# 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 1B is composed of three units. Unit 4 in the course includes Units 6 and 7 in *Texas Science Fusion.* Unit 6 focuses on daily changes in weather and the tools used to measure weather. Changes associated with the seasons will be explored. In textbook Unit 7, the student will observe objects in the sky and the changes caused by the movement of objects in the sky.

Unit 5 in this course includes Unit 8 in *Texas Science Fusion*. In textbook Unit 8, the student will identify and classify living and nonliving things in different environments.

Unit 6 in this course includes Units 9 and 10 in *Texas Science Fusion*. Unit 9 in the textbook focuses on the characteristics, adaptations, and life cycles of different groups of animals. In textbook Unit 10, the student will identify different parts of plants and understand how these parts help the plant survive.

## Chart for Units 4–6

| Course Unit | *Science Fusion* Unit | Topics Covered |
|---|---|---|
| 4 | 6 and 7 | Weather, Seasons, Objects in the Sky |
| 5 | 8 | Living and Nonliving Things |
| 6 | 9 and 10 | Animals and Plants |

## 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; and
   B. recognize the importance of safe practices to keep self and others safe and healthy.
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;
   B. make predictions based on observable patterns; 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.

8. **Earth and space.** The student knows that the natural world includes the air around us and objects in the sky. The student is expected to:

   A. record weather information, including relative temperature, such as hot or cold, clear or cloudy, calm or windy, and rainy or icy;

   B. observe and record changes in the appearance of objects in the sky such as clouds, the Moon, and stars, including the Sun;

   C. identify characteristics of the seasons of the year and day and night; and

   D. demonstrate that air is all around us and observe that wind is moving air.

9. **Organisms and environments.** The student knows that the living environment is composed of relationships between organisms and the life cycles that occur. The student is expected to:

   A. sort and classify living and nonliving things based upon whether or not they have basic needs and produce offspring;

   B. analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver; and

   C. gather evidence of interdependence among living organisms such as energy transfer through food chains and animals using plants for shelter.

10. **Organisms and environments.** The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:

