Cite sources in research projects.

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### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 7<sup>th</sup> grader to***

- Watch the news, read newspapers, and discuss current issues and events with you.
- Visit historical Web sites such as virtual tours of museums, libraries, and historical sites.
- Watch the weathercast, and discuss the impact of climate and weather on Texas.

- Observe civic responsibilities, such as voting, writing letters to the editor, completing jury duty, and having civic pride.
- View history-oriented television programs, and discuss them with you.
- Interview various family members about their life experiences and family history.
- Visit historical sites, and attend cultural activities in your area.
- Use social studies software on your home computer.
- Read historical novels and biographies.

## Grade 8

### Language Arts/Reading

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#### ***Prerequisites:***

#### ***Before entering 8<sup>th</sup> grade, students should be able to***

- Use a variety of word-recognition strategies including prefixes, suffixes, and roots to help understand reading material.
- Read alone from a variety of materials.
- Use multiple reference sources and technology to develop and present research products.
- Create a variety of written products that apply standard punctuation, spelling, grammar, and usage with increasing accuracy.
- Listen carefully to understand and judge a message.

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#### ***Competencies:***

#### ***During 8<sup>th</sup> grade, students will***

- Research information to judge whether it is valid and relevant.
- Take notes from and summarize a variety of written and spoken messages to analyze and judge the author's or speaker's techniques, including the use of persuasion.
- Learn new words through a variety of strategies, including word origins.
- Apply higher-level thinking skills when reading increasingly-difficult materials, and support conclusions with "text evidence" from the reading material.

- Recognize the special features of various kinds of literature and other reading materials.
- Analyze various types of literary devices such as symbolism, allusion, tone, and mood.
- Read about, describe, and compare themes and connections within and across cultures and texts.
- Read and respond to literature in a variety of ways.
- Apply standard grammar, spelling, and usage to write for a variety of audiences and purposes.
- Use a variety of media to interpret, critique, and produce visual images, messages, and meanings.
- Read classical and contemporary works.
- Write to inform, to influence, and to entertain.
- Use the writing process to create, revise, and edit written work, paying special attention to organization, transition, and development of ideas.

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### ***Outside of School:***

#### ***As parents, you can provide opportunities for your 8<sup>th</sup> grader to***

- Read self-selected material daily.
- Use public libraries as a resource.
- Communicate in writing (example: write opinions with support statements).
- Express viewpoints by writing to local newspapers or national magazines.
- Practice creative writing and keep a personal portfolio.
- Read and follow directions (examples: model building, video games, and VCR functions).
- Use charts and tables (examples: nutrition analysis on food packaging, transportation schedules, floor plans, travel brochures, sports statistics).
- Analyze the editorial page.
- Evaluate magazine advertising and television commercials.

## **Mathematics**

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### ***Prerequisites:***

#### ***Before entering 8<sup>th</sup> grade, students should be able to***

- Apply the problem-solving strategies that will work best for the given problem.

- Recognize simple mathematical patterns.
- Use estimation skills.
- Add, subtract, multiply and divide whole numbers, decimals, and fractions.
- Use the order of operations with whole numbers, decimals, and fractions.
- Compare and order integers.
- Set up and solve proportions.
- Understand percent and solve percent problems.
- Convert among fractions, decimals, and percentages.
- Add, subtract, multiply and divide integers.
- Understand the meaning of similar and congruent figures.
- Generate formulas involving conversions, perimeter, area, circumference, volume, and scaling.
- Show geometric translations in the coordinate plane.
- Locate points in the coordinate plane, given the coordinates.
- Write the coordinates of a given point.
- Read and interpret charts, tables, and graphs.
- Apply and calculate simple statistics such as mean, median, mode, and range.
- Solve one- and two-step equations.
- Calculate square root.

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### ***Competencies:***

#### ***During 8<sup>th</sup> grade, students will***

- Use whole numbers, decimals, fractions, and integers while following order of operations.
- Select, use, and justify the appropriate operation (+, -, x, ÷) when solving a problem.
- Understand the meaning of irrational numbers and approximate the value.
- Express numbers in scientific notation.
- Compare, order, and apply all forms of rational numbers, and select and use the form that best fits the problem at hand.
- Understand proportional relationships, including similarity, ratios, percents, and direct variation.
- Use proportions or scale factors to find missing measurements in similar shapes.
- Compare and contrast proportional and non-proportional relationships.

- Multiply by a constant factor using a unit rate to find actual values (example: use the scale of miles on a map to find actual distance).
- Build tables from mathematical patterns, and draw the graph.
- Write an algebraic expression from a table, and use it to find a term in the pattern.
- Estimate and find solutions to application problems involving percents, similarity, rates, and direct variation.
- Convert among tables, graphs, algebraic equations, and verbal descriptions to represent data and/or problem situations. Explain each representation.
- Analyze statistical data through graphs and scatter plots.
- Graph geometric transformations in the coordinate plane (dilations, reflections, and translations).
- Develop an understanding of the Pythagorean Theorem.
- Use the Pythagorean Theorem to solve real-life problems.
- Draw solids from different views.
- Recognize features of geometric shapes in art and architecture.
- Graph linear equations from tables.
- Generate formulas and calculate the surface area of prisms and cylinders using models and nets.
- Generate formulas and calculate the volume of prisms, cylinders, pyramids, and cones using models.
- Describe changes that occur in the perimeter, area, and volume of shapes and solids when the dimensions are halved, doubled, tripled, etc.
- Estimate and use formulas to solve real-world problems involving surface area and volume.
- Determine the probability of dependent and independent events.
- Select and use models to simulate an event.
- Use theoretical probabilities and experimental results to make predictions and decisions.
- Use central tendencies (mean, median, and mode) to describe a set of data.
- Understand scatter plots to analyze and predict trends.
- Examine data from polls and surveys to see if results are reliable.

- Examine graphs of data to determine bias or fairness.
- Construct a variety of statistical graphs by hand and with the graphing calculator.
- Locate and name points on the coordinate plane using fractions, decimals, and integers.

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### *Outside of School:*

#### *As parents, you can provide opportunities for your 8<sup>th</sup> grader to*

- Find practical applications of mathematical concepts.
- Connect math to family life.
- Look to you as a positive role model in learning math.

## **Science**

**(Note: Science 8 is not for high school credit.)**

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### *Prerequisites:*

#### *Before entering 8<sup>th</sup> grade, students should be able to*

- Use safety equipment, and follow safe lab practices.
- Use a metric ruler, triple-beam balance, thermometer, and graduated cylinder.
- Identify and use lab equipment.
- Construct, read, and interpret graphs such as line, pie, and bar.
- Construct and interpret a data table.
- Conduct investigations to solve problems.
- Identify chemical and physical changes.
- Have a basic understanding of the periodic table.

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### *Competencies:*

#### *During 8<sup>th</sup> grade, students will*

- Continue to conduct safe field and laboratory investigations using scientific methods to solve problems.
- Distinguish between independent/dependent variables, and identify the control in an investigation.
- Construct, read, interpret, and analyze charts, graphs, and tables.
- Distinguish between inherited traits, and make predictions about possible outcomes.

- Identify changes in environmental conditions that affect survival of species.
- Describe interactions that occur in different systems such as human body systems, ecosystems, the solar system, weather, and ocean systems.
- Predict the results of modifying the earth's carbon, nitrogen, and water cycles.
- Analyze how natural or human events may contribute to the extinction of some species.
- Demonstrate the manner in which human activities may have modified soil, water, and air quality.
- Describe the structure and properties of an atom, including mass and electrical charge.
- Identify circumstances that cause chemical reactions.
- Interpret how elements are grouped on the periodic table.
- Use formulas and equations to express what happens in a chemical reaction.
- Identify that chemical and physical properties influence the development of everyday materials.
- Demonstrate an understanding of the interactions between matter and energy.
- Demonstrate the relationship between force and motion.
- Recognize that waves can travel through different materials.
- Analyze and predict the sequence of events in the lunar and rock cycles.
- Describe the characteristics of the universe.
- Research and describe the development of scientific theories regarding the origin of the universe.
- Research and describe theories of plate tectonics.
- Predict how land features are formed.

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***Outside of School:***

***As parents, you can provide opportunities for your 8<sup>th</sup> grader to***

- Watch the Discovery Channel, PBS, and nature and science programs on television.
- Discuss current environmental issues, such as recycling, water pollution, conservation, and other ways humans and nature make an impact on the environment.

- Discuss the effect of various natural disasters (volcanic eruptions, earthquakes, etc.).
- Read scientific articles in newspapers and magazines.

## **Social Studies: United States History to 1877**

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***Prerequisites:***

***Before entering 8<sup>th</sup> grade, students should be able to***

- Read and interpret maps.
- Explain the structure and function of state government.
- Examine the rights and responsibilities of citizens.
- Read and interpret graphic organizers (timelines, charts, and graphs).
- Use a variety of sources to create presentations.
- Continue to practice reading skills appropriate to the grade-level, such as locating the main idea, sequencing, comparing/contrasting, etc.
- Write for a variety of audiences and purposes, using on-level standard grammar, spelling, sentence structure, and punctuation.
- Use social studies terminology correctly.
- Use critical-thinking skills appropriate to the content and grade level, including problem-solving and decision-making skills.
- Analyze information by comparing and contrasting.
- Transfer information from statistical to written or visual forms (using computer software as appropriate).
- Use main and supporting ideas in oral and written communication.
- Identify different points of view about an issue or topic.
- Locate and use a variety of primary and secondary sources to create oral, written and visual presentations on social studies topics.

---

***Competencies:***

***During 8<sup>th</sup> grade, students will***

- Locate and identify the characteristics of places and regions of the United States.

- Identify how individuals, events, and issues shaped the history of the United States from colonization through Reconstruction.
- Describe the dynamic nature of the power of the national government and state governments.
- Analyze the principles of the U.S. Constitution and other historical documents.
- Understand the basic principles of a free enterprise system.
- Summarize the importance of voluntary individual participation in the democratic process along with rights and responsibilities of citizens.
- Describe the free enterprise system.
- Analyze how physical characteristics of the environment influenced population distribution, settlement patterns, and economic activities in the United States in the 18th and 19th centuries.
- Explain the impact of science and technology on daily life and the economic development of the United States.
- Continue to practice grade-level reading skills, such as locating the main idea, sequencing, comparing/contrasting, etc.
- Write for a variety of audiences and purposes, using on-level standard grammar, spelling, sentence structure, and punctuation.
- Use social studies terminology correctly.
- Use critical-thinking skills appropriate to content and grade level, including problem-solving and decision-making skills.
- Organize and interpret information from outlines and reports.

- Transfer information from statistical to written or visual forms (using computer software as appropriate).
- Demonstrate basic computer proficiency.
- Locate and use a variety of primary and secondary sources to create oral, written, and visual presentations on social studies topics.
- Cite sources in research projects and check validity.

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***Outside of School:***

***As parents, you can provide opportunities for your 8<sup>th</sup> grader to***

- Watch the news, read newspapers, and discuss current issues and events with you.
- Visit historical websites such as virtual tours of museums, libraries, and historical sites.
- Watch the weathercast, and discuss the impact of climate and weather on the United States.
- Observe civic responsibilities, such as voting, writing letters to the editor, completing jury duty, and having civic pride.
- View history-oriented television programs, and discuss them with you.
- Interview various family members about their life experiences and family history.
- Visit historical sites, and attend cultural activities in your area.
- Use social studies software on your home computer.
- Read historical novels and biographies.

# High School

Because of variation among students' four-year plans, high school courses have been grouped by subject rather than by grade.

## High School English

### English I

#### *Prerequisites:*

*Before entering English I, students should be able to*

- Read alone from materials on grade level or above.
- Recognize and apply standard grammar and usage.
- Construct clear, complete sentences within organized paragraphs.
- Show skills in speaking, listening, and viewing.
- Locate a variety of reference sources to produce research projects.
- Use the writing process to produce well-written and organized compositions.
- Utilize proofreading skills to evaluate writing.

#### *Competencies:*

*During English I, students will*

- Study world literature, including classic and contemporary works, such as Homer's *The Odyssey*, William Shakespeare's *Romeo and Juliet*, and a variety of short stories, poems, and nonfiction selections.
- Practice and use a variety of reading strategies.
- Study vocabulary from a variety of sources.
- Recognize a variety of literary elements (such as setting, point of view, character, and conflict) and their contributions to meaning.
- Recognize and interpret poetic elements like metaphor, simile, and personification.
- Use the writing process to create, revise, edit, and publish written work, focusing especially on the development of organized, fluent paragraphs.
- Write in a variety of forms, including narrative and expository writing.
- Engage in research on a topic: gather sources, determine the relevance of information, organize

that information, write in response to the information, and accurately cite sources.

- Determine the reliability, validity, and accuracy of sources, including Internet sources.
- Support ideas and responses with “text evidence” from sources.
- Use appropriate, complete, varied sentence structures.
- Use grammatical elements correctly (subject-verb agreement, pronoun-antecedent agreement, and verb forms).
- Produce accurate work that shows correct spelling and punctuation.
- Use technology to create, revise, edit, and publish writing, interpret media messages, and produce a multimedia presentation.
- Complete selected compositions to the final-draft stage of the writing process (18+ pieces per year).
- Practice in-class timed writings on selected topics, such as current events, personal issues, and aspects of assigned readings.
- Prepare and give informative presentations that meet the needs of purpose, audience, occasion, and task.
- Apply the conventions of standard English when making presentations.
- Listen carefully to give useful feedback to other speakers, such as asking relevant questions to clarify understanding.
- Work productively with other students in teams.

