Introduction

Curriculum Overview

The first-grade science curriculum is an opportunity for your student to look at the world through the eyes of a scientist. Your student will learn to make observations, conduct experiments, and draw conclusions. The scientific concepts covered in this course will foster the student's curiosity and the ability to think analytically. The student will also be introduced to scientific careers and the work of famous scientists. Mathematical skills will be enhanced as the student uses charts and graphs to collect and analyze data. This outstanding course is based on the latest educational research and teaching methods, and will open the student's mind to an amazing learning experience.

Before beginning the curriculum, please take a few minutes and look through the text, ***Texas Science Fusion*** at www-k6.thinkcentral.com. Your student will use this digital text for all assignments and independent practice.

This course is completed online in Blackboard using the PDF **Unit Lessons** and **Worksheets** documents.

Unit assessments in this course consist of two parts, the **Unit Test** and the **Unit Project**. The Unit Tests are online quizzes. For each Unit Project, scan or take digital photographs of the completed project showing the student's work. Combine the images for each assignment into a single PDF (see **Requirements for Creating PDFs** on the course home page) and upload the file for grading as instructed in the assignment.

1st Grade Science

Science 1A is composed of three units. The first unit in the course includes Units 1 and 2 in *Texas Science Fusion.* Unit 1 in the textbook focuses on the inquiry skills and tools used in scientific investigations. Textbook Unit 2 emphasizes technology and the design process. The student will identify and sort many kinds of materials that are used to make objects. The student will also be introduced to the design process used by engineers to create new types of technology. This unit will provide an excellent foundation for scientific thinking throughout the science curriculum.

Unit 2 in this course includes Unit 3 and Unit 4 in *Texas Science Fusion*. Unit 3 in the textbook introduces the student to concepts related to the properties of matter, such as size, shape, texture, color, weight, temperature, and the ability to sink or float. Changes in matter due to heating and cooling will be investigated. Textbook Unit 4 introduces the student to concepts related to different forms of energy, magnetism, force, and motion.

Unit 3 in this course includes Unit 5 in *Texas Science Fusion*. This unit introduces the student to the Earth's resources, including soil, water, air, plants, and animals. Ways to conserve natural resources are also investigated.

Chart for Units 1–3

Course Unit	*Science Fusion* Unit	Topics Covered
1	1 and 2	Scientific investigation—tools and processes; design process
2	3 and 4	Properties of matter; forms of energy; magnetism; force and motion
3	5	Natural resources and conservation

Course Objectives

The Texas Essential Knowledge and Skills (TEKS) objectives are covered throughout the science curriculum. At the end of this course, the student should be able to do the following:

1. **Scientific investigation and reasoning.** The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. The student is expected to:
   A. recognize and demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations, including wearing safety goggles, washing hands, and using materials appropriately;
   B. recognize the importance of safe practices to keep self and others safe and healthy; and
   C. identify and learn how to use natural resources and materials, including conservation and reuse or recycling of paper, plastic, and metals.
2. **Scientific investigation and reasoning.** The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:
   A. ask questions about organisms, objects, and events observed in the natural world;
   B. plan and conduct simple descriptive investigations such as ways objects move;
   C. collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools;
   D. record and organize data using pictures, numbers, and words; and
   E. communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations.
3. **Scientific investigation and reasoning.** The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:

A .identify and explain a problem such as finding a home for a classroom pet and propose a solution in his/her own words; and

C. describe what scientists do.

4. **Scientific investigation and reasoning.** The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:

   A. collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as classroom demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums; and

   B. measure and compare organisms and objects using non-standard units.

5. **Matter and energy.** The student knows that objects have properties and patterns. The student is expected to:

   A. classify objects by observable properties of the materials from which they are made such as larger and smaller, heavier and lighter, shape, color, and texture; and

   B. predict and identify changes in materials caused by heating and cooling such as ice melting, water freezing, and water evaporating.

6. **Force, motion, and energy.** The student knows that force, motion, and energy are related and are a part of everyday life. The student is expected to:

   A. identify and discuss how different forms of energy such as light, heat, and sound are important to everyday life;

   B. predict and describe how a magnet can be used to push or pull an object;

   C. describe the change in the location of an object such as closer to, nearer to, and farther from; and

   D. demonstrate and record the ways that objects can move such as in a straight line, zig-zag, up and down, back and forth, round and round, and fast and slow.