    A. investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats;

    B. identify and compare the parts of plants;

    C. compare ways that young animals resemble their parents; and

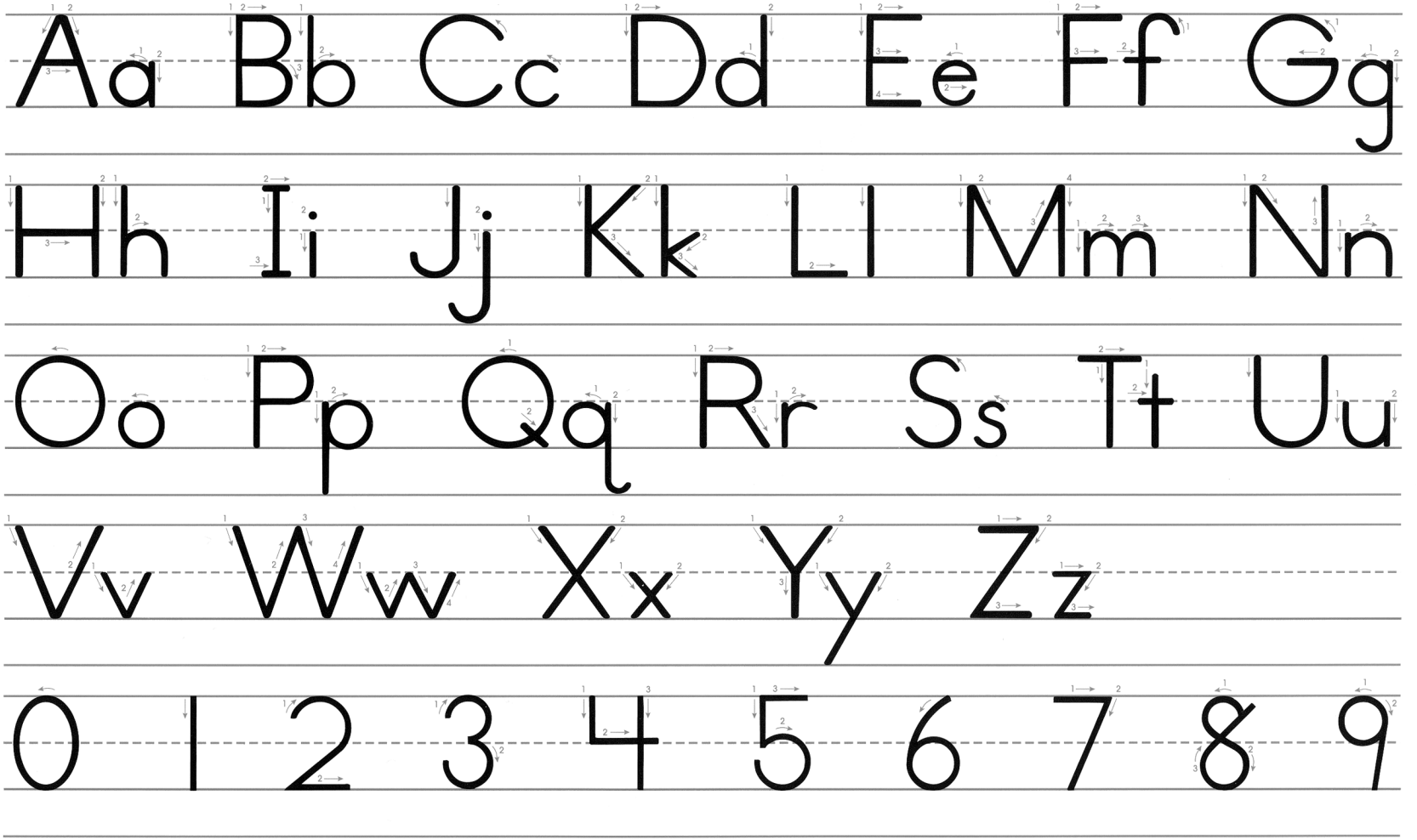
    D. observe and record life cycles of animals such as a chicken, frog, or fish.

*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:***

- Asch, Frank, *Moonbear's Shadow*, revised edition, Aladdin, 2014
- Jenkins, Steve, *What Do You Do When Something Wants to Eat You?* HMH Books for Young Readers, 2001
- Kalan, Robert, *Jump, Frog, Jump,* Greenwillow Books, 1989
- Cronin, Doreen, *Click, Clack, Moo: Cows That Type*, Simon & Schuster Books for Young Readers, 2000

***Optional***

- Chancellor, Deborah, *Explorers: Weather*, Kingfisher, 2010
- Stott, Carole, *I Wonder Why Stars Twinkle*, Kingfisher, 2011
- Carney, Elizabeth, *National Geographic Readers: Planets*, National Geographic Children's Books, 2012
- Green, Carol, *Snow Joe*, Children's Press, 2011
- Doudna, Kelly, *Super Simple Things to Do with Temperature*, Super Sandcastle, 2011
- Selwyn, Josephine, *When Does Water Turn Into Ice?* Three Crows Media, 2012
- Wood, Douglas, *Where the Sunrise Begins*, Simon & Shuster, 2010
- Collard, Sneed B., *Many Biomes, One Earth*, Charlesbridge Publishing, 2009
- Corwin, Jeff, *The Wild, Wild Southwest*, Puffin, 2012
- Kelly, Irene, *Even an Octopus Needs a Home*, Holiday House, 2011
- Weidner, Kathleen, *Secrets of the Garden: Food Chains and the Food Web in Our Backyard*, Knopf Books for Young Readers, 2012

- Bredeson, Carmen, *Baby Animals of the World*, Enslow Elementary, 2011
- Dussling, Jennifer, *Bugs! Bugs! Bugs!* DK Publishing, 2011
- Kelley, Irene, *Even an Octopus Needs a Home,* Holiday House, 2011
- Levine, Shar, *Animals: Mammals, Birds, Reptiles, Amphibians, Fish, and Other Animals*, Crabtree Publishing Company, 2010
- Lundgren, Julie K. *Plant Adaptations*, Rourke Publishing Company, 2011
- Nelson, Robin, *From Flower to Honey*, Lerner Pub Group, 2012
- Schuh, Mari, *Carrots Grow Underground*, Capstone Press, 2011
- Schwartz, David M., and Yael Schy, *Where in the Wild?: Camouflaged Creatures Concealed… and Revealed*, Tricycle Press, 2011
- Thimmesh, Catherine, Friends: *True Stories of Extraordinary Animal Friendships*, Houghton Mifflin Harcourt, 2011