#### *Outside of School:*

*As parents, you can provide opportunities for your English I student to*

- Know that you support and encourage independent reading.

## English II

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### *Prerequisites:*

#### *Before entering English II, students should be able to*

- Read independently for a long time on grade-level or above.
- Recognize and interpret literary and poetic elements and their contribution to meaning.
- Apply the writing process to develop organized, fluent pieces of writing.
- Show accuracy in spelling and punctuation.
- Use proper sentence structures (with no fragments or run-ons).
- Use proper grammar, such as subject-verb agreement, pronoun-antecedent agreement, and verb forms.
- Write in a variety of forms, including narrative and expository writing.
- Research a topic, support ideas with “text evidence,” and cite sources appropriately.
- Show basic knowledge of the research process.
- Use technology to create and revise writing, produce multimedia presentations, and conduct research.
- Show skill in giving presentations, listening, and working productively with peers.

### *Competencies:*

#### *During English II, students will*

- Study world literature, including classic and contemporary works, such as versions of the Arthurian legends, William Shakespeare's *Julius Caesar*, and Harper Lee's *To Kill a Mockingbird*.
- Use a variety of reading strategies.
- Study vocabulary through a variety of methods.
- Study literary forms, such as drama, poetry, nonfiction and fiction.
- Study literary elements and their contributions to meaning, such as methods of plot development, mood, and theme.
- Study the language, form, and rhythm of selected literature (such as poetry) from a variety of time periods.
- Determine the reliability, validity, and accuracy of sources, including Internet sources.
- Use the writing process to create, revise, edit, and publish written work.

- Write in a variety of forms, including expository and literary forms.
- Support ideas and responses with “text evidence” from sources.
- Produce clear, effective writing that uses the correct spelling, conventions, and mechanics of standard English.
- Use sentences of varied type and length in writing.
- Use technology to create, revise, edit, and publish writing, to interpret media messages, and to produce a multimedia presentation.
- Complete selected compositions to the final-draft stage of the writing process (18+ pieces per year).
- Practice in-class, timed writing on essay exams.
- Create non-literary research projects on topics such as areas of career exploration, citing sources appropriately.
- Practice speaking and listening skills through class discussions, presentations, and critiques.
- Work productively with other students in teams.

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### *Outside of School:*

#### *As parents, you can provide opportunities for your English II student to*

- Improve his or her independent reading skills by providing materials at home (examples: newspapers, newsmagazines).

## English III

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### *Prerequisites:*

#### *Before entering English III, students should be able to*

- Read alone for a long time at grade-level or above.
- Recognize and interpret literary and poetic elements.
- Use correct spelling and proper punctuation.
- Write sentences with well-developed structure and accurate grammar.
- Apply the writing process to produce effective pieces of writing.
- Write in a variety of forms, paying special attention to narrative, expository, and literary forms.

- Research a topic, support ideas with “text evidence,” and cite sources appropriately.
- Use technology to create and revise writing, produce a multimedia presentation, and conduct research.
- Show effective skills in making presentations, listening, and working productively with others.

**Competencies:**

***During English III, students will***

- Study American literature, including classic and contemporary works, such as Arthur Miller's *The Crucible* and John Steinbeck's *Of Mice and Men*.
- Analyze and critically evaluate culturally diverse written texts, visual representations, and media messages.
- Use a variety of reading strategies.
- Study selected vocabulary words from various readings and from words on study lists for the SAT and ACT (college entrance tests).
- Study literary and poetic elements and forms and their contributions to the meaning of the text.
- Evaluate whether information sources (including Internet sources) are reliable, valid, and accurate.
- Apply the writing process to create narrative, persuasive, literary, descriptive, argumentative, and expository writing, paying special attention to the organization of the essay and to the editing and revision processes.
- Support ideas and responses with “text evidence” and cite sources appropriately.
- Write in a variety of forms, including work-related documents such as business letters, memos, and résumés.
- Write clearly, using correct English and proper structure of sentences of varied length and type.
- Use technology as a tool to create, revise, edit, and publish writing, interpret media messages, and produce multimedia presentations.
- Complete selected compositions to the final-draft stage of the writing process (18+ pieces per year).
- Prepare for TAKS, SAT, and THEA exams by doing in-class, timed writings on assigned topics.
- Create research projects related to authors and works of American literature.

- Practice speaking and listening skills through class presentations and critiques of others and through group discussions.

***Outside of School:***

***As parents, you can provide opportunities for your English III student to***

- Read a variety of materials at home (examples: newspaper, newsmagazines).

## English IV

***Prerequisites:***

***Before entering English IV, students should be able to***

- Read alone for a long time at grade level or above.
- Recognize and interpret literary and poetic elements.
- Write using correct English.
- Write sentences of varied length and type with well-developed structure, accurate grammar, and apt vocabulary.
- Write effectively in a variety of forms, including personal, expository, literary, and business forms.
- Apply the writing process.
- Conduct research on an assigned topic with proper use of “text evidence” and documentation of sources.
- Use technology as a tool to create and revise writing, produce a multimedia presentation, and conduct research.
- Perform in-class, timed writing on an assigned topic.
- Use effective communication skills in making presentations, listening, viewing and working productively with others.

**Competencies:**

***During English IV, students will***

- Study British literature and selected world literature, including classic and contemporary works, such as the Anglo-Saxon epic *Beowulf*, Geoffrey Chaucer's *The Canterbury Tales*, William Shakespeare's *Macbeth* or *Hamlet*, and modern British poetry and prose.
- Use a variety of reading strategies.

- Study selected vocabulary words from various sources.
- Evaluate literary elements and forms and ways they contribute to meaning.
- Interpret media messages.
- Compare and contrast texts by considering elements such as themes, conflicts, and allusions both within and across selections.
- Consider organization, syntax, author stance, and diction to analyze the style and language elements of prose writing.
- Apply the writing process to create, revise, and edit written work.
- Support ideas and responses with “text evidence” from sources.
- Evaluate the reliability, validity, and accuracy of sources (including Internet sources).
- Write in a variety of forms.
- Use vocabulary, organization, rhetorical devices, and sentence structure to express meanings and achieve a desired effect.
- Write clearly, using correct English and proper structure of sentences of varied length and type.
- Use technology as a tool to create, revise, edit, and publish writing, interpret media messages, and produce multimedia presentations.
- Complete selected compositions to the final-draft stage of the writing process (18+ pieces per year).
- Complete in-class, timed writing on a given topic.
- Create research projects using “text evidence” and citing sources appropriately.
- Apply speaking and listening skills through class presentations and critiques of others.
- Work productively with others.

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***Outside of School:***

***As parents, you can provide opportunities for your English IV student to***

- Read a variety of materials.

# High School Math

## Algebra I

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***Prerequisites:***

***Before entering Algebra I, students should be able to***

- Add, subtract, multiply and divide integers.
  - Understand the idea of a variable.
  - Simplify expressions using the correct order of operations.
  - Solve one- and two-step equations.
  - Solve problems using ratio and proportion.
  - Set up and solve simple word problems, including translation of simple phrases and sentences into algebraic expressions and equations.
  - Interpret exponential expressions in expanded form and vice versa.
- 

***Competencies:***

***During Algebra I, students will***

- Develop the concept of a function (a mathematical cause-and-effect relationship).
- Use linear, quadratic and other non-linear functions to find relationships between quantities.
- Analyze data to make and interpret scatter plots and best-fit lines.
- Solve and graph linear equalities or inequalities with real-world applications.
- Know the difference between sketches of linear and quadratic parent functions.
- Find reasonable domain and range values for given situations.
- See proportional change as a direct variation and as a linear function.
- Interpret linear equations, inequalities and systems, and judge whether their solutions make sense.
- Solve linear equations involving distributive property, combining like terms and variables on both sides.
- Search for patterns, when given data in various forms, by using variables to represent situations algebraically.
- Perform operations with polynomials and factor polynomials in problem situations.

- Graph and write linear equations, given specific characteristics.
- Recognize the effects of parameter changes on linear and quadratic functions.
- Solve and analyze quadratic equations.
- Write and solve systems of linear equations.
- Develop the concept of slope as a rate of change.
- Extend operations with exponents by looking at patterns in problem-solving situations.
- Use the graphing calculator.

***Outside of School:***

***As parents, you can provide opportunities for your Algebra I student to***

- Find practical applications of mathematical concepts.
- Look to you as a positive role model for learning math.

## Geometry

***Prerequisites:***

***Before entering Geometry, students should be able to***

- Use basic tools and units of measurement.
- Use the graphing calculator.
- Draw two- and three-dimensional figures.
- Analyze algebraically, and solve word problems.
- Use the Pythagorean Theorem and irrational numbers to solve triangle problems.
- Solve equations, both linear and quadratic.
- Understand the concept of function.
- Understand the concept of slope.
- Understand and apply the concept of symmetry.
- Know and use basic transformations.
- Use table-building as a mathematical tool to investigate patterns and relationships.
- Graph a linear function in the coordinate plane.
- Multiply and factor polynomials.
- Solve systems of equations.

***Competencies:***

***During Geometry, students will***

- Use a variety of symbols (concrete, pictorial, graphical, algebraic) to solve real-world geometric problems.

- Describe patterns that exist in geometric figures (both two- and three-dimensional).
- Formulate and prove conjectures using a variety of methods.
- Describe the relationships between three-dimensional objects and their two-dimensional representations.
- Use inductive and deductive reasoning to justify conjectures about geometric figures and their properties.
- Compare and contrast Euclidean and non-Euclidean geometry.
- Study the historical development of geometric systems to recognize that mathematics is used for a wide variety of purposes.
- Solve problems involving similar figures, parallel and perpendicular lines, polygons, and circles and the lines that intersect them.
- Use the relationship between a two-dimensional net and a three-dimensional figure to solve problems.
- Compute surface area and volume of three-dimensional figures and area and perimeter of two-dimensional figures.
- Predict the effects on area, perimeter, and volume when one of the dimensions of the solid is changed.
- Solve problems by using the Cartesian Coordinate System to represent geometric figures.
- Understand congruency as related to geometric figures.

***Outside of School:***

***As parents, you can provide opportunities for your Geometry student to***

- Find practical applications of mathematical concepts.
- Use a scientific or graphing calculator as a standard school-supply item.
- Observe your positive attitude about math and the need for learning math.

## Algebra II

### *Prerequisites:*

*Before entering Algebra II, students should be able to*

- Use the graphing calculator.
- Multiply and factor polynomial expressions.
- Tell the difference between a relation and a function.
- Find the domain and range of a relation and a function.
- Solve and graph linear equations and inequalities.
- Write equations of a line.
- Solve systems of equations with two variables.
- Recognize the effects of parameter changes on linear and quadratic functions.
- Analyze data to make and interpret scatter plots and best-fit lines.

### *Competencies:*

*During Algebra II, students will*

- Use concrete, numerical, algorithmic, and graphical representations of functions and relations to model mathematical situations and solve meaningful problems. These functions and relations include the linear, quadratic, square root, rational, exponential, and logarithmic functions and conic sections.
- Collect, record, and organize data representing mathematical situations.
- Graph functions or relations, using parameter changes.
- Determine the domain and range of a function and relation and their reasonableness to an application.
- Use laws of exponents to simplify expressions.
- Represent and analyze situations, and formulate and solve equations, inequalities, and systems of equations.
- Determine and graph the inverse of a function.
- Solve linear, quadratic, square root, rational, exponential, and logarithmic equations and inequalities in and out of problem situations.

### *Outside of School:*

*As parents, you can provide opportunities for your Algebra II student to*

- Recognize practical applications of mathematical concepts.
- See you as a positive role model for learning and using mathematics.
- Own a graphing calculator.

## More Advanced Math Courses

*A number of students complete Precalculus and Calculus before graduating from high school.*

## High School Science

### Integrated Physics & Chemistry (IP&C)

#### *Prerequisites:*

*Before entering IP&C, students should be able to*

- Create and interpret charts and graphs using collected data.
- Identify and use metric units, including converting within the metric system.
- Conduct scientific investigations, including the identification of a dependent variable, an independent variable, and a control.
- Measure using graduated cylinders, thermometers, meter sticks, and balances.
- Identify the structure of an atom.
- Recognize parts of the periodic table, such as element symbols, atomic number, and atomic mass.
- Manipulate variables in an algebraic equation.
- Read, interpret, and solve word problems.

#### *Competencies:*

*In IP&C, students will*

- Continue to conduct safe field and laboratory investigations using scientific methods to solve problems.
- Create and interpret charts and graphs using collected data.

- Understand concepts of force and motion in everyday life, such as speed, power, inertia, and acceleration.
- Identify types of waves, such as electromagnetic, microwave, and sound.
- Describe the subatomic particles, and know how they are related to atomic number and mass number.
- Identify the different forms of energy, and recognize energy transformations in everyday life, such as electricity or mechanical systems.
- Identify and relate the properties and makeup of matter to the elements on the periodic table.
- Learn the symbols for the first 20 elements.
- Describe the differences between physical and chemical properties and changes, such as changes in states of matter, nuclear reactions, and digestion of food.
- Describe the formation and characteristics of different types of chemical bonds.
- Describe how solutions are formed and how they are used in everyday life.
- Explain the importance of water as the universal solvent.
- Describe the properties and interactions of acids and bases (including pH).
- Understand the difference between heat and temperature, and describe the applications of thermal energy.