7. **Earth and space.** The student knows that the natural world includes rocks, soil, and water that can be observed in cycles, patterns, and systems. The student is expected to:

   A. observe, compare, describe, and sort components of soil by size, texture, and color;

   B. identify and describe a variety of natural sources of water, including streams, lakes, and oceans; and

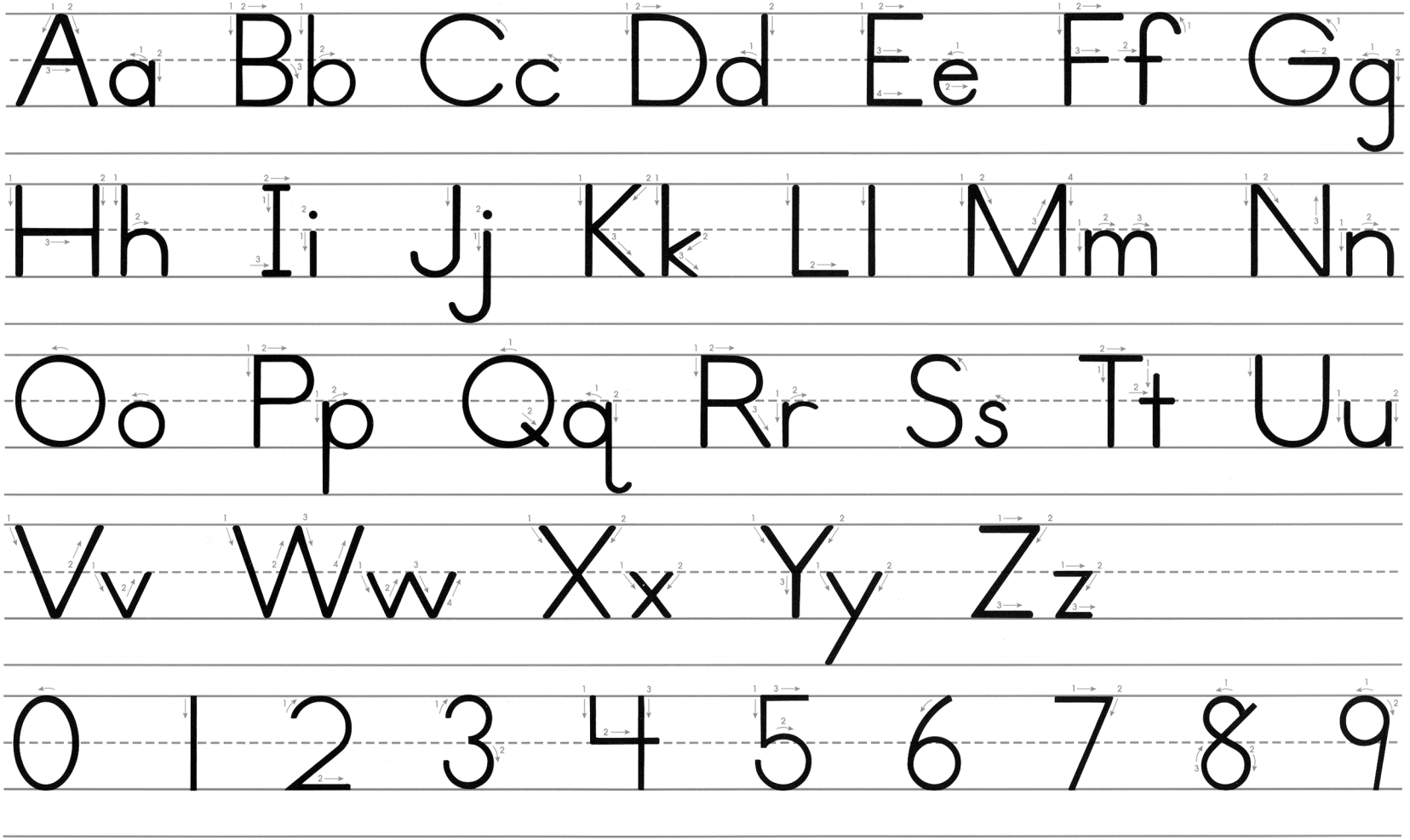
   C. gather evidence of how rocks, soil, and water help to make useful products.

Source: The provisions of this §112.12 adopted to be effective August 4, 2009, 34 TexReg 5063.

Handwriting

Handwriting is taught in the Language Arts course; however, good handwriting skills are necessary in all subjects including science. In Kindergarten, Grade 1, and Grade 2, manuscript is the preferred technique. When teaching your child handwriting, please consider the appropriate letter and number formation and spacing. Please refer to the manuscript chart included on the next page to assist you in appropriately teaching your child handwriting. Please reinforce the importance of good handwriting in all subject areas.

Traditional Manuscript



Books and Materials for SCI 1 this Semester

Textbooks

You are required to purchase the digital textbook in order to access all lesson materials. Purchase of the print textbook is strongly suggested, as well.