## Materials

### *Required:*

- animal books, nonfiction
- balance
- ball, white
- block
- bottles: 2-L clear plastic with cap; half-liter clear plastic
- box cutter
- box, large
- card stock, black
- cardboard box, large
- carnation, white
- chain: paper, plastic, or metal
- chalk
- clothespins, 10
- coat hanger
- collecting net
- crayons
- cups, clear plastic
- diagram of sun, Earth, and moon, or a solar system mobile
- dry erase board and markers
- fish
- fish food
- fish tank, large
- flashlight
- food coloring
- glass
- globe
- gloves, latex
- glue or glue stick
- grapes, one bunch
- hammer
- hand lens
- hole punch
- index cards
- knife or box cutter
- labels

- lamp, bright
- leaf cuttings, damp
- leaves, several, different kinds, including three from different trees
- maps: local or state, North America, the United States
- markers: 3 different colors plus black
- mayonnaise jar, clear plastic
- mealworms (available at pet stores)
- mirror, small
- netting
- newspaper
- old magazines
- online sources about animal life cycles
- paint
- paper clips, large, 10
- paper plate
- paper: butcher, chart paper (large sheets), construction, drawing, unlined white and tan (2 sheets of each color), plain white (letter size and large), tissue (white, 2 sheets)
- pattern blocks
- pencils
- picture of a farm fence
- picture of a forest that has been burned (book or Internet)
- picture of a fruit tree in bloom
- picture of a healthy forest (book or Internet)
- pictures of ballparks, online
- pictures of butterflies
- pictures of different farms from books, magazines, or Internet
- pictures of plants in your location
- pictures of two animals from books, magazines, or Internet
- pill bugs, 10
- pinecone or picture of a pinecone
- plant, small
- potted plant, tiny
- potting soil
- rain gauge or a picture of a rain gauge
- refrigerator
- ribbons or crepe paper
- rotten vegetables
- ruler
- scissors, safety
- screwdriver
- seed packets (3 different plant seeds)
- shoe box
- soda bottle, empty 1-liter
- soil
- stake or dowel
- sticky notes
- string
- stuffed animal
- tape: masking, transparent
- thermometers, 3
- thick socks
- toy stuffed rabbit (as big as a real rabbit)
- twine or wire
- U.S. flag
- U.S. map
- water
- water plants
- weather report—video, online, or print
- websites and reference sources for two environments
- wide-ruled spiral notebook or binder with notebook paper

- windsocks
- winter gloves or mittens
- winter hat
- wire cutters
- wood
- wood dowels or craft sticks
- yarn ball
- zip-close bags, 3

***Optional:***

- camera
- clipboard
- clothesline
- colored pencils
- counters or other manipulatives
- foam shapes
- modeling clay
- polystyrene foam
- poster board
- toy telescope

## 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.

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.

Student Resources Grade 1

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

## Course Unit 4

### Textbook Unit 6

- Lesson 1: What Is Weather?
  - ◊ Days 77–78
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 235–246
- Lesson 2: What Can We Observe About Weather?
  - ◊ Day 80
  - ◊ Inquiry
  - ◊ *Science Fusion*, pages 247–250
- Lesson 3: What Are Seasons?
  - ◊ Days 83–84
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 253–264

### Textbook Unit 7

- Lesson 1: What Can We See in the Sky?
  - ◊ Days 88–89
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 273–282
- Lesson 2: How Does the Sky Seem to Change?
  - ◊ Days 92–93
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 285–294
- Lesson 3: How Does the Sun Seem to Move?
  - ◊ Day 95
  - ◊ Inquiry
  - ◊ *Science Fusion*, pages 295–296