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### ***Outside of School:***

#### ***As parents, you can provide opportunities for your IP&C student to***

- Discuss practical applications of science concepts.
- Complete assignments and projects on time.
- Attend class regularly, and complete makeup assignments.
- Read the text for IP&C.
- Discuss current issues in science with you.
- Watch the Discovery Channel, PBS, and nature and science programs on television.

## **Biology**

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### ***Prerequisites:***

#### ***Before entering Biology, students should be able to***

- Conduct scientific investigations, including the identification of a dependent variable, an independent variable, and a control.
- Construct and interpret graphs, charts, and tables from data.
- Manipulate units of measurement (convert units using dimensional analysis).
- Understand and recognize different types of chemical bonding and properties of water.
- Understand the pH scale.
- Relate forms of energy to living systems.
- Solve problems using ratios and proportions.
- Read and comprehend independently from text.

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### ***Competencies:***

#### ***In Biology, students will***

- Continue to conduct safe field and laboratory investigations using scientific methods to solve problems.
- Use a variety of methods and tools, such as CBL probes, graphing calculators, microscopes, and inoculating loops, to conduct scientific inquiry.
- Know about the metabolic processes and energy transfers that occur in living things.
- Understand that cells, which are the basic structures of all living things, have specialized parts that perform specific functions.
- Understand the role viruses and bacteria play in causing disease and in maintaining health.
- Understand stimulus, response, and maintenance of homeostasis.
- Understand how a multicellular organism grows and how specialized cells, tissues, and organs develop.
- Compare the interrelationship of organ systems to each other and to the body as a whole.
- Know the structures and functions of DNA and RNA in the mechanisms of genetics.
- Understand the theory of biological evolution by identifying how species adapt in order to prevent extinction.

- Collect and classify organisms using taxonomy and dichotomous keys.
- Identify characteristics of kingdoms including monerans, protists, fungi, plants, and animals.
- Explain the interactions within an ecosystem, including food chains, food webs, and food pyramids.
- Describe the changes in molecules that take place in the energy flow in plants and animals.

***Outside of School:***

***As parents, you can provide opportunities for your Biology student to***

- Visit science-oriented exhibits such as Moody Gardens, the Houston Zoo, and the Museum of Natural Science.
- Watch science-oriented programs such as *NOVA* or documentaries on the Discovery Channel.
- Read and discuss scientific current events.

## Chemistry

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***Prerequisites:***

***Before entering Chemistry, students should be able to***

- Use metric units and prefixes.
- Construct and interpret graphs, charts, and tables from data.
- Identify subatomic particles, and explain how they are related to atomic number and mass number.
- Differentiate between chemical and physical properties and changes.
- Draw a conclusion from lab data.
- Know the symbols for the first 20 elements.
- Use a calculator to perform basic math operations.
- Rearrange algebraic equations to solve for a variable.
- Read and comprehend course textbooks and supplementary materials.

***Competencies:***

***In Chemistry, students will***

- Continue to use safe lab practices in collecting data and making precise measurements, while conducting investigations to solve problems.
- Use dimensional analysis, scientific notation, and significant figures in calculations.
- Use both manual and technological methods to construct graphs.
- Use the software program *Graphical Analysis*.
- Describe characteristics of matter and changes that occur, including physical, chemical, and nuclear changes and their accompanying energy transformations.
- Describe the structure of an atom, including subatomic particles, isotopes, and electron configuration.
- Describe how variables influence the behavior of gases.
- Compare and contrast characteristics of ionic, covalent, and metallic bonding.
- Identify oxidation-reduction processes and their applications.
- Write formulas for chemical and nuclear changes, and balance the equations.
- Identify factors that affect solubility of solutes in a solvent.
- Describe solution properties such as concentration, electrical conductivity, and colligative properties.
- Identify properties of acids and bases and their reactions, including environmental effects.
- Identify factors that affect reaction rate and equilibrium.

***Outside of School:***

***As parents, you can provide opportunities for your Chemistry student to***

- Use a scientific calculator.
- Discuss scientific events and technology.
- Read scientific publications.
- Watch the Discovery Channel, PBS, and nature and science programs on television.

## Physics

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### *Prerequisites:*

#### *Before entering Physics, students should be able to*

- Add, subtract, multiply, and divide fractions.
- Rearrange algebraic equations to solve for a single variable.
- Solve systems of equations with two variables.
- Understand how to use scientific notation and how to convert numbers to and from scientific notation.
- Perform basic arithmetic (addition, subtraction, multiplication, and division) with numbers in scientific notation.
- Use metric units and prefixes, and be able to convert from one unit to another.
- Draw and measure angles with a protractor.
- Use a balance to find the mass of an object.
- Use a scientific calculator for basic arithmetic, scientific notation, and trigonometric functions and their inverses.
- Calculate the slope of a line, and recognize the characteristics of a slope.
- Use both manual and technological methods to construct graphs.
- Use the software program *Graphical Analysis*.

### *Competencies:*

#### *In Physics, students will*

- Use critical thinking and scientific problem-solving to make informed decisions.
- Use a variety of tools and methods to conduct scientific investigations.
- Know the laws governing motion in one and two dimensions.
- Define motion-related terms.
- Analyze graphs of motion.
- Compare and contrast accelerated and non-accelerated motion.
- Understand the relationship between frames of reference and relative motion.
- Add vectors graphically and mathematically.
- Understand and solve problems that apply Newton's Laws of Motion to real-life situations.
- Identify the relationships between mass/charge and distance for gravitational and electrical forces.

- Cite specific examples of conservation of energy and momentum.
- Identify the properties and characteristics of waves.
- Observe and describe the interaction between waves and matter.
- Compare and contrast mechanical and electromagnetic waves.
- Differentiate between series and parallel circuits.
- Analyze simple circuits.
- Describe the relationship between electricity and magnetism.

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### *Outside of School:*

#### *As parents, you can provide opportunities for your Physics student to*

- Use a scientific/graphing calculator.
- Discuss scientific events and technology.
- Read scientific publications.
- Watch the Discovery Channel, PBS, and nature and science programs on television.

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## More Advanced Science Courses

### *Before graduating from high school, a number of students will choose to further their studies in science by taking some of the following courses.*

- Chemistry AP
- Physics AP
- Biology AP
- Anatomy and Physiology of Human Systems
- Aquatic Science
- Astronomy
- Environmental Systems
- Scientific Research and Design

# High School Social Studies

## World Geography

### *Prerequisites:*

*Before entering World Geography, students should be able to*

- Demonstrate basic geographic knowledge such as the seven continents, five oceans, 50 U.S. states, TODALS, latitude and longitude, and landforms.
- Analyze characteristics of various contemporary cultures and societies.
- Explain how changes in technology, communication, and transportation have influenced societies of select regions of the world.
- Identify and analyze ways people have adapted to and modified the physical environment.
- Read and comprehend on grade level.
- Write for a variety of audiences and purposes, using on-level standard grammar, spelling, sentence structure, and punctuation.
- Determine the main idea and supporting details.
- Create and interpret information from maps, charts, and graphs.
- Locate and use a variety of primary and secondary sources to acquire information and create written and oral presentations.
- Demonstrate basic computer proficiency.

### *Competencies:*

*In World Geography, students will*

- Study people in a geographic area and their interaction with the environment.
- Describe the influence of geography on history, culture, politics, economics, and physical processes such as climate, plate tectonics, and earthquakes.
- Explain the interrelationships between and among the five themes of geography, which are place, location, human-environment interaction, region, and movement (see glossary).
- Examine the relationships between and among these three factors:

resource distribution—amount and location of resources;  
 economic activities—developing resources to create businesses; and  
 human settlement—why people move to an area or away from an area.

- Describe and map the locations of the four different types of economic activities (industries), including primary, secondary, tertiary, and quaternary (see glossary).
- Use a variety of reading strategies to increase understanding of textbook reading assignments.
- Use on-level social studies terminology correctly.
- Use critical-thinking skills appropriate to content and grade level, including problem-solving and decision-making skills.
- Organize and interpret information from a variety of sources, including databases.
- Transfer information from statistical to written or visual forms, and from written to visual forms (using computer software as appropriate).
- Locate and use a variety of primary and secondary sources to create oral, written, and visual presentations on social studies topics.
- Include an annotated bibliography (works cited) in all research projects.
- Prepare a research project utilizing geography skills, including asking and answering geographic questions; acquiring, organizing, and analyzing geographic information; and communicating the results.

### *Outside of School:*

*As parents, you can provide opportunities for your World Geography student to*

- Attend cultural activities and festivals.
- Visit museums.
- Visit ethnic restaurants.
- Do research by going to a public library, conducting interviews, using the home computer, etc.
- See you perform civic duties such as voting, serving on a jury, or working on a civic committee.
- Watch and discuss the news and documentaries about geography with you.
- Read and discuss newspapers, news magazines, and other geographical periodicals with you.

- Read road maps, and help make travel plans.
- Develop critical thinking skills. Respond to his or her questions by asking further questions instead of by giving direct answers.

## United States History from 1877

### *Prerequisites:*

#### *Before entering United States History, students should be able to*

- Identify the basic principles of the *U.S. Constitution* and its amendments.
- Analyze the impact of the Civil War and Reconstruction.
- Demonstrate basic geographic knowledge such as the seven continents, five oceans, 50 U.S. states, TODALS, latitude and longitude, and landforms.
- Read and comprehend on grade level.
- Write for a variety of audiences and purposes, using on-level standard grammar, spelling, sentence structure, and punctuation.
- Use a variety of reading strategies to learn information from historical texts.
- Organize and interpret information from outlines, reports, and visuals, including charts, graphs, timelines, maps, and historical documents.
- Demonstrate basic computer proficiency.
- Locate and use a variety of primary and secondary sources and technology to develop and present research products.
- Create oral, written, and visual presentations using social studies material.
- Analyze information by sequencing, categorizing, exploring cause-and-effect relationships, summarizing, finding the main idea, and comparing/contrasting.
- Identify bias in written, oral, and visual materials.
- Analyze information by drawing inferences and conclusions.

### *Competencies:*

#### *In United States History, students will*

- Identify major political, economic, cultural, and social events and issues in United States history since 1877.
- Examine the impact of geographic factors on major events in United States history since 1877.
- Interpret the impact of reform movements in United States history since 1877.
- Analyze the causes and effects of major wars.
- Identify the characteristics of various eras.
- Examine the rights and responsibilities of a United States citizen.
- Understand the basic principles of a free enterprise system.
- Analyze the impact of scientific discoveries and technological innovations on the United States.
- Evaluate the impact of constitutional issues on the role of the federal government and the democratic process.
- Explain the business cycle.
- Explain the interdependence of the United States economy and the world economy.
- Use a variety of reading strategies to increase understanding of textbook reading assignments.
- Use on-level social studies terminology correctly.
- Use critical-thinking skills to explain and apply different methods that historians use to interpret the past, including points of view and historical context.
- Utilize computers to research, organize, and interpret information from multiple Web sites.
- Analyze information by sequencing, categorizing, exploring cause-and-effect relationships, summarizing, comparing/contrasting, and drawing inferences and conclusions.
- Transfer information from statistical to written or visual form and from written to visual form (using computer software as appropriate).
- Locate, tell the difference between, and use a variety of primary and secondary sources to create oral, written, and visual presentations on social studies topics (using computer software as appropriate).

- Include an annotated bibliography (works cited) in all research projects.
- Conduce online discussions to analyze and interpret events of the past.
- Write an essay using historical evidence to support an argument.

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### ***Outside of School:***

#### ***As parents, you can provide opportunities for your United States History student to***

- Watch the evening news with you, and discuss current issues and events.
- Read newspapers and news magazines, and discuss major stories found in them.
- Attend community events, exhibits, museums, and cultural events.
- Visit local and historical sites.
- Interview various family members about their life experiences and family history, especially as they relate to the topics being studied in class.
- Do research by going to a public library, conducting interviews, using the Internet, etc.
- See you perform civic duties such as voting, serving on a jury, or working on a civic committee.

## **World History**

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### ***Prerequisites:***

#### ***Before entering World History, students should be able to***

- Read and comprehend on grade level.
- Write for a variety of audiences and purposes, using on-level standard grammar, spelling, sentence structure, and punctuation.
- Demonstrate basic computer proficiency.
- Use a variety of reading strategies to access information from historical texts.
- Organize, analyze, and interpret information, including written and visual material.
- Differentiate between, locate, and use a variety of primary and secondary sources.
- Create oral, written, and visual presentations using social studies material.
- Identify points of view and bias about an issue or topic.
- Demonstrate basic geographic knowledge such as the seven continents, five oceans, 50 U.S.

states, TODALS, latitude and longitude, and landforms.

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### ***Competencies:***

#### ***In World History, students will***

- Trace the development of civilization in different world cultures.
- Evaluate causes and effects of major revolutions.
- Identify historic origins of contemporary political and economic systems.
- Analyze the process by which democratic-republican governments evolved.
- Trace the historical development of important legal and political concepts.
- Examine the history and impact of major religions and philosophies.
- Analyze the connections between and among major developments in science and technology and their impact on different societies.
- Analyze the ways that art and architecture reflect the history of the cultures in which they are produced.
- Identify the causes and effects of conflicts in world history.
- Recognize the contributions of various historical cultures and the diversity among these cultures.
- Trace the causes of changes (over time) in attitudes about specific issues such as the roles of women, rights of citizens and non-citizens, and participation in government.
- Identify the impact of geographic factors on historical developments.
- Use a variety of reading strategies to increase understanding of textbook reading assignments.
- Use on-level social studies terminology correctly.
- Use critical-thinking skills appropriate to content and grade level, including problem-solving and decision-making skills.
- Organize and interpret information from a database.
- Interpret and create databases, research outlines, and visuals, including graphs, charts, timelines, and maps.