- Digital: *Texas Science Fusion*, Level 1 (2015). Houghton Mifflin Harcourt, Inc.
  ISBN 978-0-544-06774-5
- Print: *Texas Science Fusion*, Level 1 (2015). Houghton Mifflin Harcourt, Inc.
  ISBN 978-0-544-02546-2

Other Books

These books can be purchased from any book vendor or borrowed from your public library.

Required:

Unit 1

- *The Three Little Pigs and the Big Bad Wolf* (any version)

Unit 2

- Wright, Maureen, *Sneezy the Snowman*, Two Lions, 2014 ***or***
- Keats, Ezra Jack, *The Snowy Day*, Viking Books for Young Readers, 1996

Unit 3

- Baylor, Byrd, *Everybody Needs a Rock,* Aladdin, 1985
- Berger, Melvin, *Oil Spill,* Harper Collins, 1994

Optional:

Unit 1

- Burke, Lisa, *I'm a Scientist: Kitchen*, D.K. Publishing 2010
- Rissman, Rebecca, *Using Your Senses*, Heinemann, 2011

Unit 2

- Boothroyd, Jenifer, *What Floats? What Sinks? A Look at Density*, Lerner Classroom, 2010
- Boothroyd, Jennifer, *Many Kinds of Matter*, Lerner Classroom, 2011
- Boothroyd, Jennifer, *Why Do Moving Objects Slow Down?* Lerner Classroom, 2010
- Frazee, Marla, *Roller Coaster*, Live Oak Media, 2012

- Hansen, Amy, *Matter Comes in All Shapes*, Teacher Created Resources, 2011
- Hillerman, Anne, *Done in the Sun: Solar Projects for Children*, Sunstone Press, 2012
- Kamkwamba, William, *The Boy Who Harnessed the Wind*, Dial, 2012
- Mason, Adrienne, *Motion, Magnets, and More*, Kids Can Press, 2011
- Rice, William B., *Evaporation,* Teacher Created Materials, 2010
- Selwyn, Josephine, *When Does Water Turn Into Ice?* Three Crows Media, 2012
- Yasuda, Anita, *Explore Water: 25 Great Projects, Activities, Experiments*, Nomad Press, 2011

Unit 3

- Lyon, George Ella, *All the Water in the World*, Atheneum, 2011
- Marzollo, Jean, *The Little Plant Doctor: A Story About George Washington Carver*, Holiday House, 2011
- Parr, Todd, *The Earth Book*, Little Brown Books for Young Readers, 2010
- Schuh, Maria, *Learning About Rocks*, Capstone Press, 2011
- Yasuda, Anita, *Explore Water! 25 Great Project, Activities, Experiments*, Normal Press, 2011

Materials

Required:

- acorns
- apple
- bag, paper, small
- balance
- ball of clay (natural clay if available)
- balloons, different sizes and shapes
- balls, small, 2
- beads, plastic
- bean plants, 4
- bits of paper, plastic, leaf parts, and twigs
- board games, different kinds—e.g., Candyland, Monopoly, Chutes and Ladders
- book
- bookcase or table to measure
- bottle, plastic
- bowl
- box cutter
- bread, 1 slice
- bubble wrap
- cake pan or large paper plate
- can, aluminum
- cardboard tubes
- cardboard, corrugated and smooth
- celery
- coffee filter or tea bag
- containers, plastic, small
- containers: clear unbreakable cups and bowls, different sizes
- cookie sheet
- cooking oil, clear
- cooking tools
- cotton balls
- cotton batting

- craft foam
- crayons
- cups: several clear plastic, 2 paper, a few foam
- Dawn® dishwashing soap
- desk, small
- dry erase board and markers
- eggs, 2–4
- fabric scraps
- feathers (craft)
- flowerpots, 4
- flowers, artificial
- foam
- forceps
- glasses or sunglasses
- globe or world map
- gloves
- glue
- golf ball
- grape drink (non-carbonated)
- grass
- hair dryer
- hand lens
- index cards
- ingredients for a favorite sandwich
- instructions for folding a simple airplane (online or from a book; see suggestion at end of Day 46)
- kite string, 10–15 feet
- labels
- large object to measure
- leaves, 2–4 different kinds
- magnets, bar, 2
- marbles
- markers, including red and black
- measuring cup
- milk or juice cartons, 1 pint, 3
- newspapers
- objects from nature: rocks, pinecones, seashells, leaves, feathers, fruits
- packing peanuts
- pan, shallow
- paper clips
- paper plates, 6
- paper towels
- paper, plain white
- paper: construction (white, red, black, and another dark color), plain white, shredded, tissue
- pencils, including 3 of different lengths
- penny
- pictures of animals in their shelters
- pictures of hot and cold items, such as hot cookies, ice cream cone, snowman, campfire
- pinecones
- pitcher, clear
- popped popcorn
- poster board
- potted plant
- powdered drink mix
- ramp
- recyclable objects: paper goods, metal, plastic items
- reusable objects
- rocks, 10–12
- romaine lettuce leaves, 2
- ruler with both inches and centimeters
- safety goggles