## Course Unit 5

### Textbook Unit 8

- Lesson 1: What Are Living and Nonliving Things?
  - ◊ Days 102–103
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 305–314
- Lesson 2: Where Do Plants and Animals Live?
  - ◊ Days 107–108
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 315–328
- Lesson 3: What Is a Terrarium?
  - ◊ Day 114
  - ◊ Inquiry
  - ◊ *Science Fusion*, pages 331–332

*continued* →

## Course Unit 6

**Textbook Unit 9**

- Lesson 1: How Do Animals Differ?
  - ◊ Day 127–128
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 341–352
- Lesson 2: How Can We Group Animals?
  - ◊ Day 131
  - ◊ Inquiry
  - ◊ *Science Fusion*, pages 353–356
- Lesson 3: What Are Some Animal Life Cycles?
  - ◊ Day 135–136
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 359–370

**Textbook Unit 10**

- Lesson 1: What Are Some Parts of Plants?
  - ◊ Days 140–141
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 379–388
- Lesson 2: How Are Plants Different?
  - ◊ Days 144–145
  - ◊ Digital Lesson
  - ◊ *Science Fusion*, pages 391–400
- Lesson 3: How Can We Compare Leaves?
  - ◊ Day 146
  - ◊ Inquiry
  - ◊ *Science Fusion*, pages 401–402