- Transfer information from statistical to written or visual forms and from written to visual forms (using computer software as appropriate).
- Locate and use a variety of primary and secondary sources to create oral, written, and visual presentations on social studies topics.
- Write an essay using historical evidence to support an argument.
- Include an annotated bibliography (works cited) in all research projects.
- Explain and apply different methods that historians use to interpret the past, including the use of primary and secondary sources, points of view, frames of reference, and historical context.

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### ***Outside of School:***

#### ***As parents, you can provide opportunities for your World History student to***

- Read a newspaper or news magazine, and discuss major world events and issues with you.
- Learn about the family's history.
- Visit historical and cultural sites.
- Visit museums, and attend cultural events.
- Watch history-oriented programs on television, and discuss them with you.

## **Economics**

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### ***Prerequisites:***

#### ***Before entering Economics, students should be able to***

- Explain the governmental policies that have influenced the economy during significant times in history.
- Identify the characteristics of the phases of the business cycle.
- Recognize how consumers and businesses exchange goods and services.
- Read and comprehend on grade level.
- Write for a variety of audiences and purposes, using on-level standard grammar, spelling, sentence structure, and punctuation.
- Use decimals, fractions, percentages, as well as charts, tables, graphs, and maps to organize and interpret information.
- Create oral, written, and visual presentations using factual information from documented research.

- Demonstrate basic computer proficiency.
- Analyze information by categorizing, exploring cause-and-effect relationships, summarizing, comparing/ contrasting, and drawing inferences and conclusions.
- Organize and interpret information from outlines, reports, and visuals.

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### ***Competencies:***

#### ***In Economics, students will***

- Explain the benefits of the free enterprise system in the United States, and compare/contrast the United States economic system to other economic systems.
- Examine how goods and services are produced, consumed, and distributed using the models of supply and demand.
- Examine the types of business ownership and the rights and responsibilities of businesses and consumers.
- Explain the interdependence of the United States economy and the world economy.
- Explain the various components of personal financial literacy.
- Evaluate the role of financial institutions, both governmental and private.
- Use on-level social studies terminology correctly.
- Use critical-thinking skills appropriate to the content and grade level, including problem-solving and decision-making skills.
- Transfer information from statistical to written or visual forms and from written to statistical forms (using computer software as appropriate).
- Locate and use a variety of primary and secondary sources to create oral, written, and visual presentations on social studies topics.
- Include an annotated bibliography (works cited) in all research projects.
- Use charts, tables, graphs, and maps to evaluate economic data.
- Create a research-based product on a contemporary economic issue such as labor rights, free trade, voucher systems for education, investing money, multinational corporations, or overseas contract workers.

***Outside of School:***

***As parents, you can provide opportunities for your Economics student to***

- Read the business section of the newspaper, and view *Wall Street Week* (on PBS) or other appropriate business weekly programs.
- Discuss personal budgeting with you, such as managing checking accounts, credit cards, budgeting expenses, and investing savings.
- Prepare personal income tax forms such as W-4 and 1040EZ.

## **Government**

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***Prerequisites:***

***Before entering Government, students should be able to***

- Name the three branches of the United States federal government.
- Explain how major historical events such as the Civil War, World Wars I and II, and the Great Depression affected public policy.
- Read and comprehend on grade level.
- Write for a variety of audiences and purposes, using on-level standard grammar, spelling, sentence structure, and punctuation.
- Use evidence to support conclusions, prove a point of view, or defend a position in an essay.
- Demonstrate basic computer proficiency.
- Locate, differentiate between, and use primary and secondary sources.
- Organize and interpret information from outlines, reports, and visuals.
- Identify points of view and bias about an issue.

***Competencies:***

***In Government, students will***

- Describe the structure, function, and powers of governments at the national, state, and local levels within the United States.
- Examine the main principles and concepts of republicanism, federalism, checks and balances, separation of powers, popular sovereignty, and individual rights.
- Analyze the process by which democratic republic forms of government evolved.

- Evaluate the impact of political parties, individuals, interest groups, and the media on public policy-making in a democratic system.
- Examine the rights and responsibilities of citizens and non-citizens in the United States.
- Study the relationship between the changing United States culture and governmental policies.
- Analyze governmental policies that influence the economy at the local, state, national, and international levels.
- Locate and use a variety of primary sources, such as the *U.S. Constitution*, *The Federalist Papers*, and landmark Supreme Court cases, and secondary sources to create oral, written, and visual presentations on the underlying principles and ideas of the *U.S. Constitution*.
- Analyze points of view and bias about various issues in United States government.
- Use on-level social studies terminology correctly.
- Use critical-thinking skills, including problem-solving and decision-making skills, to create a project on a contemporary governmental issue (using technology as appropriate).
- Transfer information from statistical to written or visual forms and from written to statistical forms (using computer software, as appropriate).

***Outside of School:***

***As parents, you can provide opportunities for your Government student to***

- Read newspapers and other news sources.
- Register to vote and to discuss any upcoming elections.
- Participate in political, school, and community activities such as attending school board meetings, assisting with community services, working in a campaign, etc.
- Discuss current political issues and events with you.
- See you perform civic duties such as voting, serving on a jury, or working on a civic committee.

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## **Additional Social Studies Courses**

*Before graduating from high school, a number of students will choose to take additional social studies courses.*

- United States History AP
- United States Government AP
- Economics AP
- Sociology
- Psychology
- Psychology AP
- Comparative Government and Politics AP
- Social Studies Research
- World Area Studies
- Street Law
- Human Geography AP

# Study Skills Checklist

## Preparing to Study

- Writing down assignments and due dates in a calendar/assignment book
- Managing time—how much and when
- Creating a study space with few distractions
- Gathering the things needed before starting to study—references, supplies
- Monitoring what works: taking notes, outlining, timelines, story maps, word webs, etc.

## Reading with a Purpose

- Using KWL—list of what you know, want to learn, and have learned
- Determining a purpose for reading
- Fitting the approach—skimming, scanning, careful reading—to the purpose
- Fitting reading speed to the purpose
- Monitoring understanding while reading
- Using strategies to correct misunderstanding/lack of understanding
- Recognizing facts and opinions
- Recognizing author’s bias
- Judging author’s credentials
- Judging relevance of material to assignment
- Recognizing propaganda techniques

## Using Textbooks & Other Resources

- Using the parts of the book: table of contents; introduction; headings and sub-headings; chapter summary; chapter/unit review questions; chapter/unit vocabulary lists; glossary; index
- Recognizing organizational patterns: chronological order; thematic; simple/complex; cause/effect; comparison/contrast
- Understanding graphics, tables, graphs, charts
- Using a map, diagram, timeline

## Learning New Vocabulary

- Using context
- Using the glossary and dictionaries
- Noting new meanings for familiar words
- Recognizing author’s techniques to highlight key words
- Using roots and affixes
- Using signs and symbols

## Gathering & Organizing Information

- Underlining key ideas
- Taking notes from text
- Outlining text
- Summarizing text
- Categorizing information
- Organizing your information
- Making a table, chart, timeline, or graph
- Listening skills
- Taking notes from lectures, presentations
- Using the online library catalogs and library classification systems
- Doing a basic Internet search for information
- Using multimedia reference materials: CD-ROMs, video discs, videotapes, CDs
- Identifying sources (quoting, writing footnotes, listing bibliographic information)

## Learning from Texts & Other Resources

- Using the SQ3R study technique
- Using a study guide
- Creating a story map, timeline, word web, matrix, database
- Using mnemonic devices

## Preparing Written Assignments

- Organizing research notes
- Answering the questions asked
- Developing an outline
- Writing a first draft
- Using tables, graphs, timelines, and other graphics as support
- Editing/proofreading draft and final versions

## Preparing for and Taking Tests

- Reviewing text, study guides, and notes
- Creating a list of potential test questions to use as a self-quiz
- Knowing key test words
- Becoming “test-wise”
- Pacing yourself during a test
- Knowing you know—developing a sense of when you know “enough”

(Source: *The Reading Teacher’s Book of Lists*, 4<sup>th</sup> ed., pp. 280-281)

# Other Ways Parents Can Help

As parents, you can support the educational process by providing your student with opportunities to

## Kindergarten

- Become independent (examples: get dressed, button, zip, fasten belt, snap, put on coat, tie shoes, etc.).
- Engage in conversation, and answer questions that require more than a yes/no answer.
- Devote less time to watching television.
- Participate in activities, and play with other children outside of school.
- Discuss schoolwork with you to review what was done well and what could be improved.

## Grade 1

- Complete homework, and show you papers sent home.
- Experience the world beyond home and school (travel, visit the library, visit local attractions).
- Develop organizational skills by arranging and sorting household items, clothing, and toys.

## Grade 2

- Develop good homework habits by providing a consistent time, supplies, a quiet area, and a designated place to put completed work.
- Review homework and returned papers.
- Maintain a calendar and organized binder.
- See that you value learning by attending school functions such as literacy events, PTO meetings, conferences, and parenting classes.
- Study in an environment that is appropriate for him or her.
- Review assignment sheets with you daily.
- Follow a morning and an evening routine to develop responsibility and time management.
- Watch educational television.

## Grade 3

- Have a specific place, free of distractions, to complete homework and check over completed homework.
- Organize his or her backpack and/or binder.

- Show you and talk to you about papers sent home.
- Have a consistent time and place to do homework.
- Let you check homework to see that it is complete.
- Show you graded work that comes home so you can talk about corrections.
- Be exposed to newspapers and magazines, read from them, and discuss the topics with you.

## Grade 4

- Talk about school activities with you. Look for opportunities to praise his or her efforts.
- Have a set-aside time and place for homework.
- Show you his or her completed homework to check for accuracy.
- Organize his or her backpack and binder.
- Participate in a variety of cultural activities.
- Share daily work, weekly checklists, and assignment sheets with you.
- Maintain an adequate stock of school supplies.

## Grade 5

- Update you regarding assignment sheets, binder, and supplies on a daily basis.
- Show you progress reports and report cards.
- Maintain a positive attitude about education.

## Grade 6

- Make homework a priority.
- Have access to supplies at home (paper, pen, scissors, markers, ruler, calculator, hole punch, poster board, index cards, folders, colored pencils, etc.).
- Attend school every day.
- Participate in the communication that occurs between you and the teacher.
- Review with you any notes, graded work, and homework on a daily basis.
- Develop time-management strategies.

## Grade 7

- Show you his or her homework and daily planner so that you can monitor important dates for assignments, tests, projects, activities, etc.
- Have a scheduled time every day for homework, studying, reading, etc.
- Help maintain open lines of communication between you and the teacher.
- Use resources for extra help and practice (tutorials, peer tutoring, tutorial Web sites).
- Go over review sheets and test corrections with you.
- Maintain an adequate quantity of supplies.
- Know that you encourage class participation.
- Show you progress reports and report cards.
- Inform you about daily lessons.

## Grade 8

- Make homework a priority.
- Meet with a study buddy.
- Attend tutorials.
- Have a regular homework time.
- Review daily notes and homework with you.
- Show you his or her assignment notebook.
- Get extra help or extra practice when necessary (drill and practice, flashcards, etc.).
- Show you test scores and review tests.
- Rely on your help when studying for tests.
- Show you progress reports.
- Share with you any information sent home.
- Receive praise for efforts.
- Know that you will communicate with the teacher immediately if there is a concern.

## Grade 9

- See that you support teachers and the school.
- Organize and schedule curricular and extracurricular tasks.
- Assume responsibility for his or her actions.
- Show you his or her homework.
- Respond to your questions and praise.
- Share important dates with you (progress reports, report cards).
- See that you value education by attending school meetings and other school functions.
- Have a regular time for homework and for sharing completed homework with you.

- Show you his or her grades, including homework, tests, progress reports, and six-weeks' grades.
- Attend tutorials.
- Have recommended supplies.
- Know that you maintain contact with teachers.

## Grade 10

- See that you support academic standards, teachers, and school functions.
- Develop time-management skills, and assume responsibility for meeting deadlines.
- Share homework with you for monitoring.
- Develop a structured study time.
- Organize his or her materials and notebook.
- Establish an excellent attendance record.
- Have necessary supplies.
- Let you know about upcoming tests and project due dates.
- Tell you what he or she learned in class.
- Attend tutorials.
- Understand the importance of taking notes, participating in class, reading the text, and completing homework assignments.

## Grade 11

- Establish a schedule in which a job does not interfere with study and homework.
- See the value of calendars, timelines, and planners
- Set long-term goals.
- Study in an environment conducive to learning.
- Attend tutorials, as needed.
- Use homework assignments as learning tools.

## Grade 12

- Value success in school.
- Set work hours so that a job does not interfere with study and homework.
- Keep a daily planner or calendar of major assignments.
- Take appropriate courses required for career choice.
- Ask for extra help as needed.
- Share important dates with you (progress reports, report cards, SAT, ACT, TASP).

# The Best School Year Yet!

These suggestions are taken from “Tips from America’s Top Teachers,” a list of suggestions offered by state winners in The National Teacher of the Year Program.