- safety scissors
- salt, 2 teaspoons
- sand
- sand and pebbles in a jar
- scarf
- scoop
- shampoo
- shells
- shoebox
- shoes, one small and one large
- shovel, small
- sieve or strainer
- simple recipes or a children's cookbook
- small object to identify by touch
- small objects made of iron or steel: paper clips, washers, screws
- small objects, such as small balls, writing tools, paper clips, blocks, toys, cars, and marbles
- snow or crushed ice
- soil samples, several (not potting soil)
- spinner, die, or number cube
- sponge
- spools, wooden
- spoon
- stapler
- sticks, small
- stones
- straws
- string, thick
- table or bookcase
- tape: masking, transparent
- thermometers, 2
- timer
- toaster
- toy plastic animals
- toy trucks
- various materials for game pieces—e.g., buttons, small blocks
- vegetable oil
- water
- water dropper
- wide-ruled spiral notebook or binder with notebook paper
- wood
- wooden craft sticks
- yarn

Optional:

- art supplies: paint, pipe cleaners, construction paper, ribbons
- chocolate pudding
- colored pencils
- crushed chocolate cookies
- egg carton
- electric skillet
- graham cracker crumbs
- green baking sprinkles
- gummy worms
- masking tape or painter's tape
- miniature chocolate chips
- paper, large piece
- pictures of products made from rocks and soil
- recording of *Frosty the Snowman*
- recording of *Row, Row, Row Your Boat*
- smock for student
- tape measure with both inches and centimeters

Technology Resources

Refer to the **Online Resources** section in this Introduction for information on how to access the digital textbook and other resources on the *ThinkCentral* website. In the **My Library** section of *ThinkCentral*, click the **Student Resources Grade 1** button to access the digital lessons.

Student Resources Grade 1

These **optional** resources may be used before, during, or after the lessons outlined in the Science 1A course. The digital lessons reinforce the concepts taught in the lessons in *Texas Science Fusion.* They provide interactive experiences using simulations, animations, and videos. The inquiries (virtual labs) provide opportunities for your student to apply laboratory and scientific thinking skills by conducting exciting virtual experiments. These inquiries provide advantages in safety, time, and cost of materials.

Below is an outline of the lessons and inquiries that are available online.

Course Unit 1

Textbook Unit 1

- Lesson 1: What Are Senses?
  - ◊ Days 3–4
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 3–10
- Lesson 2: How Can We Use Our Senses?
  - ◊ Day 5
  - ◊ Inquiry
  - ◊ *Science Fusion*, pages 11–12
- Lesson 3: What Are Inquiry Skills?
  - ◊ Days 6–7
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 13–22
- Lesson 4: How Do We Use Inquiry Skills?
  - ◊ Day 8
  - ◊ Inquiry
  - ◊ *Science Fusion*, pages 23–24

- Lesson 5: What Are Science Tools?
  - ◊ Days 9–10
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 25–34
- Lesson 6: How Do Scientists Work?
  - ◊ Days 11–12
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 35–44

Textbook Unit 2

- Lesson 1: How Do Engineers Work?
  - ◊ Days 14–15
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 53–64
- Lesson 2: How Can We Solve a Problem?
  - ◊ Day 16
  - ◊ Inquiry
  - ◊ *Science Fusion*, pages 65–66
- Lesson 3: What Materials Make Up Objects?
  - ◊ Days 17–19
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 67–78
- Lesson 4: How Can Materials Be Sorted?
  - ◊ Day 20
  - ◊ Inquiry
  - ◊ *Science Fusion*, pages 79–80

Course Unit 2

Textbook Unit 3

- Lesson 1: What Can We Observe About Objects?
  - ◊ Days 27–28
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 89–100
- Lesson 2: How Can We Measure Temperature?
  - ◊ Day 30
  - ◊ Inquiry
  - ◊ *Science Fusion*, pages 103–104
- Lesson 3: How Does Heating and Cooling Change Matter?
  - ◊ Days 31–32
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 105–114

Textbook Unit 4

- Lesson 1: How Do We Use Energy?
  - ◊ Days 37–38
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 123–134
- Lesson 2: How Do Magnets Move Objects?
  - ◊ Days 39–40
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 135–144

