



Science, Grade 8 A v6.1 – Syllabus

Course Name

SCIG8-A

Science, Grade 8 v6.1 – Semester A

Course Information

SCIG8-A 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 using your Canvas Inbox. Technical support is available 24/7 at [TTU K-12](#).

Course Topics

After completing this course, the students should have increased knowledge of

- use appropriate tools and units to take measurements;
- use appropriate methods for collecting, recording, and organizing data;
- plan an experiment;
- recall and explain the parts of the engineering design process and the scientific method;
- use appropriate tools and units to take measurements;
- use appropriate methods for collecting, recording, and organizing data;
- analyze data to draw conclusions;

- identify ways to visually represent data and know how to read each type;
- evaluate sources of information;
- create and use models of atoms and common compounds;
- read a periodic table;
- identify states of matter as well as the processes for changes in states of matter;
- identify and explain the properties of water;
- identify acids and bases and compare substances based on their pH.
- apply knowledge of electron dot diagrams to predict chemical formulas;
- explain how valence electrons create ionic charge;
- name compounds formed by polyatomic ions;
- identify physical and chemical changes;
- define and give examples that demonstrate the law of the conservation of mass.
- identify balance and unbalanced forces;
- calculate velocity, acceleration, kinetic energy, and force, using appropriate units of measure in answers.
- identify and describe the properties of waves; and
- identify and explain parts of the electromagnetic spectrum.

Textbook and Materials

No textbooks required. All content is within Canvas.

Materials

A complete materials list for the labs this semester can be found in the Syllabus section of this course.

- Meter stick
- Tape measure
- Digital kitchen scale that measures in grams
- Spring scale that measures Newtons and grams (found on Amazon)
- Timer
- Graduated Cylinder
- Thermometer
- pH strips (found on Amazon)
- Eye dropper
- Funnel

Technical Requirements

- Internet access – preferably high speed (for accessing Canvas)
 - browser (we recommend Chrome)
 - supported browser plugins and settings
- The following plugins and settings may be required to use our courses.

- JavaScript enabled
 - Cookies enabled
 - Java installed
- Email
- Printing capabilities
- Adobe Reader (download from [Adobe](#))
- Audio and video capabilities (for watching/listening to course content)
- PDF app (free options available)

Technical Skill Requirements

Be comfortable with the following:

- accessing online learning materials via Canvas
- Internet search engines and browsers (we recommend Chrome)
- uploading assignments into Canvas (there will be instructions for uploading assignments)

Course Pacing

This course is designed to be completed in 18 weeks.

- Print this guide and use a calendar to fill in your goal dates for completing each Module.
- Note that you must have a grade of 70 or above on a Discussion-Based Assessment (DBA) in order to continue moving forward in the course. DBAs occur every other lesson.
- To achieve success, students are expected to submit work in each course weekly.
- Students can learn at their own pace; however, "any pace" still means that students must make progress in the course every week.
- Post the pace guide in a place where you and your Parent or Guardian will see it every day (on the refrigerator or next to the computer). Give yourself a check every time you complete a task, and celebrate your efforts!

Unit	Weeks	Lessons	Due Date (you write this in)
1	1	Checkpoint 1 (Non-graded) 1.1.1 Investigation and Inquiry 1.1 Lab – Paper Airplane Challenge 1.1.2 Investigation and Inquiry Continued Lesson 1.1 Quiz 1.2.1 Scientific Method 1.2.2 Practice 1.2 Lab – Penny Drops Lesson 1.2 Quiz 1.3 Lab Safety 1.3.1 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	2.1.1 Lab Equipment and Measurement 2.1 Lab – Metric Scavenger Hunt 2.1.2 Lab Equipment and Measurement Continued Lesson 2.1 Quiz 2.2 Collecting and Analyzing Data 2.2 Lab – Collecting and Analyzing Data Lesson 2.2 Quiz 2.3 Reporting Data 2.3 Lab – Reporting Data Lesson 2.3 Quiz 2.4 Understanding Models 2.4 Using Models: Skate Park Simulation Lab Lesson 2.4 Quiz 2.5.1 Evaluating Sources 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	