## Concentrate on Communication

- Make contact with teachers early in the school year by sending a note, stopping by, or calling.
- Establish a time for a “daily school conversation.” Go over the items inside your child’s backpack, read all notes and newsletters, and listen with an open mind.
- If there are important changes in your child’s life (a death, a divorce, or the loss of a parent’s job), inform his or her teachers.

## Establish Routines

- Routine is everything. Children need to know what to expect.
- Post a list of morning and evening routines. Backpacks and school information belong in a specific spot—dropped off on the way in from school and put back after homework’s done, ready for the next day.
- Decide on a homework plan together before school begins. When and where will homework be completed?
- A nutritious breakfast and at least eight hours of sleep increase any child’s learning potential.
- Reading regularly is the most important routine for school success.

## Parent with Patience

- Remember that no one is born knowing how to study—it is a skill. It can be taught and learned.
- Remind kids of past learning difficulties they overcame. Success is not always instant, but it will never come if students give up.
- Let your child take risks and make mistakes without fear of failing.

## Minimize Homework Hassles

- Use study bursts. Research indicates that several short study periods are more productive than one marathon session.
- Don’t do the work for kids. Set a timer and limit the number of questions they can ask you.
- Sometimes when there’s a serious problem, it’s better to have an unrelated third party take over helping with homework.

## Celebrate Learning

- Fill your home with good books, magazines, and newspapers.
- Find ways to connect what is learned in school to life. Grocery stores, recipes, and vacations all show that, yes, we *do* use what we learn in the classroom.
- Challenge your children to make “how” and “why” their two best friends. Successful students have inquisitive minds.
- Share what you learn. Let your child know that you are a lifelong learner and that the journey is wonderful.

## Show Your Support

- Send the message that you support learning by setting TV limits and insisting that homework take precedence over play.
- Join the school’s parent/teacher organization. Attend open houses, volunteer at school, take a day off from work and chaperone a field trip. Children know school is important when they see the parents participating.
- Celebrate children’s academic successes. Hang pictures on the refrigerator, frame certificates, and proudly send grandparents copies of creative writing.

(Source: “Kids’ Day: The Best School Year Yet!” *Woman’s Day* 1 Sept. 1999: 144-147.)

## Ways Parents Can Support Social Studies

These are just a few suggestions from among the hundreds of ways parents can help their children develop essential social studies and life-enhancing skills. Parents can ask teachers for more ideas.

- Tell family stories. Parents will enjoy remembering their childhood experiences, and children will gain a perspective on their own heritage.
- Encourage children to read newspapers. Read the paper and listen to news broadcasts with them. Show them that there is more to a newspaper than comics and sports. Ask the child's social studies teacher about relevant magazines, and subscribe to them.
- Visit historic sites, banks, and courthouses. These institutions can provide valuable information children can then relate to classroom instruction. Make an appointment with a political representative, and discuss current issues. Find books in the library that relate the significance of historic sites. Visit Austin and observe the state legislature in session.
- Explore the geography of backyards, local neighborhoods, and parks, and discuss it. What natural resources exist? Ask children to identify different types of animals, plants, and landforms. How do they affect human life today? Have they changed over time? How?
- Watch the weather forecast together, and chart the meteorologist's accuracy. Track the flow of low pressure systems and weather disturbances such as hurricanes, and discuss the impact of various weather phenomena on human behavior.
- Spend time in museums. Don't just walk around; discuss the objects exhibited and the information included in the labels. Find out if there are special workshops or tours, and participate in them.
- Locate and attend various cultural activities such as American Indian powwows, Cinco de Mayo celebrations, Juneteenth festivals, and Fourth of July events. Explore culture-specific cuisine found in Chinese, Cuban, Vietnamese, French, German, Italian, and Mexican restaurants. Discuss the diverse foodstuffs and diets found around the world.
- Engage children in reading maps. Allow them to help plan routes for trips to grandmother's house, the grocery store, or the school. Suggest that they keep a journal of family trips and vacations.
- Consider answering a question with a question. Help children learn the process of evaluating material and drawing their own conclusions by encouraging them to answer their own questions. Parents can then modify the conclusion, but children will have developed critical thinking skills through the process. Foster critical thinking skills by involving children in family decisions.
- Buy social studies software for the home computer. This resource is wonderful because most of the programs are interactive, allowing parents and children to pursue their own interests. There are also many computer games that teach social studies knowledge and skills. Bookmark useful social studies sites on the Internet browser.

(Source: Based on Chapter 8 of *Texas Social Studies Framework*. [Online] Available at <http://www.tea.state.tx.us/ssc/downloads/pdf/framework/Chapter8.pdf>, 1 Sept. 2005.)

# Glossary of English Language Arts Terms & Examples

The definitions and examples that follow are intended to give parents an informal understanding of terms used in language arts, reading, and English courses. These are not formal definitions taken from a textbook. Parents may want to consult this glossary, written in layman's terms, as they assist students with homework and studying.

**Adjectives** Descriptive words that modify nouns.

- The adjectives are in italics: *a pretty dress, the blue house, some fast cars, a soft chair, the seven dwarves*

**Antonyms** Words that mean the opposite of each other.

- Short and tall, old and new, nice and mean

**Brainstorming** (See: *writing process*.)

**Cause/effect** A literary device authors use so that one event in a story is directly responsible for making a later event happen.

**Character** A term for the "actors" who experience the events of a story. The author develops characters by giving details about their appearance, thoughts, and behavior.

- *Arthur* the aardvark and *Clifford* the big red dog are popular characters in children's books.

**Comparison/contrast** One way to organize a composition; the writer first shows how two things are alike, and then shows how the same two things are different.

**Composition** A term referring to students' original writing on an assigned or approved topic. Students will have opportunities to write compositions for a variety of purposes and audiences and in a variety of forms. Students will learn ways to find something to write about, ways to organize their ideas, and ways to polish their papers to the final-draft level of quality. Only selected compositions will be developed through all of the writing stages (See also: *writing process*.)

- report, essay, argument, play, poetry, description, story

**Conflict (problem)** A literary term used for the struggle of opposing forces in a story.

**Context clues** A reading strategy in which the reader figures out an unknown word by considering how it fits in with the meaning of the rest of the sentence.

**Fiction** A made-up story that comes from the writer's imagination rather than from history or fact.

- mysteries, novels, short stories

**Flashback** A literary device used by an author when, as the events of a story progress forward in time, an event from the past is inserted to give the reader additional background.

**Foreshadowing** A literary term for the hints about coming events in a story.

**Metaphor** A literary device (figure of speech) that compares two things by describing one thing as being the other.

- She's an open book. That car is a lemon.

**Mood** A literary term for the atmosphere of a story.

- The mood in mysteries is often suspenseful.

**Multiple-meaning words** Words that are spelled the same but do not mean the same thing.

- Bow: a hair ribbon, a tool for Robin Hood, or a forward-leaning position
- Blues: feeling sad, different shades of the color blue, or a kind of music

- ☞ Watch: to look at, or a timepiece worn on the wrist
- Nonfiction** A written work that is about real people, events, etc., that does not come from an author's imagination.
  - ☞ Biographies, news articles, historical documentaries, how-to books
- Note-taking** A strategy used by readers to improve understanding by pausing frequently as they read through the story, jotting down key points. Later, the reader can look back at the notes to remember more about what happened in the story.
- Personification** A literary device used when a writer gives human traits or behavior to animals, objects, etc.
  - ☞ The stately old home stood there proudly, just waiting for a new family to move in.
- Phonics** A strategy used by readers to match letters with their sounds to "sound out" a word.
  - ☞ The Spalding method is an example of a program used to teach phonics.
- Picture clues** A strategy used by beginning readers as they use illustrations as hints for understanding the meaning of the story as they read it.
- Point of view** A literary term for the position or standpoint from which an author tells a story. For example, the author may tell a story from the standpoint of the main character.
  - ☞ Mark Twain tells *The Adventures of Huckleberry Finn* as if he were Huck Finn.
- Prefix** A syllable added to the beginning of a root word. Readers can use knowledge of prefixes to sound out and understand a long word better by breaking it up into parts. (See also: *suffix* and *root word*.)
  - ☞ *inconvenient, extraordinary, undervalued*
- Prewriting** (See: *writing process*.)
- Questioning** A reading strategy calling for students to decide upon questions they want to find answers to in their reading. This strategy is used after previewing the reading material.
- Re-reading** A reading strategy in which the reader, after reading a sentence or passage the first time, reads it again to get a better understanding of its meaning.
- Root word** Also called **base word**. The part of the word that remains when the prefixes and suffixes are removed. A reader uses knowledge of roots to break a long word into parts to understand it better.
  - ☞ *unstoppable, dehumanized, prorated*
- Roots, Greek and Latin** A reading strategy in which the reader gains deeper understanding of a word by considering what that word meant in its original language, Greek or Latin.
  - ☞ The Latin root *trans* means "across or through." Knowing this would help the reader understand related words like *transparent, transportation, transpose, transcontinental, transaction, translate, transient*, etc.
- Setting** A literary term for the time and place of a story, including historical context, weather conditions, descriptions of buildings, etc.
  - ☞ Various aspects of setting in *Gone With the Wind* follow: the southern United States, the Civil War era, Tara plantation, an Atlanta hospital, etc.
- Short vowel** The letters a, e, i, o, and u, pronounced as follows: a as in "cat", e as in "bed", i as in "rig", o as in "hop", and u as in "nut".
- Simile** A literary device (figure of speech) that makes a comparison between two things using a phrase that includes the words *like* or *as*.
  - ☞ Fresh as a daisy, cool as a cucumber, run like the wind
- Solution** A literary term for the outcome of a story, the way the story's problem was solved. (See also: *conflict*.)
- Style** The particular way a writer expresses himself, distinguishing him from all other writers.

**Subject-verb agreement** A verb must agree with its subject in person and number.

**Suffixes** A syllable added to the end of a root word. Readers can use knowledge of suffixes to sound out and understand a long word better by breaking it up into parts. (See also: prefix and root word.)

- *amusement, beautiful, correction*

**Summarizing** A reading strategy used when a reader checks for understanding by finding the main idea of a sentence, passage, or story.

**Syllables** An oral reading strategy used when the reader divides the word into its parts in order to pronounce it.

**Symbolism** A literary device in which an author uses one object to represent or suggest another.

- An elephant symbolizes the Republican party.

**Synonyms** Words that have the same meaning.

- car and automobile, sofa and couch, rock and stone

**Tone** A literary term for an author's attitude toward his subject.

- Mark Twain's tone in *Tom Sawyer* is comic.

**Verbs** Words that tell what is happening.

- run, look, be, imagine, seem, go

**Word parts** A term used for prefixes, suffixes, compound words, syllables, and base words.

**Writing process** The steps writers use to create their products. The writer will repeat steps as needed. The steps are described below:

- **Brainstorming** The first part of the writing process, when the writer thinks about the topic or assignment, and then spends time being creative while jotting down all the ideas and possibilities that come to mind.
- **Prewriting** The part of the writing process when writer selects some of the ideas and arranges them in groups or in a sequence to form a sketchy overview of the composition. The writer cuts out extra information and looks for gaps to fill. For an informative paper, research would be part of this stage.
- **Writing a rough draft** The step in the process when the writer takes the ideas from the previous stages to develop a composition.
- **Revising** The step in the process when the writer makes changes in the content of the rough draft. Other changes may be needed related to organization, additional details, transition, sentence structure, and word choice.
- **Editing** The writer proofreads for grammar, mechanics, and spelling to produce a final draft.
- **Completing a final draft** The writer produces a polished, error-free copy of the composition that is legible and visually appealing.
- **Publishing** The writer submits the final draft to an audience: the teacher, the school's literary magazine, another magazine that features student writing, the judges in a competition, etc.

# Mathematics in Cypress-Fairbanks

As students learn mathematics, they will be expected to reason mathematically, use problem-solving strategies, communicate processes and results, and make connections between math ideas and between math and the real world. Students' math experiences should reach beyond sets of arithmetic problems, equations to solve, bare formulas, and paper-and-pencil drills. This work has its place as students practice, but should not dominate math class time. When students develop a solid understanding of an idea, practice reinforces the skill.

Beyond the standard program of number concepts and operations, the curriculum includes serious investigation of geometry, measurement, statistics, probability, algebra, and functions.

As students explore these topics, they should encounter, develop, and use mathematical ideas and skills in the context of genuine problems and situations. Students must know and be able to decide when to estimate, calculate mentally, and use resources and tools such as calculators and computers.

Students will achieve a deeper understanding by doing hands-on activities to solve problems, drawing pictures to represent situations, and using comparisons or case studies to look at how situations are similar. As they work to solve problems, they will engage in discussion to discover patterns and relationships, confirm findings, and use results to make predictions. Students will do this individually, in small groups, and as a whole class. Studying math in this way will prepare students to be successful in more advanced math classes and in the workplace.

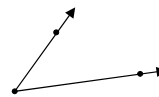
## Glossary of Mathematics Terms & Examples

The definitions and examples that follow are intended to give parents an informal understanding of math terms. These are not formal definitions taken from a textbook. Parents may want to consult this glossary, written in layman's terms, as they assist students with homework and studying.

**Addends** Numbers that are being added. (See also: *sum*.)

☞ In this equation, 3 and 4 are addends and 7 is the sum:  $3 + 4 = 7$

**Angle** Geometric figure formed by two rays that share the same endpoint.



**Area** Measurement of the surface inside a plane (flat) figure. The answer is in square units.

☞  $4 \text{ in}^2$      $3 \text{ ft}^2$      $120 \text{ cm}^2$      $38 \text{ yd}^2$

**Best-fit line** An equation that describes the line that is the best match for a scatter plot.

**Big Q** One example of a graphic organizer used in elementary mathematics.

(See also: *Four-step Problem-solving Process*.) To see a "Frequently Asked Questions" site about the Big Q, visit <http://www.cfid.net/dept2/curricu/bigq/faq.htm>.

