Science, Grade 8 B
v6.1 – Syllabus

Course Name

SCIG8-B

Science, Grade 8 v6.1 – Semester B

Course Information

SCIG8-B is the second semester of this two-semester course.

Welcome to Science 8B! This course spans a variety of scientific topics, including stars, galaxies, the sun and moon, and the origins of the universe; weather systems; climate change; ecosystems; cell structures and functions; and the traits of organisms. 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

- describe the life cycle of stars and compare and classify stars using the Hertzsprung-Russell diagram;
- categorize galaxies as spiral, elliptical, and irregular and locate Earth's solar system within the Milky Way galaxy;
- research and analyze scientific data used as evidence to develop scientific theories that describe the origin of the universe;
- describe how energy from the Sun, hydrosphere, and atmosphere interact and influence weather and climate;

- identify global patterns of atmospheric movement and how they influence local weather;
- describe the interactions between ocean currents and air masses that produce tropical cyclones, including typhoons and hurricanes;
- use scientific evidence to describe how natural events, including volcanic eruptions, meteor impacts, abrupt changes in ocean currents, and the release and absorption of greenhouse gases influence climate;
- use scientific evidence to describe how human activities, such as the release of greenhouse gases, deforestation, and urbanization, can influence climate;
- describe the carbon cycle;
- explain how disruptions such as population changes, natural disasters, and human intervention impact the transfer of energy in food webs in ecosystems;
- describe how primary and secondary ecological succession affect populations and species diversity after ecosystems are disrupted by natural events or human activity;
- describe how biodiversity contributes to the stability and sustainability of an ecosystem and the health of the organisms within the ecosystem;
- identify the function of the cell membrane, cell wall, nucleus, ribosomes, cytoplasm, mitochondria, chloroplasts, and vacuoles in plant or animal cells;
- describe the function of genes within chromosomes in determining inherited traits of offspring; and
- describe how variations of traits within a population lead to structural, behavioral, and physiological adaptations that influence the likelihood of survival and reproductive success of a species over generations.

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.

- access to various science websites
- smartphone or digital camera to video record presentations and take photos of labs

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)*
7	1-2	Checkpoint 1 (Non-graded) 7.1.1 : Stars Lab 7.1 - Hertzsprung-Russell Diagram Practice 7.1.2 : Stars (continued)	

Unit	Weeks	Lessons	Due Date *(you write this in)*
		Lesson 7.1 Quiz 7.2.1 : Galaxies Lab/Activity 7.2 - Studying Galaxies 7.2.2 : Galaxies (continued) Lesson 7.2 Quiz 7.3.1 : The Sun and Moon Lab 7.3 - Solar System Simulation 7.3.2 : The Sun and Moon (continued) Lesson 7.3 Quiz 7.4.1 : The Origins of the Universe Lab 7.4 - How Far is the Sun? 7.4.2 : Origins of the Universe (continued) Lesson 7.4 Quiz Unit 7 Science Notebook (discussion board share) ***Unit 7 Assessment**	
8	3-4	8.1 : Water in the Atmosphere Lab 8.1 - Condensation Lesson 8.1 Water Cycle Assignment Lesson 8.1 Quiz 8.2.1 : Patterns of Movement and Weather Lab 8.2 - Density and Movement 8.2.2 : Patterns of Movement and Weather (continued) Lesson 8.2 Weather Front Assignment 8.3.1 : Oceans and Currents Lab 8.3 - Milk Currents 8.3.2 : Oceans and Currents (continued) Lesson 8.3 Quiz 8.4.1 : Storms Lab 8.4 - Storm in a Glass 8.4.2 : Storms (continued) Lesson 8.4 Quiz 8.4 Discussion-Based Assessment ***Unit 8 Assessment**	
9	5-6	9.1.1: Climate Regions Lab 9.1 - Climate Regions	

Unit	Weeks	Lessons	Due Date *(you write this in)*
		9.1.2: Climate Regions (continued) Lesson 9.1 Quiz 9.2.1 : Ocean Effects Lab 9.2 – Ocean Currents Lab 9.2.2 : Ocean Effects (continued) Lesson 9.2 Ocean Currents Assignment 9.3.1 : Natural Events Lab/Activity 9.3 – Earth's Climate System 9.3.2 : Natural Events (continued) Lesson 9.3 Quiz 9.4.1 : Human Activities Lab 9.4 - Climate Change through History 9.4.2 : Human Activities (continued) Lesson 9.4 Quiz Unit 9 Science Notebook (discussion board share) Checkpoint 2 (Non-graded) ***Unit 9 Assessment**	
10	7-9	10.1.1 : Living and Nonliving Things Lab 10.1 - Coral Reef Ecosystems 10.1.2: Living and Nonliving Things (continued) Lesson 10.1 Quiz 10.2.1 : Energy Flow Lab 10.2 - Dangers in Food Webs 10.2.2: Energy Flow (continued) Lesson 10.2 Quiz 10.3.1 : Interactions Among Organisms Lab/Activity 10.3 - Ecology Scavenger Hunt 10.3.2 : Interactions Among Organisms (continued) Lesson 10.3 Quiz 10.4: Changes in Communities Lab 10.4 - Succession Lesson 10.4 Succession Assignment	

Unit	Weeks	Lessons	Due Date *(you write this in)*
		Unit 10 Science Notebook (discussion board share) ***Unit 10 Assessment**	
11	10-12	11.1.1 : Cell Structure and Cell Theory Lab 11.1 - Cell Membrane Egg-speriment 11.1.2 : Cell Structure and Cell Theory (continued) Lesson 11.1 Quiz 11.2.1 : Plant and Animal Cells Lab 11.2 - Cell Models 11.2.2 : Plant and Animal Cells (continued) Lesson 11.2 Quiz 11.3.1 : Photosynthesis and Respiration Lab 11.3 - Plant Activity 11.3.2 : Photosynthesis and Respiration (continued) Lesson 11.3 Quiz ***Unit 11 Assessment**	
12	13-14	12.1.1 : Genes and DNA Lab 12.1 - A Whale of a Tale 12.1.2 : Genes and DNA (continued) Lesson 12.1 Quiz 12.2.1 : Reproduction Lab/Activity 12.2 - The Life of Mendel 12.2.2 : Reproduction (continued) Lesson 12.2 Genetic Diagram Assignment	

Unit	Weeks	Lessons	Due Date *(you write this in)*
		12.3.1: Adaptation and Natural Selection Lab/Activity 12.3 - Flip for Adaptations 12.3.2: Adaptation and Natural Selection (continued) Lesson 12.3 Quiz Unit 12 Science Notebook (discussion board share) ***Unit 12 Assessment**	
	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 7 Assessment
    - Unit 8 Assessment
    - Unit 9 Assessment
    - Unit 10 Assessment
    - Unit 11 Assessment
    - Unit 12 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.