



Science, Grade 8 (SCI) 8A Syllabus

Course Name

SCI 8A

Science, Grade 8 – Semester A

Course Information

SCI 8A is the first semester of this two-semester course.

Welcome to Science 8A! This course spans a variety of scientific topics, including matter, chemistry, force and waves. You will work through 6 units. There are tools and activities to help you along the way.

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.

Course Objectives

After completing this course, you should be able to:

1. use appropriate tools and units to take measurements;
2. use appropriate methods for collecting, recording, and organizing data;
3. plan an experiment;
4. recall and explain the parts of the engineering design process and the scientific method;
5. use appropriate tools and units to take measurements;
6. use appropriate methods for collecting, recording, and organizing data;
7. analyze data to draw conclusions;
8. identify ways to visually represent data and know how to read each type;

9. evaluate sources of information;
10. create and use models of atoms and common compounds;
11. read a periodic table;
12. identify states of matter as well as the processes for changes in states of matter;
13. identify and explain the properties of water;
14. identify acids and bases and compare substances based on their pH.
15. apply knowledge of electron dot diagrams to predict chemical formulas;
16. explain how valence electrons create ionic charge;
17. name compounds formed by polyatomic ions;
18. identify physical and chemical changes;
19. define and give examples that demonstrate the law of the conservation of mass.
20. identify balance and unbalanced forces;
21. calculate velocity, acceleration, kinetic energy, and force, using appropriate units of measure in answers.
22. identify and describe the properties of waves; and
23. identify and explain parts of the electromagnetic spectrum.

SCI 8 addresses the required Texas Essential Knowledge and Skills (TEKS). These can be found at the [Texas Education Agency](http://www.tea.state.tx.us) website.

Textbook and Materials

Textbook

There is no required textbook for this course.

Materials

A list of lab materials can be found in the course under Resources and within Unit folders. Most are easily accessible household items.

Technical Requirements

- Internet access – preferably high speed (for accessing Blackboard)
- Email
- Word processing software such as Microsoft Word
- Adobe Reader (download from [Adobe.com](http://adobe.com))
- Audio and video capabilities (for watching/listening to course content)

Technical Skill Requirements

Be comfortable with the following:

- using a word processor
- Internet search engines and browsers

Course Organization

This course consists of six units and a final examination. Each unit contains the following:

- Introduction with objectives, lab materials, and vocabulary terms
- Learning activities: reading, writing, and completing interactive self-checks
- Labs that can be done at home in your kitchen or with simulations provided in the course
- Lesson quizzes to help check your understanding
- Discussion boards
- Unit assessments

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.

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.

Unit	# of Lessons	Topic	Approximate Time for Completion
Unit 1	3	Think Like a Scientist	1 week
Unit 2	5	Work Like a Scientist	2 weeks
Unit 3	7	Properties of Matter	3 weeks
Unit 4	6	Chemical Reactions	3.5 weeks
Unit 5	4	Forces and Motion	3.5 weeks
Unit 6	4	Waves	1.5 weeks
Final Exam		Final Project and Final Exam	1.5 weeks

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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.

Unit	Weeks	Assignments
1	1	Checkpoint 1 (Non-graded) 1.1.1 Investigation and Inquiry Lab – Paper Airplane Challenge Lesson 1.1 Quiz Scientific Method Practice Lab – Penny Drops Lesson 1.2 Quiz Lab Safety Explore it: Lab Safety Contract (sign and upload) Lesson 1.3 Quiz Unit 1 Science Notebook (discussion board share) *Unit 1 Assessment
2	2-3	Lab – Metric Scavenger Hunt 2.1.2 Lab Equipment and Measurement continued Lesson 2.1 Quiz Collecting and Analyzing Data Lab – Collecting and Analyzing Data Lesson 2.2 Quiz Reporting Data Lab – Reporting Data Lesson 2.3 Quiz Understanding Models Using Models: Skate Park Simulation Lab Lesson 2.4 Quiz 2.5 Lab: Evaluating Sources 2.5.2 Evaluating Sources continued Lesson 2.5 Quiz Unit 2 Science Notebook (discussion board share) *Unit 2 Assessment
3	4-6	3.1 Lab – Building Matter Lesson 3.1 Quiz 3.2 Lab – Periodic Table Scavenge Hunt 3.2.2 Classification of Elements continued

Unit	Weeks	Assignments
		Lesson 3.2 Quiz 3.3.2 Elements and Compounds continued 3.3 Lab Elements and Compounds Lesson 3.3 Quiz 3.4 Mixtures and Solutions 3.5.1 Stability and Changes in Matter 3.5 Lab – States of Matter 3.5.2 – Stability and Changes in Matter continued Lesson 3.5 Quiz 3.6 Properties of Water 3.6.2 Properties of Water continued Lesson 3.6 Quiz 3.7 Acids and Bases 3.7 Lab – Exploring pH Unit 3 Science Notebook (discussion board share) *Unit 3 Assessment Checkpoint 2 (Non-graded)
4	7-10	4.1 Lab – Valence Electrons 4.1 Practice It – Reading the Periodic Table Lesson 4.1 Quiz 4.2 Chemical Formulas 4.2 Lab – Valence Electrons and Ionic Charge 4.2 Practice It – Reading Chemical Formulas Lesson 4.2 Quiz 4.3.1 Chemical Equations 4.3 Lab – What is a chemical reaction? 4.3.2 Chemical Equations continued Lesson 4.3 Quiz 4.4 Lab – Physical and Chemical Changes 4.4.2 Chemical reactions continued Lesson 4.4 Quiz 4.5 Lab – Conservation of Mass 4.5.2 – Conservation of Mass continued Lesson 4.5 Quiz Unit 4 Science Notebook (discussion board share) *Unit 4 Assessment
5	10-13	5.1 Newton's Laws of Motion 5.1 Lab – Force and Motion Lesson 5.1 Quiz

Unit	Weeks	Assignments
		5.2 Lab – Velocity and Acceleration 5.2.2 Velocity and Acceleration continued Lesson 5.2 Quiz 5.3.1 Energy and Motion 5.3 Lab – Kinetic and Potential Energy 5.3.2 Energy and Motion continued Lesson 5.3 Quiz 5.4 Lab – Mass and Acceleration 5.4.2 Mass and Acceleration continued Lesson 5.4 Quiz Unit 5 Science Notebook (discussion board share) *Unit 5 Assessment
6	14-15	6.1 Lab – Properties of Waves 6.1.2 Properties of Waves continued Lesson 6.1 Quiz 6.2 Lab – Changing Colors 6.2 Practice It Worksheet Lesson 6.2 Quiz 6.3 Explore It: Gravitational Waves 6.3 Role Models in Scientists – Write a Short Essay Lesson 6.3 Quiz 6. Lab – Build a Satellite Lesson 6.4 Quiz Unit 6 Science Notebook (discussion board share) *Unit 6 Assessment Checkpoint 3 (Non-graded)
	15-16	*Final Project (choose from 4 options) *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)**
 - Unit Assessments (6 total)
 - Final Project
- Summative Final Exam **(30% of Course Grade)**

Course Completion

- Students may not complete the course in less than 30 days.
- All courses expire six months after the enrollment date.

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 mail or email.

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.