**Cartesian Coordinate System** Formal name for the coordinate grid. (See also: *coordinate grid*.)

**Central tendencies** The mean, median, and mode, which are different ways to describe how data is related. (See also: *mean, median, mode*.)

**Circumference** The *perimeter* of a circle. There are two ways to find it:

☞ Multiply pi (3.14) times the diameter     $C = \pi d$

☞ Multiply pi times twice the radius     $C = 2\pi r$

**Common denominator** Addition and subtraction of fractions requires that the bottom number (denominator) of each fraction be the same.

- In this example, the *common denominator* is 6:

For the problem  $\frac{1}{2} + \frac{1}{3}$ ,

the  $\frac{1}{2}$  can be rewritten as  $\frac{3}{6}$ , and the  $\frac{1}{3}$  can be rewritten as  $\frac{2}{6}$ .

Now that the bottom number (denominator) is the same (common), the fractions can be added together so that  $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$ .

**Common factors** Used to reduce fractions. Look for a number that divides evenly into both the numerator (top) and the denominator (bottom) of a fraction.

- The factors of 10 are 1, 2,  $\boxed{5}$ , and 10. The factors of 15 are 1, 3,  $\boxed{5}$ , and 15. 5 is a *common factor* of 10 and 15.

- To reduce the fraction  $\frac{12}{15}$ , use 3 as a *common factor* of 12 and of 15, and divide it into both top and bottom:  $\frac{12 \div 3}{15 \div 3} = \frac{4}{5}$ .

**Common multiple** A multiple is the answer to a multiplication problem.

- 10 is a multiple of 5 because  $2 \times 5 = 10$ .
- 24 is a *common multiple* of 6 and 8 because  $3 \times 8 = 24$  and  $4 \times 6 = 24$ .

**Composite number** A number greater than zero that has more than two different factors. (See also: *prime number*.)

- The number nine is a *composite number* because it has three factors: 1, 3, and 9.

**Congruent** Geometry figures that have the same size and shape.

**Conic section** A cross-section of a cone, formed when a plane intersects the cone.

- Circles, ellipses, parabolas, hyperbolas

**Coordinate grid (coordinate plane)** A four-quadrant graphing plane. It is formed by the horizontal x-axis and the vertical y-axis. The point where the axes intersect is called the origin, which has the ordered pair (0,0). (See also: quadrants and ordered pairs.)

**Deductive reasoning** Reasoning beginning with a rule or theorem that is then applied to a specific problem or example. (See also: *inductive reasoning*.)

**Denominator** The bottom number of a fraction. It describes the total number of parts that a whole or a group is divided into. (See also: *numerator*.)

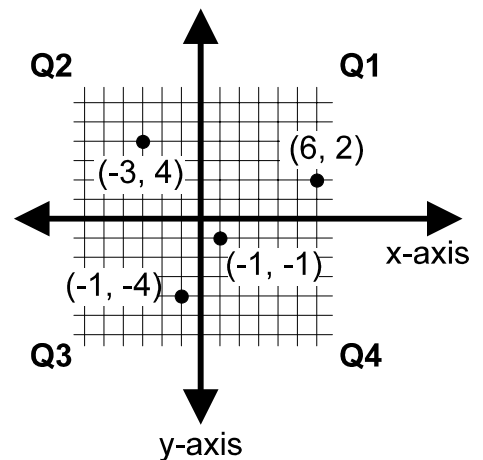
- In the fraction  $\frac{1}{3}$ , the denominator is 3.

**Dependent events** Two or more actions that affect the results of each other. They are involved with calculating probability.

- Drawing socks out of a drawer without replacing them.
- Drawing cards from a deck without replacing them.

**Difference** Answer to a subtraction problem. (See also: *minuend*.)

- In the equation the difference is 7:  $10 - 3 = 7$



- Direct variation** A dependent relationship where the two quantities both increase or both decrease. The result is a line with a positive slope. (See also: *slope*.)
- Distributive property** Multiplication over addition/subtraction. The number outside the parentheses has to be multiplied by every term within the parentheses.
- ☞  $2(x + 3) = 2x + 6$
  - ☞  $-3x(x^2 - 2x + 1) = -3x^3 + 6x^2 - 3x$
- Dividend** The number in a division problem that is being divided into. (See also: *divisor* and *quotient*.) Written as:
- $$\begin{array}{r} \text{quotient} \\ \text{divisor} \overline{) \text{dividend}} \end{array} \quad \text{or} \quad \text{dividend} \div \text{divisor} = \text{quotient}$$
- ☞ In these equations, 100 is the dividend:  $4 \overline{)100} \begin{array}{r} 25 \\ \end{array}$  or  $100 \div 4 = 25$
- Divisor** The number in a division problem that is being divided into another. (See also: *dividend* and *quotient*.)
- ☞ In these equations, 4 is the divisor:  $4 \overline{)100} \begin{array}{r} 25 \\ \end{array}$  or  $100 \div 4 = 25$
- Domain** The set or collection of all the x-values from a graph, table, or equation. (See also: *range*.)
- Edge** The line segment where two faces of a solid figure meet.
- ☞ A cube has 12 edges.
- Equivalent ratio** Fractions, usually in a word problem.
- ☞  $\frac{5 \text{ boys}}{25 \text{ students}} = \frac{1 \text{ boy}}{5 \text{ students}}$
- Euclidean** Geometry based on the principles of Euclid, who was a mathematician in ancient Greece. It is based on points, lines, and planes.
- Expanded form** A number written as a sum so that each digit's place value is expressed.
- ☞  $34,521 = 30,000 + 4,000 + 500 + 20 + 1$
- Exponent** A small raised number that tells how many times the base (its big number) is used as a factor. Also called a "power."
- ☞ In this equation, 3 is the exponent and 4 is the base:  $4^3 = 4 \times 4 \times 4$
- Face** A flat surface on a solid figure.
- ☞ A cube has six faces.
- Fact family** Addition/subtraction or multiplication/division math sentences that are related and use the same three numbers.
- ☞ An add/subtract family:  $2 + 3 = 5$      $3 + 2 = 5$      $5 - 3 = 2$      $5 - 2 = 3$
  - ☞ A multiply/divide family:  $4 \times 3 = 12$      $3 \times 4 = 12$      $12 \div 3 = 4$      $12 \div 4 = 3$
- Factors** Numbers that are multiplied together to get an answer called the product.
- ☞ In this equation, 3 and 5 are factors, and 15 is the product:  $3 \times 5 = 15$
- Four-step Problem-solving Process** A problem-solving method used for word problems, when reading comprehension must be combined with math skills. The student uses a graphic organizer—either Big Q, window pane, or list—to complete the four parts of the process. Using this routine consistently throughout the elementary years will help the process become automatic for students. Successful problem-solvers are those students who take enough time to generate ideas and solutions, analyze all the information, and decide on what strategies are needed to solve the problem.

The four steps in the process, as follows, may be performed in whatever sequence is most meaningful to the learner:

- **Question: Main Idea?** In this step, the student is a reader, a thinker, and an analyzer. First, the student reads over the problem and finds any proper nouns (capitalized words). If unusual names of people or places cause confusion, the student may substitute a familiar name and see if the question now makes sense. It may help the student to re-read the problem, summarize the problem, or visualize what is happening. The student needs to ask, “What is the main idea in the question of this problem?” When the student identifies the main idea, he or she should write it down.
- **Details** The student reads the problem again, sentence by sentence, slowly and carefully. The student identifies and records any details. The student looks for extra information—facts in the reading that do not figure into the answer. In this step, the student should also look for hidden numbers, which may be suggested but not clearly expressed. (example: The problem may refer to “Frank and his three friends.” For working the problem, the student needs to understand that there are actually four people, even though “four” or “4” is not mentioned in the reading.)  
The student asks, “What are the details needed to answer the question?”
- **Strategy** The student chooses a math strategy to find a solution to the problem. Strategies may include acting out the situation, drawing a picture, looking for a pattern, using “action words” to write a number sentence (+, -, x, ÷), making a table or list, or using the answer choices.
- **How?** To make sure that their answer is reasonable and that they understand the process clearly, students answer one of the following “How?” questions.
  - “How do I know this answer is correct?”
  - “How did I solve this problem?”
  - “How can the answer be used in a complete sentence?”
  - “How can I solve this problem using a different strategy?”

**Function** A dependent relationship where there is only one result for each entry. It can be expressed as a graph, a table, or in words and sentences.

- Some types of functions are: linear, quadratic, non-linear.

**Graphing calculator** Technology that shows graphs, gives the number list, and displays the equations of a function. It also performs many other calculations and operations.

**Histogram** Type of bar graph that shows the exact number (not an equivalent percentage) of items measured.

**Independent event** Two or more actions that have no cause-and-effect relationship to each other. When one happens, it does not affect the probability of the other one happening.

- The Rockets and the Astros both win their game Tuesday night.
- Drawing a sock out of a drawer and replacing the sock before a second draw.

**Inductive reasoning** Reasoning that begins with a list of examples or data that is used to write a rule, generalization, or theorem.

**Integers** The set of all positive numbers, negative numbers, and zero, not including fractions and decimals.

- ... -3, -2, -1, 0, 1, 2, 3 ...

**Inverse** An operation or function that undoes another.

- Addition and subtraction are inverse operations.
- Squaring a number and finding the square root of a number are inverse functions.

**Irrational number** A number that cannot be written as a fraction or decimal that stops or repeats.

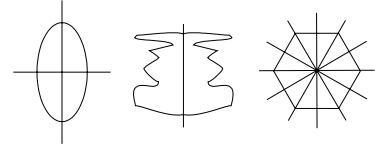
☞  $\pi$  (pi)                       $\sqrt{2}$                       e (base for a natural logarithm)                       $\sqrt{30}$

**Least common multiple (LCM)** The lowest number that is a multiple of two or more given numbers. (See also: *common multiple*.) One use of the least common multiple is finding the least *common denominator* (LCD) in addition or subtraction of fractions.

☞ Find the least common multiple (LCM) of 4 and 6.

$1 \times 4 = 4$	$1 \times 6 = 6$	The LCM of 4 and 6 is 12.
$2 \times 4 = 8$	$2 \times 6 = \boxed{12}$	
$3 \times 4 = \boxed{12}$		

**Lines of symmetry** A fold line through a figure such that the figure matches or folds onto itself. A figure may have more than one line of symmetry.



**Logarithm** The inverse of the exponential function.  $\text{Log}_{\text{base}} \text{answer} = \text{exponent (power)}$

☞ If the exponential function is  $2^3 = 8$   
then the logarithm is  $\log_2 8 = 3$

**Mean** The arithmetic average, obtained by adding all items together and dividing by the total number of items.

☞ Find the mean of 80, 80, and 86:

$80 + 80 + 86 = 246$                        $246 \div 3 = 82$                       The mean is 82.

**Median** The middle number in a list of numbers when they are arranged in order from least to greatest.

☞ If the list has an odd amount of items, just choose the middle number.

70, 80,  $\boxed{84}$ , 90, 100

☞ If the list has an even amount of items, take an average of the two middle numbers.

70, 80,  $\boxed{84, 86}$ , 90, 100

$84 + 86 = 170$                        $170 \div 2 = 85$                       The median is 85.

**Minuend** The number from which another is subtracted.

☞ In this equation, 40 is the minuend, 12 is the subtrahend, and 28 is the difference:

$40 - 12 = 28$

**Mixed number** A whole number and a fraction.

☞  $1\frac{1}{2}$ ,  $4\frac{2}{3}$

**Mode** The number that occurs most often in a list of numbers.

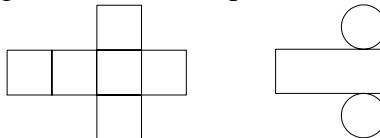
**Multiples** Answers to multiplication problems where one factor stays the same.

☞ 2, 4, 6, 8, etc. are multiples of 2

☞ 5, 10, 15, 20, etc. are multiples of 5

**Net** A two-dimensional (flat) design that will fold up to make a three-dimensional solid figure.

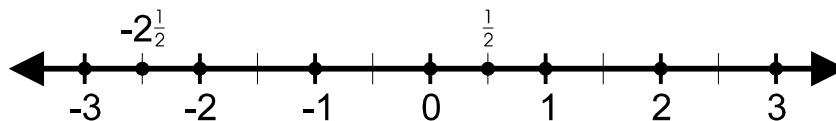
☞ Nets for a cube and a cylinder:



**non-Euclidean** Geometry based on principles not authored by Euclid. (See also: *Euclidean*.)

☞ geometry on a sphere, where lines are circles like longitude and latitude on a globe

**Number line** A horizontal or vertical line with marks that indicate units.



**Numerator** The top of a fraction, which indicates the number of parts being considered.

- ☞ In the fraction  $\frac{2}{3}$ , the numerator is 2. The whole is divided into 3 equal parts, and 2 of them are being considered.

**Order of operations** The order in which operations are dealt with when more than one operation is present. Work inside parentheses first, then work exponents, then perform multiplication and division together in order from left to right, and finally add and subtract together in order from left to right.

