



Science, Grade 6 (SCI) 6A Syllabus

Course Name

SCI 6A

Science, Grade 6 – Semester A

Course Information

SCI 6A is the first semester of this two-semester course.

This course is designed to help you see the world in an inquisitive way; you are encouraged to find answers to your questions and develop a better understanding of your surroundings. The goal is for you to become a creative thinker and problem solver!

The course is based on information you will find online, through laboratory experimentation, and within the textbook. It is an activity-based course, which means that you will be learning by using inexpensive materials to do experiments at home, as well as participating in online lab activities. To get started, you need a curious mind, a thirst for knowledge, and a desire for insight into things you may have always taken for granted. You will be required to hypothesize, perform experiments, write experimental data in scientific form, chart and graph your results, and investigate various problems. You will have assignments at the end of each lesson. In addition, you will take a final exam.

Course Delivery Method

Online

Contacting Your Instructor

You may contact your instructor through the Blackboard messaging system. Technical support is available 24/7 at www.k12.ttu.edu.

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Course Objectives

After completing this course, you should be able to:

1. demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards;
2. plan and implement comparative, descriptive and experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;
3. collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers, using repeated trials and means, to organize data and identify patterns;
4. analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends;
5. analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations;
6. use models to represent aspects of the natural world such as a model of Earth's layers;
7. identify advantages and limitations of models such as size, scale, properties, and materials;
8. relate the impact of research on scientific thought and society, including the history of science and contributions of scientists;
9. use a variety of tools and safety equipment to conduct science inquiry;
10. use preventative safety equipment;
11. differentiate between elements and compounds on the most basic level;
12. identify the formation of a new substance by using the evidence of a possible chemical change such as production of a gas, change in temperature, production of a precipitate, or color change;
13. understand that matter has physical properties that can be used for classification;
14. compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability;
15. understand that some of Earth's energy resources are available on a nearly perpetual basis, while others can be renewed over a relatively short period of time, and some energy resources, once depleted, are essentially nonrenewable;
16. design a logical plan to manage energy resources in the home, school, or community;
17. compare and contrast potential and kinetic energy;
18. measure and graph changes in motion, and explain how inclined planes and pulleys can be used to change the amount of force to move an object;
19. explain the Law of Conservation of Energy, which states that energy can neither be created nor destroyed, it just changes form; and

20. explain methods of thermal energy transfer, including conduction, convection, and radiation.

SCI 6 addresses the required Texas Essential Knowledge and Skills (TEKS). These can be found at the [Texas Education Agency](#) website.

Textbook and Materials

Textbook(s)

The required digital textbook for this course is:

- *Texas Science Fusion, Student Edition*. Houghton Mifflin.
ISBN: 978-0-544-06779-0.

This digital textbook can only be purchased through the TTU K-12 partner bookstore. You can find the link to the bookstore on the [TTU K-12 website](#). Once you have purchased the digital textbook, you will receive a username and password via email. You will log in at [ThinkCentral website](#) to access your textbook. You may need to enter the following information before you can login:

State: Texas
District: College
School: Texas Tech University, Lubbock 79409

If you would like a printed book, you can purchase the optional printed text:

- *Texas Science Fusion, Write-in Student Edition*. Houghton Mifflin.
ISBN: 978-0-544-02552-3.

Please note that you will not be able to access any of the digital resources if you purchase only the printed textbook.

The textbook was chosen because it is a current, TEA-approved science text. The textbook Units are formatted for easy access to information and contain experiments and activities to accompany the lessons.

The textbook also includes a slew of digital resources, some of which you will be required to access and others that are available for supplementation of learning.

Materials

You will need a pair of **safety glasses** to protect your eyes when conducting some experiments. You may also want to invest in a spiral notebook and a folder to keep notes, returned assignments, and activities so they will be handy when you are preparing for the final exam.

Other materials you will need for this course are:

- graph paper
- 6 or more books of different sizes
- centimeter ruler
- meter stick
- cooking oil
- corn syrup
- food coloring
- two clear jars or glasses
- science beaker which measures in mL (If you do not have access to a mL beaker, you may use standard measuring cups.)
- water
- compass (optional)
- stopwatch (timer)
- tape

Technical Requirements

- Internet access – preferably high speed (for accessing Blackboard)
- Email
- Word processing software such as Microsoft Word
- Adobe Reader (download from Adobe.com)
- Audio and video capabilities (for watching/listening to course content)
- PDF app (to scan hand-written documentation for graded assignments)

Technical Skill Requirements

Be comfortable with the following:

- using a word processor
- Internet search engines and browsers
- creating PDFs (see **Requirements for Creating PDFs** on the course home page)

Course Organization

This course consists of eight lessons and a final examination. Each lesson contains the following:

- Introduction and Instructions
- Learning Objectives and Curriculum Standards

- Learning Activities
- Assignments

Each lesson includes several activities that present content knowledge. Each lesson also includes multiple graded assignments to ensure that you learn the content that has been presented in the activities. Some of the assignments are automatically-graded quizzes, and some are written assignments or activities that your instructor will grade. Be sure you read all instructions carefully and ask your instructor for help if something is not clear.