- Lesson 3: How Do Objects Move?
  - ◊ Day 41
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 145–152
- Lesson 4: How Can We Move a Ball?
  - ◊ Day 43
  - ◊ Inquiry
  - ◊ *Science Fusion* pp. 155–156
- Lesson 5: How Can We Change the Way Objects Move?
  - ◊ Days 44–45
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 157–168

Course Unit 3

Textbook Unit 5

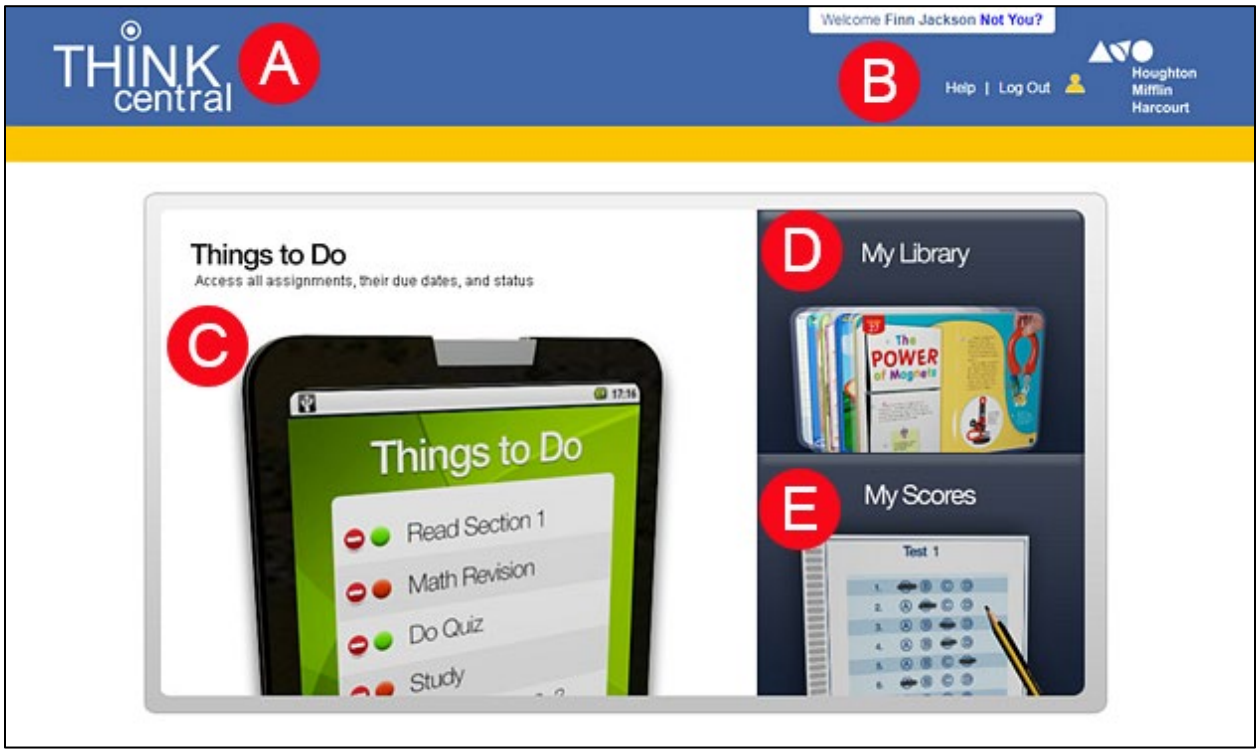
- Lesson 1: What Can We Find On Earth?
  - ◊ Days 52–53
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 177–186
- Lesson 2: What Is Soil?
  - ◊ Days 56–57
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 189–198
- Lesson 3: What Do We Find in Soil?
  - ◊ Day 60
  - ◊ Inquiry
  - ◊ *Science Fusion*, pages 199–200
- Lesson 4: How Do Soils Differ?
  - ◊ Day 61
  - ◊ Inquiry
  - ◊ *Science Fusion*, pages 201–202
- Lesson 5: Where Can We Find Water?
  - ◊ Days 63–64
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 203–214
- Lesson 6: How Can We Save Resources?
  - ◊ Day 68–69
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 217–228

Online Resources

Navigate ThinkCentral

To move around in *ThinkCentral*:

➔ Click one of the areas on the *ThinkCentral* home page to open that page: **Things to Do**, **My Library**, or **My Scores**.