**Ordered pairs** Two numbers that give the location of a point. The two numbers are separated by a comma and enclosed within parentheses. The first number tells the point's position in relation to the x-axis and the second number tells the point's position in relation to the y-axis.

- ☞ See *coordinate plane* for examples of ordered pairs.

**Parallel lines** Lines that lie in the same plane and do not intersect.

**Perimeter** The distance around the outside of a figure.

**Perpendicular lines** Lines that intersect to form right or  $90^\circ$  angles.

**Pi** This Greek letter is used in formulas that deal with circles and spheres. It is pronounced "pie" and is written with this symbol:  $\pi$ . Its value is usually rounded off to 3.14.

**Polygon** A closed figure of three or more sides whose sides are line segments.

- ☞ Triangle, quadrilateral, pentagon, hexagon, etc.

**Polynomial** A math expression containing variables and exponents connected by addition and subtraction

- ☞ These are polynomials:  $3x^2 - 4x + 2$  or  $-\frac{2}{3}x^4y - 11y^2 - 9x + 2$

These are not polynomials:  $\frac{3x^2 - 5}{2x}$  or  $3\sqrt{x} + 1$

**Prime factors** Factors of a number such that each factor is a prime number.

- ☞ Prime factors of 12 are  $2 \times 2 \times 3$ . Prime factors of 15 are  $3 \times 5$ .

**Prime number** A whole number (greater than or equal to 2) whose only factors are 1 and the number itself. (See also: *composite number*.)

- ☞ 2, 3, 5, 7, 11, 13, 17, 19, 23...

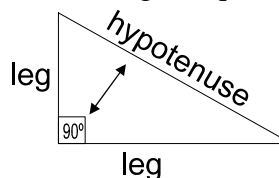
**Probability** A fraction that describes the chance or likelihood that an event will occur.

- ☞ The probability of tossing a coin and getting "heads" is  $\frac{1}{2}$ , or one out of two.

**Proportion** An equation stating that two ratios or fractions are equal.

**Pythagorean Theorem** In a right triangle (a triangle having one  $90^\circ$  angle), the square of the length of the hypotenuse (the side across from the  $90^\circ$  angle) equals the sum of the squares of the lengths of the legs:

$$(\text{one leg})^2 + (\text{other leg})^2 = (\text{hypotenuse})^2$$



**Quadrants** The 4 sections into which the X and Y axes divide the *coordinate plane*.

- Quadrant 1 is the upper right, Quadrant 2 is the upper left, Quadrant 3 is the lower left, and Quadrant 4 is the lower right.

**Quadrilateral** A four-sided, closed, plane figure. A four-sided polygon.

- Square, rectangle, trapezoid, rhombus

**Quotient** The answer to a division problem.

$$\begin{array}{r} \text{quotient} \\ \text{divisor} \overline{) \text{dividend}} \end{array} \quad \text{or} \quad \text{dividend} \div \text{divisor} = \text{quotient}$$

- In these equations, 10 is the quotient:  $5 \overline{) 50}$  or  $50 \div 5 = 10$

**Radical** The symbol  $\sqrt{\quad}$ , which indicates that a root will be taken.

- $\sqrt{25} = 5$  because  $5 \times 5 = 25$        $\sqrt[3]{27} = 3$  because  $3 \times 3 \times 3 = 27$

**Range** The set or collection of all the y-values from a graph, table, or equation. (See also: *domain*.)

**Ratio** A fraction, usually with units or words attached.

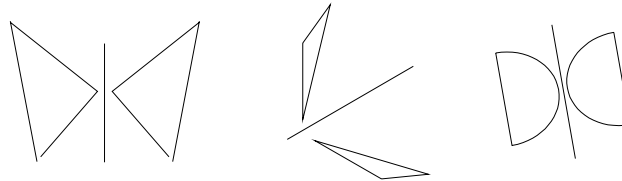
- $\frac{1 \text{ boy}}{5 \text{ students}}$

**Rational number** A number that can be written as a fraction or as a decimal that repeats or stops.

- $\frac{1}{2}$       .25       $\overline{.3}$

**Reflection (“flip”)** The mirror image of a figure with respect to a given line.

➤



**Regrouping (carrying and borrowing)**

- For whole numbers, an addition problem may require that you “carry” part of a number up to the next place value. A subtraction problem may require that you “borrow” from the next higher place value. Both of these are examples of regrouping.

$$\begin{array}{r} \phantom{0} \phantom{0} \\ 489 \\ + 167 \\ \hline 656 \end{array} \quad \begin{array}{r} \phantom{0} \phantom{0} \\ 372 \\ - 219 \\ \hline 153 \end{array}$$

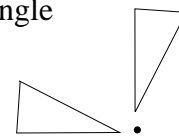
- For fractions, regrouping is rewriting a whole number as a fraction or a fraction as a whole number when adding or subtracting fractions. In this example, 4 is regrouped as  $3 \frac{8}{8}$ .

$$\begin{array}{r} 4 \\ - 2 \frac{3}{8} \\ \hline 1 \frac{5}{8} \end{array} = \begin{array}{r} 3 \frac{8}{8} \\ - 2 \frac{3}{8} \\ \hline 1 \frac{5}{8} \end{array}$$

**Relation** A set of ordered pairs.

**Rotation (“spin”)** The movement of a figure with respect to a point and an angle measure.

- This triangle has been rotated 90 degrees, with the point as the center of the rotation.



**Scaling** Number that tells the amount of reduction or enlargement.

**Scatter plot** Data points plotted on a coordinate plane.

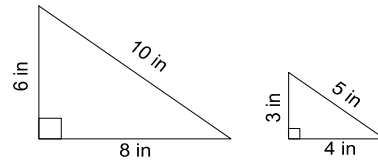
**Scientific notation** A method of writing very large and very small numbers as the product of a number with one-digit (other than zero) to the left of the decimal and 10 raised to a power.

➤  $43,800 = 4.38 \times 10^4$        $.0386 = 3.86 \times 10^{-2}$

**Similar** Geometric figures whose matching side lengths reduce to the same fraction.

➤ The triangles shown are similar because

$$\frac{6}{3} = \frac{8}{4} = \frac{10}{5} = 2$$



**Skip-counting** Counting by increments other than one.

- Skip-counting by twos: 2, 4, 6, 8, 10, 12 ...
- Skip-counting by fives: 5, 10, 15, 20, 25 ...

**Slope** Rate of change, shown by a straight line on a coordinate grid. A line’s slope tells its position: flat, slightly diagonal, very diagonal, or completely upright.

Calculated as  $\frac{\text{rise (vertical change or difference)}}{\text{run (horizontal change or difference)}}$ .

**Square of a number** A number multiplied by itself. Noted by a small raised two.

➤  $5^2 = 5 \times 5 = 25$        $3^2 = 3 \times 3 = 9$

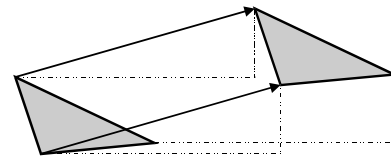
**Square root of a number** Opposite of squaring a number. Noted with this symbol:  $\sqrt{\quad}$

➤  $\sqrt{25} = 5$        $\sqrt{9} = 3$

**Sum** The answer to an addition problem.  
(See also: *addends*.)

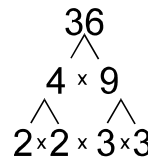
➤ In this equation, 7 is the sum:  $3 + 4 = 7$

**Translation (“slide”)** The movement of a figure by a given vertical and horizontal distance.



**Tree diagram** A method of finding the prime factors of a number. (See also: *prime factors*.)

➤ This example shows how to use a tree diagram to find the prime factors of 36.



**Units of measurement**

- Customary: inches, feet, yards, gallons, cups, pounds, ounces
- Metric: millimeters, centimeters, meters, kilometers, liters, grams, kilograms

**Variable** A symbol, a letter of the alphabet, used to represent a number or an unknown value.

**Vertex (pl. vertices)** The point where lines or edges intersect.

- The vertex of an angle (its “point”) is where the two line segments, lines, or rays meet.
- The vertices of a solid (its “corners”) occur where three or more faces intersect.
- The vertex of a cone is its tip.

**Volume** A measurement that tells how much space (three-dimensional) an object occupies. It is described in cubic units.

➤  $47 \text{ in}^3$        $2 \text{ yd}^3$        $100 \text{ cm}^3$

# Glossary of Science Terms & Examples

The definitions and examples that follow are intended to give parents an informal understanding of science terms. They are not formal definitions taken from a textbook. Parents may want to consult this glossary, written in layman's terms, as they assist students with homework and studying.

- Abstinence** Choosing not to be sexually active.
- Acceleration** A change in velocity divided by the time interval over which it occurred; caused by an unbalanced force.
- Acid** A substance that produces hydrogen ions in solution.
- Atom** The smallest possible unit of an element.
- Base** A substance that produces hydroxide ions in solution.
- Chemical property** Characteristic that determines how a substance reacts with other substances.
- Circuit** Path that electrons follow from the electrical source to the load.
- Parallel circuit** A circuit that has two or more paths for the electric current to flow.
- Series circuit** A circuit in which an electric current flows through each component, one after the other.
- Climate** Pattern of weather in an area.
- Colligative property** A property of solutions; depends only on the number of particles present without regard to type.
- Compound** A substance composed of atoms or ions of two or more elements.
- Conservation** Using less of a resource so that it will not be depleted as quickly. Choosing to ration the consumption of resources.
- ➔ Carpooling promotes *conservation* of fuel. Operating lawn sprinklers less frequently helps *conserve* water during times of drought. Setting the thermostat a few degrees higher is a way to *conserve* energy.
- Conserved properties (conservation)** A property (like energy or momentum) that is the same before and after an interaction.
- Control** The part of an equation, experiment, or data that remains the same. In an investigation, changes can be measured by comparing a variable against the control. (See also: *variables*.)
- Cycle** A continuing sequence of events with no real beginning or ending.
- ➔ water cycle, rock cycle, nitrogen cycle, moon phases
- Density** How much mass is in a certain volume of matter.
- ➔  $D = m/v$  is the formula. Density equals mass divided by volume.
- Dichotomous key** A tool used to classify plants and animals by selecting between two alternatives at each step.
- Dimensional analysis** A problem-solving strategy which provides a logical method of finding solutions with the appropriate units (or labels).
- ➔ How many milliliters are in two quarts?  

$$\frac{2 \cancel{\text{qt}}}{1} \times \frac{\cancel{1\text{L}}}{1.06 \cancel{\text{qt}}} \times \frac{1000 \text{ mL}}{\cancel{1\text{L}}} = 1889 \text{ mL}$$
- Ecology** The study of living things and their interactions in an environment.
- Ecosystem** A combination of all of the living and nonliving factors in a specific environment.

- Electromagnetic wave** A wave consisting of changing electric and magnetic fields; moves at the speed of light.
- Electron configuration** A symbolic expression indicating electron location.  
 ☞ The electron configuration for oxygen is  $1s^2 2s^2 2p^4$ .
- Element** Substance in which all the atoms in a sample are alike.
- Energy** The ability to do work.
- Environment** Everything that surrounds a living thing.
- Equation** A symbolic expression representing a change.
- Equilibrium** A state of balance in a system.
- Evolution** The theory that changes in populations over time are a result of natural selection.
- Extinction** Destruction of a species.
- Force** A push or a pull.
- Frame of reference** A coordinate system used to define motion.
- Genetics** The study of how traits are passed on to offspring.
- Geologic time scale** A chart of Earth's history showing events, time units, and ages.
- Graphical analysis** (1) Analyzing graphs to find relationships between variables, fitting curves, and writing the equation of the curve. (2) *Graphical Analysis* A computer software program used to graph and analyze data.
- Ground water** Water that soaks into the ground and collects in the pore spaces between particles of rock and soil.
- Heat** A form of energy associated with the motion and kinetic energy of matter.
- Homeostasis** An internal balance system of a living thing with its environment.
- Hypothesis** (See *investigation*.)
- Inertia** The tendency of an object to resist any change in its motion.
- Invertebrate** An animal that has no backbone (see also: vertebrate).
- Investigation** A process used to solve a problem or test a hypothesis (see also: scientific process). The investigator will do activities such as the following:  
 ☞ classify things (See also: *taxonomy* and *dichotomous key*.)  
 ☞ observe characteristics and changes (See also: *qualitative* and *quantitative*.)  
 ☞ take measurements (See also: metric system.)  
 ☞ draw inferences and conclusions  
 ☞ perform experiments
- Issue** A matter about which two or more parties do not agree.
- Kingdom** The broadest taxonomic group. Scientists classify living things into one of five kingdoms: Plants, Animals, Fungi, Monerans, or Protists (see also: *Moneran* and *Protist*).
- Latitude** Imaginary lines on a map or globe measuring north and south from the equator; expressed in degrees.
- Longitude** Imaginary lines on a map or globe measuring east and west; expressed in degrees.
- Machine** A device that makes work easier by changing the size of the force and/or the direction of the force applied to it.
- Magnetism** The force around a magnet that causes it to attract iron and steel.
- Mass** The amount of material that an object has in it.
- Mechanical wave** A wave consisting of periodic motion of matter such as a sound wave or a water wave, as opposed to an electromagnetic wave.
- Metabolic processes** The sum of all chemical processes that occur in a living thing.