The lessons consist of an Introduction and Lesson Objectives that will tell you what you should learn by the end of the lesson. They will give you an idea of what is covered in the lesson assignment and final exam. Each lesson's "How to Proceed" section tells you how to approach the lesson and what pages to read in the textbook. You will submit assignment answers and activities as required.

Your assignments are representative of the types of questions you will see on the final. The final exam will be proctored, and **you may not use your notes or textbook when taking the final.**

Lab Reports and Other Uploads

Activity Lab Reports

Many of the lessons will ask you to conduct your own scientific research or experiments and then write about your experiences. When instructed, you will be filling out the Lab Report form on a computer. Begin by downloading the **Lab Report Form** (MS Word document) provided in the **Resources** section of this course. Then, while you follow the procedure for each lab, complete the form and submit it according to the directions in the assignment. There is an example of a **Completed Lab Report Form** in the Resources section for your reference. As you fill in the form for each activity, be sure to use your own words; do not copy from the textbook or this course. Use the following format to complete the form.

- **Title:** Write the name of the activity on the top line of your paper.
- **Hypothesis:** Before you complete the experiment, explain what you think will happen. The experiment instructions will guide you. Do not worry about writing an incorrect hypothesis; write what you honestly think will happen in the experiment.
- **Materials:** Make a list of all materials used in the experiment.
- **Procedure:** Read the whole experiment before you begin, to get an idea of what you will be doing. Write down the procedure you follow to perform the experiment, and be sure you are reporting what you did ("I stretched the Slinky

across the table”) rather than instructing someone how to perform the experiment (“Stretch the Slinky across the table”).

- **Results:** Explain in your own words what happens when you perform the activity (what you are actually observing).
- **Conclusion:** Determine why the experiment happens the way it does and describe what you learned.

When you are finished filling out the form, save your work as either a Word document or a PDF (see **Requirements for Creating PDFs** on the course home page) using the following format as the name of your file:

Sci6a_Assignment1.1_Lastname_FirstInitial.docx or .pdf
(example: Sci6a_Assignment1.1_Smith_R.docx or .pdf)

Upload the completed form for grading.

Other Uploads

You will notice, as you get into the course, that there are several assignments that require you to draw or create tables, graphs, models, etc., that may not be simple to *upload* for grading. In these cases, there are several options for submitting your work. One option is to take a photograph of your work and then either submit the photo as a JPG file or paste it into a Word document for submission. Another option is to scan your hand-written page, save it as a PDF, and submit that for grading.

Netiquette and Grading

Discussion Forums and Netiquette

There will be several assignments during this course which require you to post in a discussion forum and interact with other students, sharing work and ideas. You should have good “netiquette” — Internet etiquette — when you post on the forums. Here are some basic guidelines to follow.

- Use your best grammar, spelling, and punctuation in the post. It is a good idea to type your post in a word processor document first as this will help with spell checking, etc., then copy and paste your response into the forum.
- Be kind and courteous to others. The forum is similar to a classroom discussion. Only appropriate language and comments will be permitted on the forums.

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Course Outline

Please note that some assignments will be hidden from you when you start the course. As you move through the lessons and complete assignments, more will unlock for you.

Lesson	Topic	Approximate Time for Completion
Lesson 1	Nature of Science	Two weeks
Lesson 2	Measurements and Data	Two weeks
Lesson 3	Properties of Matter	Two weeks
Lesson 4	Changes in Matter	Two weeks
Lesson 5	Energy — Types and Transfers	Two weeks
Lesson 6	Motion and Speed	Two weeks
Lesson 7	Forces and Machines	Two weeks
Lesson 8	Earth's Resources	Two weeks
Final Exam		

Assignment Schedule

Each of the following must be completed to complete the course. Items with an asterisk (*) indicate that these are summative assessments for the course.

Lesson	Weeks	Assignments
1	1-2	Checkpoint 1 (Non-graded) Assignment 1.1: Introductions Assignment 1.2: Public Service Announcement Assignment 1.3: Animal Inquiry Lab *Lesson One Summative Questions
2	3-4	Assignment 2.1: Measurement Lab Report Assignment 2.2: Models and Simulations *Lesson Two Summative Questions Assignment 2.3: Quiz Preparation
3	5-6	Assignment 3.1: Practice Question Assignment 3.2: Density Dependent Demo Assignment 3.3: Properties of Matter *Lesson Three Summative Questions Checkpoint 2 (Non-graded)