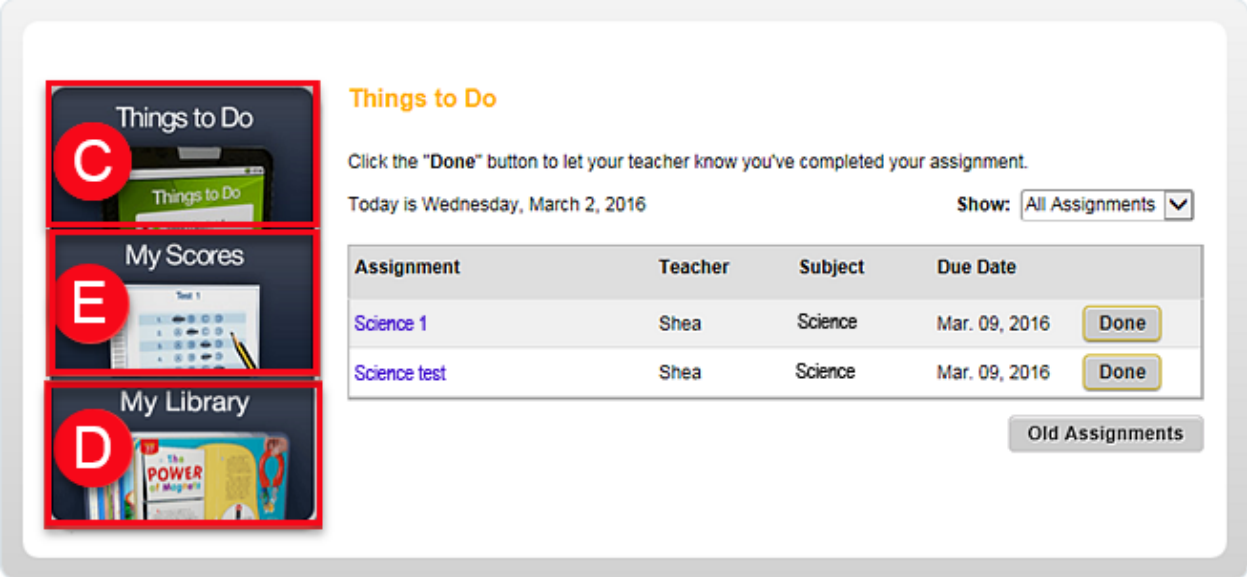


Descriptions of each area is provided in the following table.

Area	Area Name	Description
A	***ThinkCentral* logo**	Returns you to the *ThinkCentral* home page.

Area	Area Name	Description
B	**Banner Links**	• **Help** – Opens an online help system that provides detailed instructions for ThinkCentral tasks. • **Log Out** – Logs you out of ThinkCentral. • Account linking icon – If you have more than one account (accounts in more than one school or more than one class), this allows you to select and open another account.
C	**Things to Do**	Opens the **Things to Do** page, which lists all of the tests and assignments your teacher has assigned to you. You can even find your old assignments after you are done with them.
D	**My Library**	Opens the **My Library** page, where you can find all of your online classroom resources, such as books, movies, sound files, worksheets, and more.
E	**My Scores**	Opens the **My Scores** page, which lists the scores that you received on tests and assignments that you have taken. If your teacher has written a comment on your assignment, you can find it here. You can even look at your old tests to see how well you did on each question.