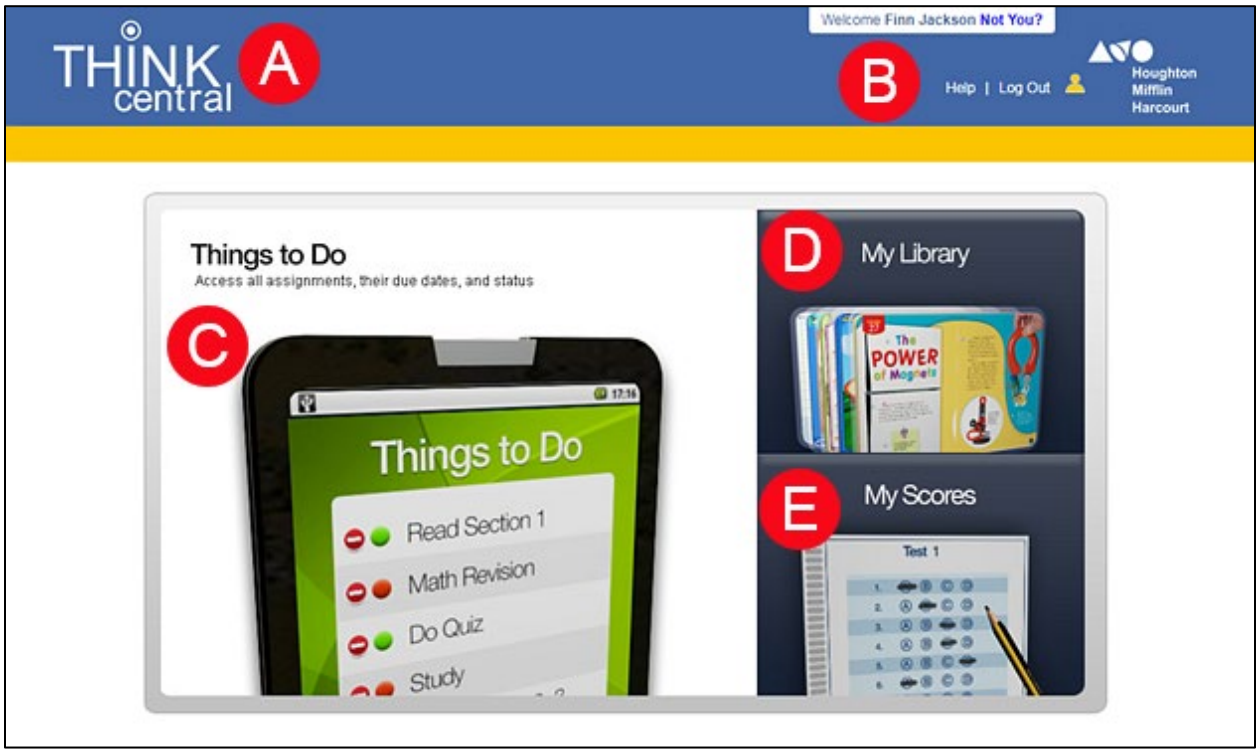
# Online Resources



## 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**.

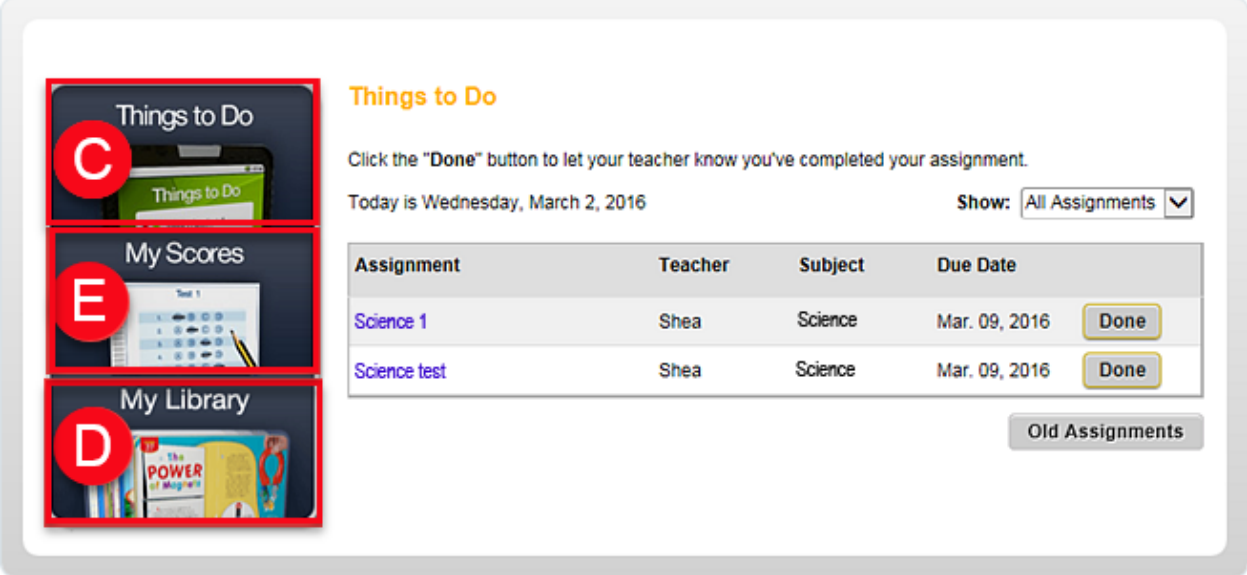



Descriptions of each area is provided in the following table.

| 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.<br>• **Log Out** – Logs you out of ThinkCentral.<br>• 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. |