<b>Metric system</b>	A standard of measurement used in the scientific community.
<b>Units</b>	Some basic units follow:
☞	gram, for measuring mass
☞	meter, for measuring length or distance
☞	liter, for measuring volume or capacity
☞	degrees Celsius, for measuring temperature
<b>Prefixes</b>	Some commonly-used prefixes follow:
☞ kilo-	x 1000                      A <u>kilogram</u> is 1000 grams.
☞ centi-	x $\frac{1}{100}$ One meter is made up of 100 <u>centimeters</u> .
☞ milli-	x $\frac{1}{1000}$ One liter is made up of 1000 <u>milliliters</u> .
<b>Mineral</b>	A naturally-occurring, nonliving solid with a definite structure and chemical composition.
<b>Moneran</b>	The bacteria or blue-green algae which are placed in the primitive kingdom Monera.
<b>Motion</b>	A change in position.
<b>Nonrenewable energy resource</b>	Energy resources (coal, oil, and natural gas) that we are using up faster than natural processes can replace them.
<b>Organism</b>	A living thing made up of a cell or cells.
<b>Periodic table</b>	A table of the elements arranged according to repeated changes in properties.
<b>Plate tectonics</b>	The theory that Earth's crust and upper mantle exist in sections called plates and that these plates slowly move around on the mantle.
<b>Protist</b>	A one-celled organism (such as a paramecium or euglena) found in the kingdom Protista.
<b>Qualitative</b>	An observation made using the senses.
<b>Quantitative</b>	An observation made using measurements such as length, temperature, time, etc.
<b>Rate</b>	A change over time.
<b>Reaction rate</b>	In a chemical reaction, the rate of the disappearance of a reactant or the rate of appearance of a product.
<b>Recycling</b>	A way to reduce trash by using items again or by changing used items into materials that can be used again.
☞	Paper, glass, and metals can be recycled.
<b>Renewable energy resources</b>	Energy resources (sun, wind, and water power) that are constantly being replenished.
<b>Rock cycle</b>	The process by which, over many years, earth materials change back and forth among magma, igneous rocks, sedimentary rocks, and metamorphic rocks.
<b>Scientific calculator</b>	A calculator capable of performing basic arithmetic, square roots, trigonometric functions, and scientific notation.
<b>Scientific notation</b>	A way of rewriting a large number so that it is expressed as a single-digit number multiplied by a power of 10.
☞	<u>1,000,000</u> written in scientific notation is <u><math>1 \times 10^6</math></u>
<b>Scientific process</b>	A series of tasks that scientists perform when trying to find solutions to problems. The scientific process is a cycle, so any step could be the beginning. Steps are repeated as needed. (Note that elementary students learn a simplified format that names only the following four parts: Problem, Hypothesis, Investigation, and Conclusion.)
<b>Identify problem</b>	Decide upon a question that needs to be answered.
<b>Make observations</b>	Record characteristics, notice reactions, take measurements, etc.
<b>State hypothesis</b>	Propose a likely answer to the question.

- Test hypothesis** Conduct investigations to test the hypothesis (see also: *investigation*).
- Collect data** Record the information gathered during the investigation.
- Study data** Organize the data into charts, graphs, etc., to improve understanding of the information.
- Make conclusions** Was the hypothesis correct or incorrect?
- Significant figures** Reliable digits in a measurement; the number of decimal places.
- Simple machine** A machine made of only one or two parts.
- ☞ lever, inclined plane, wedge, screw, wheel and axle, pulley
- Solubility** The quantity of a solute that will dissolve in a specified amount of solvent (see also: *solution*).
- Solution** A substance that is uniformly distributed at the molecular level.
- ☞ For a solution of sugar in water, the molecules of sugar (the *solute*) are dispersed uniformly among the molecules of water (the *solvent*).
- Subatomic particles** Components of an atom.
- ☞ Protons, found in the atom's nucleus, have a positive charge.
  - ☞ Neutrons, found in the atom's nucleus, have no charge.
  - ☞ Electrons, found orbiting the atom's nucleus, have a negative charge.
- Synthesis** Putting together.
- System** Many parts working and interacting together for a common purpose.
- Taxonomy** A system for classifying living things according to similarities. Kingdoms are the largest taxonomic groups (see also: *kingdom*). Species are one of the smallest taxonomic groups.
- Temperature** A measure of the average kinetic energy of the particles that make up a sample of matter. As an object's particles move faster, its temperature rises, and, as an object's particles move slower, its temperature falls.
- Topographic map** A map that uses contour lines to show the varying elevations of Earth's surface.
- Topography** Mapping by showing features with their relative positions and elevations.
- Tsunami** An unusually large ocean wave caused by an earthquake.
- Universal solvent** A term used to describe water, which, due to the structure of its molecules, is able to dissolve a great number of substances.
- Variable** Something that changes in an experiment (see also: *control*).
- Independent variable** The factor which is changed by the experimenter.
- Dependent variable** The factor whose value changes because of changes in the independent variable.
- ☞ Under what light conditions do ferns grow best?  
Independent variable = lighting conditions  
Dependent variable = fern growth
- Vector** A quantity having both magnitude (size) and direction.
- Vertebrate** An animal that has a backbone (see also: *invertebrate*).
- Water cycle** The continual worldwide movement of water evaporating, condensing, precipitating, running off the land, and evaporating again.
- Watershed** The area which drains a body of water.
- ☞ The watershed of Cypress Creek would be the area which may be covered with water as the creek flows at varying levels.
- Weathering** The breaking of rocks into smaller pieces, either mechanically or chemically.
- Work** The transfer of energy through motion:  $\text{work} = \text{force} \times \text{distance}$ . Work is accomplished only when force produces motion in the direction of the force. Work is measured in units called *joules*.

# Glossary of Social Studies Terms & Examples

The definitions and examples that follow are intended to give parents an informal understanding of terms used in social studies courses. They are not formal definitions taken from a textbook. Parents may want to consult this glossary, written in layman's terms, as they assist students with homework and studying.

- Anthems** Songs of praise or gladness are called anthems. Most states and nations adopt a patriotic song celebrating their people and accomplishments as the state or national anthem.
- “Texas, Our Texas” is the Texas anthem.
  - “The Star Spangled Banner” is the United States national anthem.
- Bias** Anything tending to influence one in a particular direction; a determining influence.
- Branches of government** The United States federal government is divided into three departments, called “branches.”
- The Legislative Branch: Congress has the job of enacting laws.
  - The Executive Branch: The President is responsible for enforcing the laws.
  - The Judicial Branch: The court system, headed by the Supreme Court, interprets laws to make sure that modern-day application of the laws still adheres to the *U.S. Constitution*.
- Business cycle** Changes in the unemployment rate and the level of production of goods and services in the United States. The four phases of the business cycle are expansion, recession, depression, and recovery.
- Cardinal directions** North, south, east, and west are the primary points on the compass. (See also: *intermediate directions*.)
- Citizen** A person who has certain rights within a country, state, city, etc.
- Community services** Actions taken to benefit the health and well-being of the community, subdivision, school, religious group, or other affiliation.
- Critical thinking skills** To go beyond learning by just memorizing, students need to use these kinds of strategies to develop a deep understanding of the material.
- sequencing, categorizing, identifying cause and effect, comparing/contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions.
- Cultures** Ways of life marked by distinct customs and traditions.
- Customs** Ways of doing things which are adopted as tradition within a group or society.
- Democratic-republican government** A system of government in which the citizens elect the leaders. Also known as Representative Democracy.
- Economy** The way people manage money and resources for the production and exchange of goods and services.
- Financial institutions** There are two kinds:
- Governmental: The Federal Reserve System is used to regulate the amount of money in circulation.
  - Private: Commercial banks, credit unions, and savings institutions.

**Financial Literacy** Understanding money matters as they apply to individual people. This unit of study includes the following 12 areas.

- understanding interest, avoiding and eliminating credit card debt
- understanding the rights and responsibilities of renting or buying a home
- managing money to make the transition from renting a home to home ownership
- starting a small business
- being a prudent investor in the stock market and using other investment options
- beginning a savings program and planning for retirement
- bankruptcy
- the types of bank accounts available to consumers and the benefits of maintaining a bank account
- balancing a checkbook
- the types of loans available to consumers and becoming a low-risk borrower
- understanding insurance
- charitable giving

**Free enterprise system** An economic system in which individuals own resources of the society and decide what and how much to make. This system has four characteristics: economic freedom, voluntary exchange, private property, and the profit motive.

**Generalizations** Statements about relationships between and among concepts. They organize and summarize information obtained from the analysis of facts.

**Graphic organizers** Methods of arranging information so that it is visually ordered and easily understood.

- Tables, flow charts, mind maps, tree diagrams, etc.

**Grid system** A grid system is a network of horizontal and vertical lines used to locate points on a map or a chart by means of coordinates. The grid system consists of columns and rows labeled with letters and numbers.

- Lines of latitude and longitude form divisions in a grid system.

**Historical context** The attitudes, values, and customs of a time period; the setting in which the events take place.

**Human characteristics of places** Human characteristics of places include the types of houses people build, the ways they earn a living, the games children play, the languages people speak, their religious beliefs, their ethnicity, the daily schedules they follow, the foods they eat, and the ways they govern themselves. (See also: *physical characteristics of places*.)

**Industry** Economic activity. The different kinds are described as follows:

- Primary Industry: Uses natural resources. Some examples are fishing, farming, lumbering, and oil drilling.
- Secondary Industry: Processes raw materials into finished products. Some examples are steel plants or processing plants which turn agricultural products into canned or frozen goods.
- Tertiary Industry: Exchanges and markets the products of the primary and secondary industries. Some examples are wholesaling and retailing functions, associated transportation and government services, and personal and professional services of all kinds.
- Quaternary Industry: The parts of the economy concerned with research, the gathering and dissemination of information, and administration. They are a specialized part of the tertiary sector of the economy.

- Interdependence** Depending upon one another to meet needs and wants.
- Intermediate directions** Intermediate directions are the directions midway between the cardinal points on a compass. The four intermediate directions are southwest, southeast, northwest, and northeast. (See also: *cardinal directions*.)
- Landforms** Various shapes of the land on Earth, such as mountain, hill, or island.
- Landmark cases** Historically-important cases from the Supreme Court that resulted in major changes in the United States.
- The Supreme Court’s decision in *Brown vs. the Board of Education of Topeka* (1954) made it illegal for schools to segregate students by race.
- Latitude** Imaginary lines on a map or globe measuring north and south from the equator.
- Longitude** Imaginary lines on a map or globe measuring east and west.
- Physical characteristics of places** Physical characteristics of places are natural features such as soil, landforms, bodies of water, types of vegetation, and climate. (See also: *human characteristics of places*.)
- Physical processes** Nature’s methods of operation, such as plate tectonics and climate, that produce, maintain, or alter Earth's physical systems.
- Plate tectonics** The theory that Earth's crust is divided into several, rigid, slow-moving plates.
- Point of view** The way in which an individual sees an event or issue. A person's point of view is influenced by his or her frame of reference and the historical context.
- Popular sovereignty** The concept that political power rests with the people, who can create, alter, and abolish government. People express themselves through voting and free participation in government.
- Public policy** Actions of the government that affect the public.
- Reconstruction Era** The 12-year time period, from 1865 to 1877, immediately following the Civil War.
- Reform movement** An attempt to bring about a change to a perceived ill in American society.
- Regions** Areas with common features that set them apart from other areas.
- Relative location** The position of a place in relation to other places.
- Resource distribution** Geographical distribution of natural resources.
- Settlement patterns** Where people live, where they have lived in the past, and the relationship between the two.
- Sources** Where researchers get information for projects and reports. There are two kinds of sources:
- **Primary sources:** Materials directly related to a topic by time or participation including letters, speeches, diaries, oral-history interviews, documents, photographs, artifacts, or anything else that provides first-hand accounts about a person or an event. Quotes from historical figures printed in secondary sources are not considered primary.
  - **Secondary sources:** Published books or articles by authors who base their interpretation on primary sources.
- Supply and demand** System of forces that drive the economy of any free-market community. Supply is the amount of goods available, and demand is the desire to own goods and the ability to pay for them.
- Technological innovations** New ideas and methods in tools and the use of skills to meet practical human needs.
- Themes of geography (the “Five Themes”)** Studies of geography should identify these factors and the ways they affect each other:
- Place, location, human-environment interaction, region, and movement.

**TODALS** An acronym for the following information, which should be contained on all maps.

➤ Title, Orientation (a compass), Date, Author, Legend, and Source.

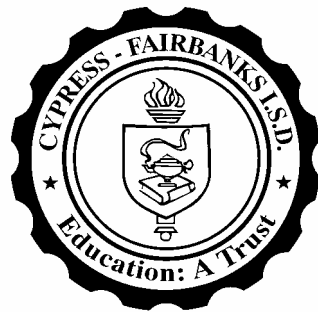
**Voter registration** Upon turning age 18, citizens fill out a form (giving name and address), which enables them to vote in elections. The form may be obtained from the post office or driver's license office.

## Additional Sources

For more specific information about curriculum, courses, and/or requirements, parents may wish to consult the following sources:

- Your child's teacher
- The textbook or other materials used or issued for the course
- Resources from the counselors' office
  - Middle School Course Descriptions*
  - High School Course Offerings & Descriptions*
  - High School Four-year Planning and Career Options*
- Your school's principal
- TEKS documents, available at each campus and at the district's Professional Library
- Web sites
  - Cypress-Fairbanks I.S.D.      <http://www.cfid.net>  
(click on "Departments" then "Curriculum")
  - Texas Education Agency      <http://www.tea.state.tx.us/>





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