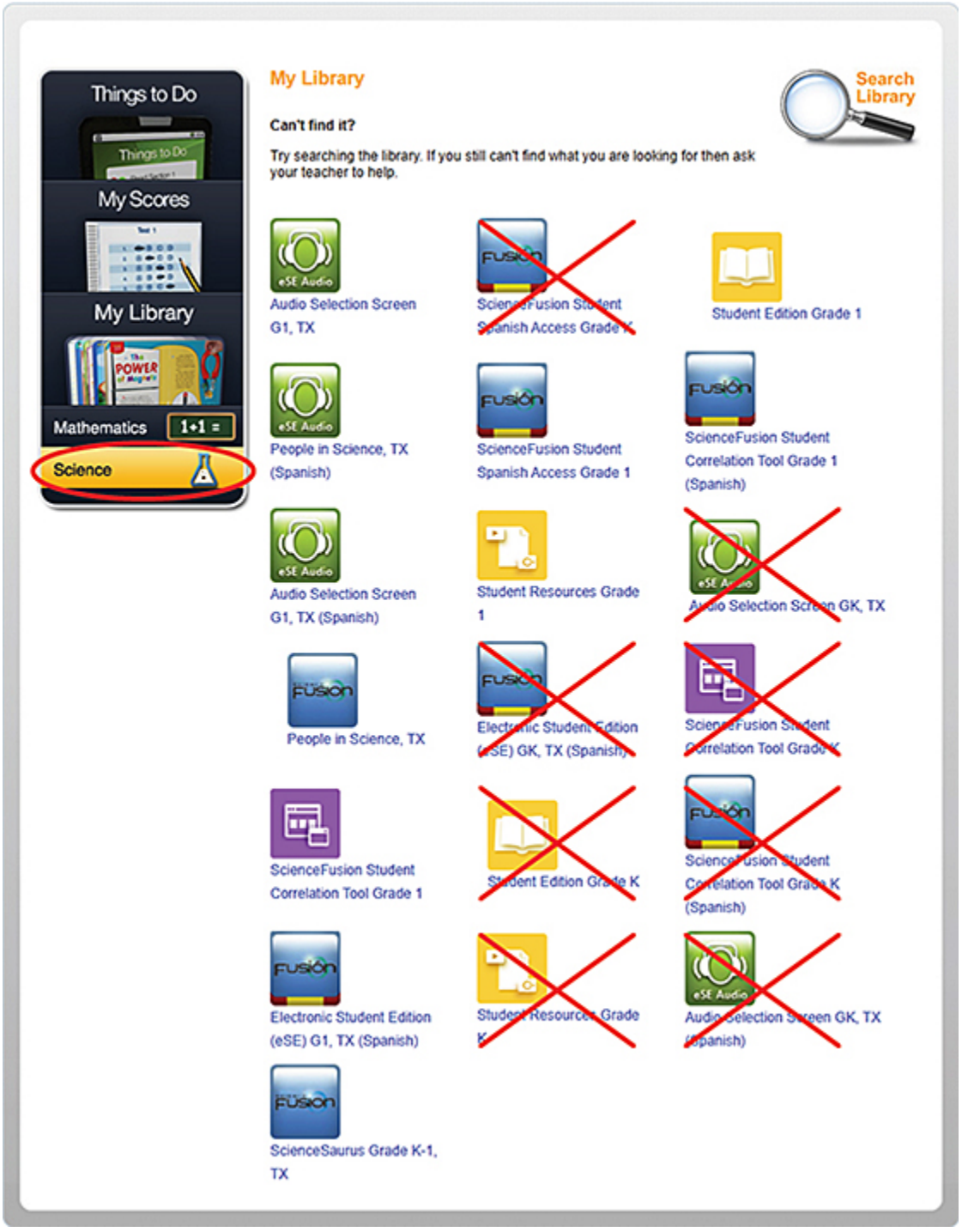
➔ Once you open a page, you can move to a different page by clicking the area with the page name on the left panel.



Using My Library

The **My Library** page lists all of the library items available to you, including online classroom books, movies, sound files, worksheets, and more.

➔ To open the **My Library** page, click **My Library** on the left panel, then click **Science** at the bottom of the panel.



- Kindergarten resources (crossed out in this screenshot) are included in **My Library** for Science 1—just disregard them.
- The **Student Edition Grade 1** is an exact copy of the *Texas Science Fusion* Write-In Student Edition.
- The **Student Resources Grade 1** are the resources that will be referred to in these lessons. Click on the corresponding unit name and follow the instructions in the lesson for the appropriate lesson or inquiry lab.

On the My Library page, you can do any of the following:

➔ Open a library item by clicking the item. The item opens in a separate window.

Note: When you close an item, the **My Library** page is still open.

➔ Click **My Library** to see all of your items again.

➔ Click the **Search Library** magnifying glass. 

Search My Library

My Library lists all of the library items that are available to you. You can search for a specific library item using the **Search Library** option.

To search My Library:

1. In **My Library**, click the **Search Library** magnifying glass. 

The **Search Library** page appears.