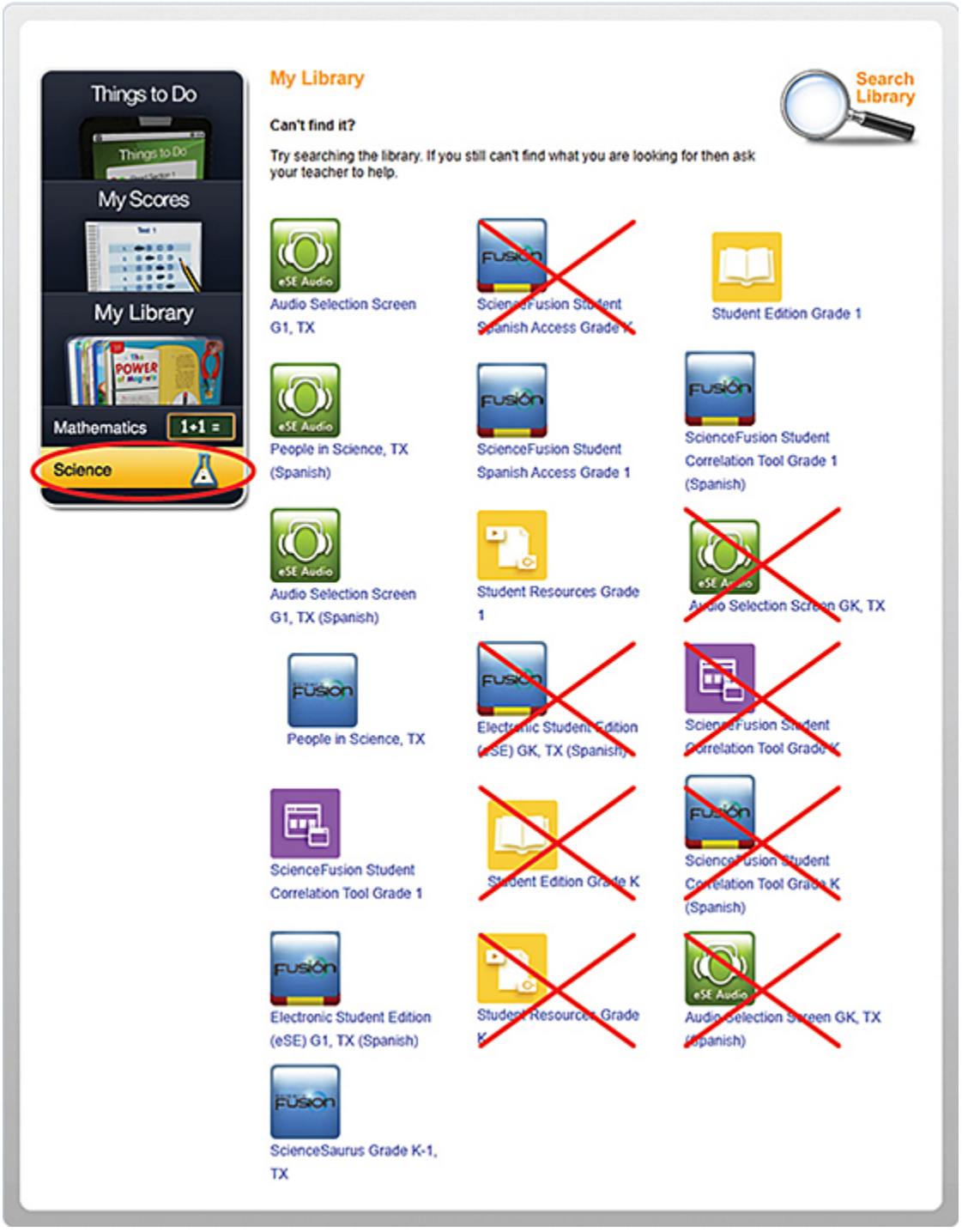
➔ Once you open a page, you can move to a different page by clicking the area with the page name on the left panel.