Unit	Weeks	Lessons	Due Date (you write this in)
3	4-6	3.1 What is Matter 3.1 Lab - Building Matter Lesson 3.1 Quiz 3.2.1 Classification of Elements 3.2 Lab - Periodic Table Scavenge Hunt 3.2.2 Classification of Elements continued Lesson 3.2 Quiz 3.3.1 Elements and Compounds 3.3 Lab - Elements and Compounds 3.3.2 Elements and Compounds continued Lesson 3.3 Quiz 3.4 Mixtures and Solutions 3.4 Lab - Mixtures and Solutions Lesson 3.4 Quiz 3.5.1 Stability and Changes in Matter 3.5 Lab - States of Matter 3.5.2 States of Matter Lesson 3.5 Quiz 3.6.1 Properties of Water 3.6 Lab - Properties of Water 3.6.2 Properties of Water continued Lesson 3.6 Quiz 3.7 Acids and Bases 3.7 Lab – Exploring pH Lesson 3.7 Quiz Unit 3 Science Notebook (discussion board share) Checkpoint 2 (Non-graded) 3.7 Discussion-Based Assessment *Unit 3 Assessment	

Unit	Weeks	Lessons	Due Date (you write this in)
4	7-10	4.1.1 Periodic Table of Elements 4.1 Lab – Valence Electrons 4.1.2 Periodic Table of Elements continued 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 4.5.1 Conservation of Mass 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	

Unit	Weeks	Lessons	Due Date (you write this in)
5	10-13	5.1.1 Newton's Laws of Motion 5.1 Lab – Force and Motion Lesson 5.1 Quiz 5.2.1 Velocity and Acceleration 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 Lesson 5.3 Quiz 5.4.1 Mass and Acceleration 5.4 Lab – Mass and Acceleration 5.4.2 Mass and Acceleration continued Lesson 5.4 Quiz Unit 5 Science Notebook (discussion board share) 5.4 Discussion-Based Assessment *Unit 5 Assessment	
6	14-15	6.1.1 Properties of Waves 6.1 Lab – Properties of Waves 6.1.2 Properties of Waves continued Lesson 6.1 Quiz 6.2.1 Electromagnetic Waves 6.2 Lab – Changing Colors 6.2 Practice It Worksheet Lesson 6.2 Quiz 6.3 Waves in Space 6.3 Explore It: Gravitational Waves 6.3 Role Models in Scientists – Write a Short Essay Lesson 6.3 Quiz 6.4 Wave Technology 6. Lab – Build a Satellite Lesson 6.4 Quiz Unit 6 Science Notebook (discussion board share) *Unit 6 Assessment	

Unit	Weeks	Lessons	Due Date (you write this in)
	15-16	*Final Project (choose from 4 options) Checkpoint 3 (Non-graded) *Final Exam	
	17-18	Floating Vacation Weeks	

Course Credit

Your grade will be calculated as follows:

- formative assessments (50%)
- summative assessments (20%)
 - Unit 1 Assessment
 - Unit 2 Assessment
 - Unit 3 Assessment
 - Unit 4 Assessment
 - Unit 5 Assessment
 - Unit 6 Assessment
 - Final Project
- summative final exam (30%)

Assignments are labeled as “summative” or “formative” under Grades in Canvas.

Course Completion and Extensions

- Students may not complete the course in less than 30 days.
- All courses expire 180 days 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.

Artificial Intelligence (AI) Use Policy

This policy covers any generative AI tool, such as ChatGTP, Elicit, Photo Math, etc. This includes text and artwork/graphics/video/audio, etc.

All work submitted in this course must be your own. You may not use artificial intelligence tools to complete your assignments in this course.

If an instructor suspects that an assignment is not the work of the student, it will receive a score of zero. The instructor will message the student or provide feedback on the assignment indicating the need to schedule a one-on-one video conference, during which the student will be required to demonstrate their skills or knowledge through an alternative or mutually agreed-upon assignment. The grade of the alternate or agreed upon assignment will be determined at the instructor's discretion with the highest possible score being 70%.

If it is determined that a student has violated final exam directions on Final Exam A or CBE Set 1, the exam will be scored as zero. The student may take Final Exam B or CBE Set 2 with the highest possible score being 70%.

The incident will be reported to Texas Tech K-12 Administration and documented in the student's file. Continued violations of Texas Tech University's Academic Integrity Policy will result in the removal of the student from the program.

Student/Parent Expectations

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

The following are prohibited while using the Canvas interface:

- spamming;
- hacking; and
- using TTU or Canvas email for commercial purposes;

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 Canvas Inbox for sending messages to your instructor.

Submitting Assignments

You will submit all assignments through Canvas, rather than by mail or email.

Technical Difficulties

Getting Help

For student assistance with Canvas, 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 Canvas server needs to be taken down for maintenance, the Canvas 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., Canvas 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 Canvas, so communication with your instructor is critical in these circumstances.