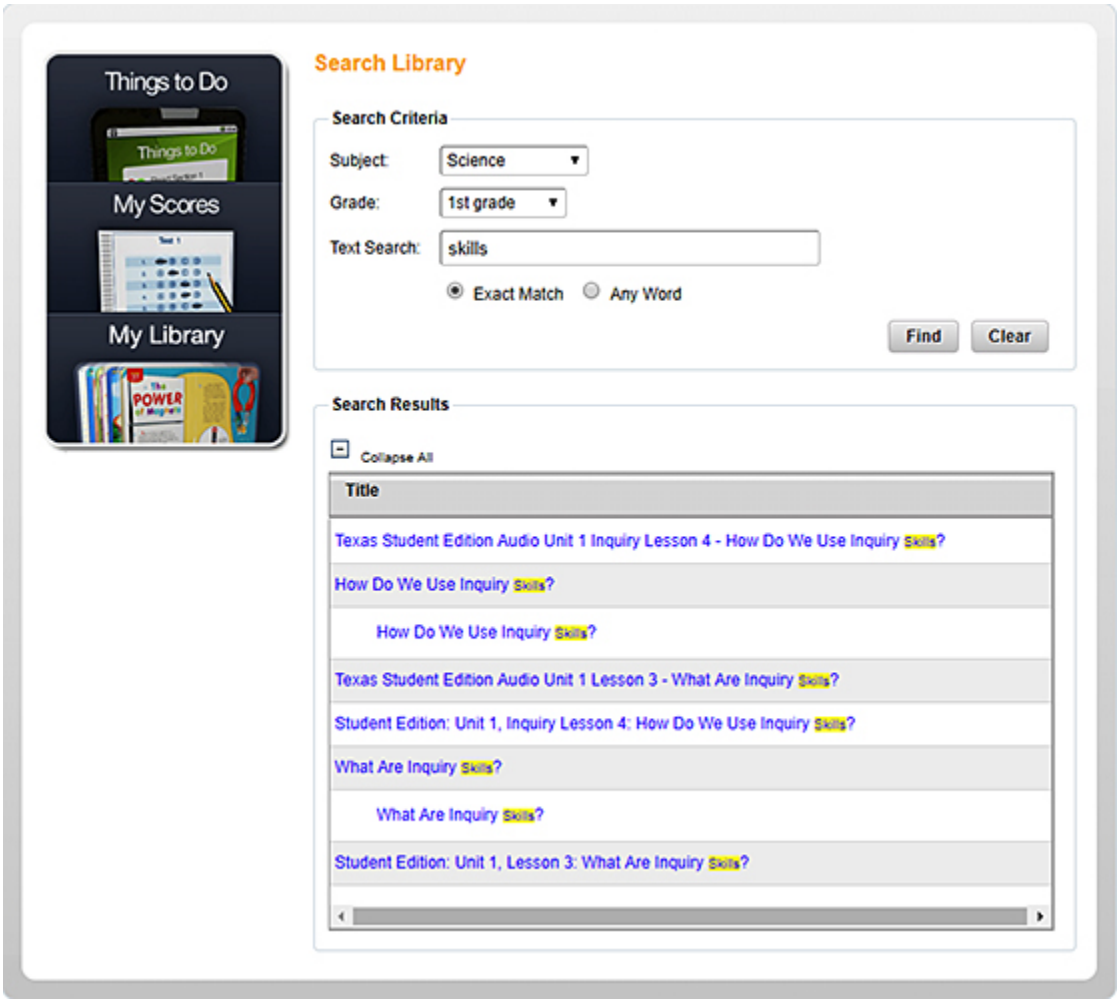
   You can search for a library item by subject, by words, or by both subject and words.

2. In the **Subject** list, select the subject of the item.
3. In the **Text Search** box, type a word or words that identify the item.

   Note: To empty the **Search Criteria** area and start a new search, click **Clear**.

4. Click **Find**. The items that match your search filters are listed in the **Search Results** area.

continued →



5. To open an item in the list, click the name of the item. The item opens in a separate window.

6. To return to **My Library**, click **My Library** on the left side of the page.

Digital Lessons and Inquiries

In the **My Library** section of *ThinkCentral*, click the **Student Resources Grade 1** button to access the digital lessons.

These **optional** resources may be used before, during, or after the lessons outlined in the Science 1A course. The digital lessons reinforce the concepts taught in the lessons in *Texas Science Fusion.* They provide interactive experiences using simulations, animations, and videos. The inquiries (virtual labs) provide opportunities for your student to apply laboratory and scientific thinking skills by conducting exciting virtual experiments. These inquiries provide advantages in safety, time, and cost of materials.

Example of Student Resources screen for one Unit on ThinkCentral

Grading Procedures and Unit Assignment Checklists

Grades are calculated for Unit 1, Unit 2, and Unit 3. The semester grade is an average of the three unit grades. The unit grades will include a test and a project for each unit. The Units 1 and Unit 2 Tests and Projects are located in their respective Unit folders in this online course; the Unit 3 Test and Project are the Final Exam folder.

The Unit Tests and Projects will be submitted **separately** to Texas Tech University K-12 to be graded. The Unit Test is an online quiz and the Unit Project is an upload assignment.

Scan or photograph each Unit Project. Combine multiple images into a ***single*** **PDF**. When you save your documents, use the naming convention given for each Unit Test or Unit Project as the name of your file. Upload the file according to the instructions given in the assignment.

Schedule for tests and projects

Unit 1:

- Day 23: Work on the Unit 1 Project
- Day 24: Review for the Unit 1 Test
- Day 25: Administer the Unit 1 Test
  Submit the Unit 1 Project

Unit 2:

- Day 48: Work on the Unit 2 Project
- Day 49: Review for the Unit 2 Test
- Day 50: Administer the Unit 2 Test
  Submit the Unit 2 Project

Unit 3:

- Day 73: Work on the Unit 3 Project
- Day 74: Review for the Unit 3 Test
- Day 75: Administer the Unit 3 Test
  Submit the Unit 3 Project