## 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.

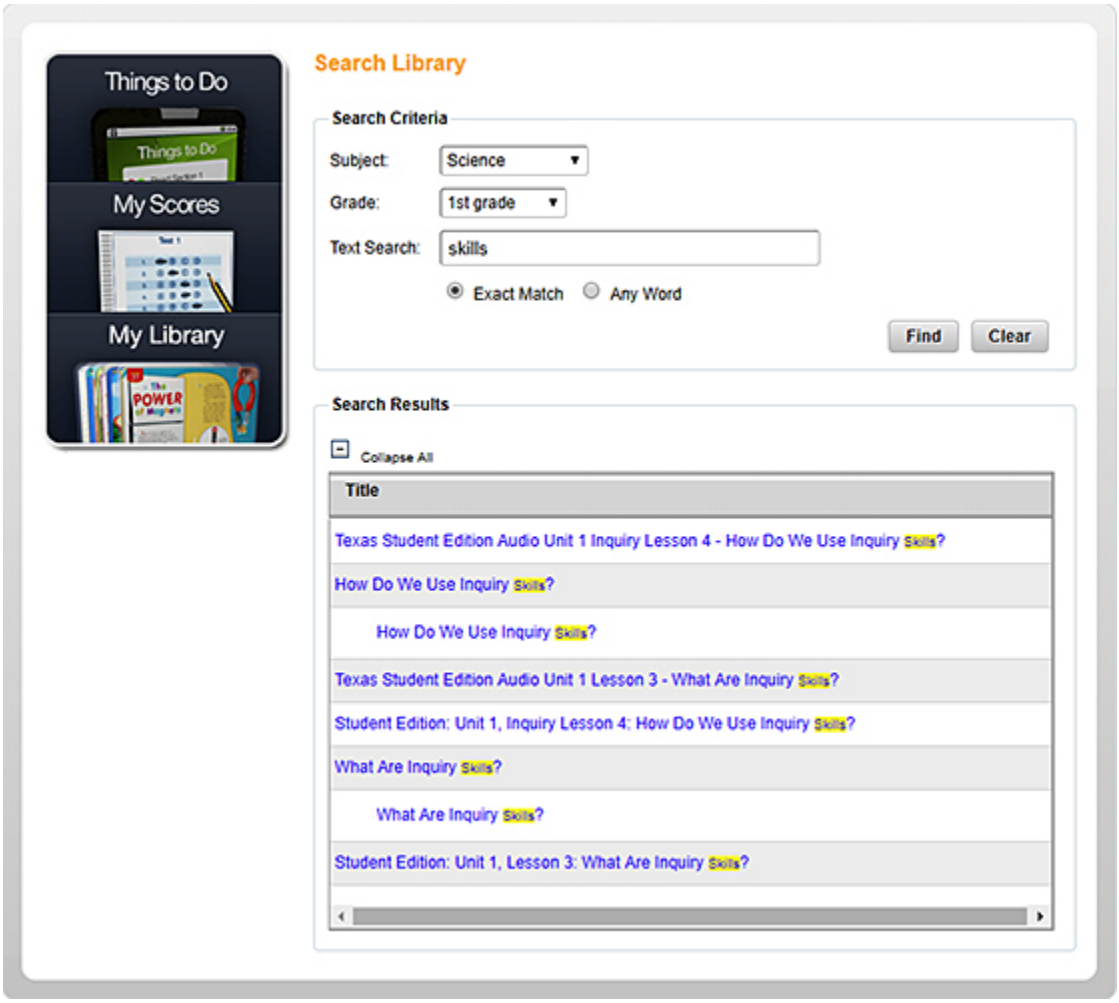
   You can search for a library item by subject, by words, or by both subject and words.

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 4, Unit 5, and Unit 6. 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 4 and Unit 5 Tests and Projects are located in their respective Unit folders in this online course; the Unit 6 Test and Project are the Final Exam folder.

The Unit Tests and Unit Projects will be submitted **separately** to Texas Tech University K-12 to be graded. After the student has finished the Unit Test, scan or take digital photographs of the assigned pages, showing his or her work. Combine the images into a ***single*** **PDF** (see "Requirements for Creating PDFs" on the course home page).

Scan or photograph each Unit Project. (For audio or video projects, see "Audio Help" and "Video Help" on the course home page for information about saving these formats for upload.) 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 4:

- Day 98: Work on the Unit 4 Project
- Day 99: Review for the Unit 4 Test
- Day 100: Administer the Unit 4 Test
  Submit the Unit 4 Project

### Unit 5:

- Day 123: Work on the Unit 5 Project
- Day 124: Review for the Unit 5 Test
- Day 125: Administer the Unit 5 Test
  Submit the Unit 5 Project

### Unit 6:

- Day 148: Work on the Unit 6 Project
- Day 149: Review for the Unit 6 Test

- Day 150: Administer the Unit 6 Test
  Submit the Unit 6 Project

## Unit Projects

Your student must complete a project for each unit. The student has the option of creating his or her own project or choosing one of those listed in **Suggested Projects** in this course. If the student chooses a topic, he or she must choose a topic based on the information presented in the unit, and it must be approved by Texas Tech University K-12. The student must also complete a **Unit Topic Planner**. Please submit these to Texas Tech University K-12 no later than one week after your student begins the unit.

The student's teacher will send feedback regarding whether or not your project has been approved. You will find it in the **My Grades** area of this course.