Lesson	Weeks	Assignments
4	7-8	Assignment 4.1: Physical & Chemical Changes: Virtual Lab Activity Assignment 4.2: Substances and Mixtures Assignment 4.3: Assignment Response Assignment 4.4: Elements, Compounds, and Mixtures Map *Lesson Four Summative Questions
5	9-10	Assignment 5.1: Introduction to Energy: Virtual Lab Activity Assignment 5.2: Thermal Heat and Energy *Lesson Five Summative Questions
6	11-12	Assignment 6.1: Motion and Speed: Virtual Lab Activity Assignment 6.2: Neighborhood Drive: Motion and Speed Assignment 6.3: Energy Map: Potential and Kinetic Energy *Lesson Six Summative Questions
7	13-14	Assignment 7.1: Measuring and Graphing Motion Assignment 7.2: Name Those Machines Assignment 7.3: Investigating Simple Machines *Lesson Seven Summative Questions
8	15-16	Assignment 8.1: Natural Resources: Research Project Assignment 8.2: Natural Resources Debate *Lesson Eight Summative Questions Checkpoint 3 (Non-graded)
		Final Exam

Course Credit

The course grade will be calculated as follows:

- 50% coursework average;
- 50% summative assessment average, including the final exam;
- A passing course grade is 70 or higher.

Students must attempt all assignments in the course. The final exam will not be available until all assignments have been accepted and graded by the teacher.

Students who score below 70% on the final exam will be eligible for one re-exam opportunity.

Coursework

The graded assignments within each lesson are formative in nature. This means that they are designed to assist you in applying and demonstrating the lesson concepts, as

well as identifying areas in which you need additional review. You may use all the lesson's learning activities to assist you as you complete the graded assignments.

Summative Assessments

Summative assessments are those that allow you to demonstrate mastery of the course objectives. For summative assessments, you will NOT be allowed to use the learning materials. These are opportunities for you to show what you have learned by that point in the course. Summative assessments may be proctored using the online proctoring system Proctorio. Information about Proctorio is provided in **Remote Proctoring** in the Syllabus section of your course. The summative assessments for this course are as follows:

- **Summative Assessments (20% of Course Grade)**
 - Lesson One Summative Questions (50 points)
 - Lesson Two Summative Questions (52 points)
 - Lesson Three Summative Questions (60 points)
 - Lesson Four Summative Questions (70 points)
 - Lesson Five Summative Questions (43 points)
 - Lesson Six Summative Questions (25 points)
 - Lesson Seven Summative Questions (33 points)
 - Lesson Eight Summative Questions (24 points)
- **Summative Final Exam (30% of Course Grade)**

Course Completion and Extensions

- Students may not complete the course in less than 30 days.
- All courses expire six months after the enrollment date. Student may purchase a single three-month extension for a fee.
- Extensions are non-refundable and non-transferrable.

Academic Integrity

It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension.

“Scholastic dishonesty” includes, but is not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor) or the attempt to commit such an act.

Student Expectations

You will be expected to log into the Blackboard course regularly to be aware of possible announcements/reminders and to pace your progress in the course.

Students are expected to maintain an online environment conducive to learning, which includes “netiquette” (Internet etiquette). Please review the basic rules for [Online Discussion Netiquette](#). Ensure that your email messages, discussion board postings, and other electronic communications are thoughtful and respectful. Diverse opinions are welcome in this course, and you are expected to demonstrate an open mind and courtesy when responding to the thoughts and ideas of others.

The following are prohibited:

- making offensive remarks in email or the discussion board;
- using inappropriate language or discussing inappropriate topics online;
- spamming;
- hacking;
- using TTU or Blackboard email or discussion boards for commercial purposes;
- using all caps (considered shouting in online communications); and
- cyber-bullying or online harassment of any type.

Inappropriate behavior shall result in consequences ranging from a request to correct the problem, to removal from the course or even the university, depending on the severity of the behavior. Disciplinary actions will be taken according to the TTU K-12 Student Handbook.

Communication

- You can expect a reply from your instructor within 2 business days.
- Use the Blackboard Course Messages tool for sending messages to your instructor.

Submitting Assignments

You will submit all assignments through the Blackboard Assignment Tool, rather than by email. For assignments that require you to upload a PDF or other document, please title your assignment files “lastName_firstName_assignmentName.xxx (.pdf, .doc, .xl, .jpg, etc.)”.

Technical Difficulties

Getting Help

For student assistance with Blackboard, visit [TTU K-12 Support](#).

Computer Problems

A working computer is necessary for online coursework. Computer problems will not be accepted as a valid reason for failure to complete course activities within the allotted time frame. Identify a second computer, before the course begins, that you can use if you experience computer problems.

Server Problems

When the Blackboard server needs to be taken down for maintenance, the Blackboard administrator will post an announcement in your course informing you of the time and date. If the server experiences unforeseen problems, your course instructor will notify you.

Lost or Corrupted Files

You must keep/save a copy of every project/assignment on an external disk or personal computer. In the event of any kind of technology failure (e.g., Blackboard server crash or virus infection, students' own computer problems, loss of files in cyberspace, etc.) or any disputes, the instructor may request or require you to resubmit the files. In some instances, the instructor may need to open another attempt within Blackboard, so communication with your instructor is critical in these circumstances.