

SCI0500_202338_Staging_EMBR_TEM

SCI-500

2023 05/01/2023 to 04/30/2024 Modified 03/21/2023

Course Description

This science course emphasizes the importance of selecting appropriate instruments for measuring and recording observations. Students are introduced to more detailed concepts of sound and light and the tools used for studying. Students explore the fundamental concepts of matter, including atoms, molecules, elements, and compounds, through a biblical worldview. This scientific view defines the idea that explanations of nature are developed and tested using observation, experimentation, models, evidence, and systematic processes. Students will use the engineering design process to create prototypes and develop an understanding of the steps used. They will use the process to create new ideas and develop these into workable models.

Rationale

This course provides students with an opportunity to study and explore scientific topics through interactive and engaging activities and lessons. Students will learn about both God's world and Christian values. The truths of creation and God's design will be continuously woven into the entire course, allowing students to gain solid scientific knowledge with a biblical worldview. Students will explore a wide range of topics which include: creation, the scientific method, the engineering design process, matter, energy and machines, force and motion, electricity and circuits, sound, light, and earth science.

Course Learning Outcomes

- A. The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations.
- B. The student will investigate and understand how sound is created and transmitted, and how it is used.
- C. The student will investigate and understand basic characteristics of visible light and how it behaves.
- D. The student will investigate and understand that matter is anything that has mass and takes up space; and occurs as a solid, liquid, or gas.
- E. The student will investigate and understand that organisms are made of one or more cells and have distinguishing characteristics that play a vital role in the organism's ability to survive and thrive in its environment.
- F. The student will investigate and understand characteristics of the ocean environment.

Biblical Integration Outcomes

- A. Students will develop an understanding of God's design in creation and be able to link everything they learn back to what the Bible says.

Course Resources

See Ember's [Systems Requirements](#) for computer specifications necessary to operate this curriculum.

- Note: Embedded YouTube videos may be utilized to supplement Ember's YouTube videos are the property of the respective content creator, licensed to YouTube for distribution and user access. As a non-profit educational institution, Ember is able to use

* Course Policies

Types of Assessments

To simplify and clearly identify which policies apply to which assessment, each assessment has been categorized into one of four categories: Lesson, Assignment, Quiz, or Test. Each applicable item on the course Modules page has been designated with an identifier chosen from among these categories. Thus, a Quiz on the American Revolution may be designated by the title, "1.2.W Quiz: The American Revolution."

- **Lesson:** *Any item on the Modules page designated as a "Lesson"*

These include instructional content and sometimes an assessment of that content. Typically, a Lesson will be the day-to-day work that a student completes.

- **Assignment:** *Any item on the Modules page designated as an "Assignment"*

Typical examples of Assignments include, but are not limited to, papers, book reports, projects, labs, and speeches. Assignments are usually something that the student should do his or her best work on the first time.

- **Quiz:** *Any item on the Modules page designated as a "Quiz"*

This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Quizzes cover a smaller amount of material than Tests.

- **Test:** *Any item on the Modules page designated as a "Test"*

This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Tests cover a larger amount of material than Quizzes.

Materials Selection Policy

Ember curates educational materials that are consistent with the school's philosophy; however, the fallen human condition depicted in literature (as in Scripture itself) is not always pleasant. Valuable works sometimes have objectionable or profane elements. Good books provide four (4) recognized values.

- They build godly attitudes and character traits.
- They deepen our social and cultural awareness.
- They strengthen our use of written language.
- They provide a lifelong source of enjoyment and relaxation.

In order to instill these values in students and fulfill the stated objectives of the school, all Ember students are expected to read and study good books on a regular basis. Recognizing that materials designed for one level may not be appropriate for another, three (3) levels of criteria are applied:

- Elementary materials must contain no objectionable material,
- Objectionable elements in sixth through eighth-grade materials must be limited and must serve a specific educational purpose, and
- Objectionable content may be included in high school materials but must be outweighed by positive literary, curricular, and/or Christian values.

The curriculum department has approved required educational materials for students.

Resubmission Policy

Students are expected to submit their best work on the first submission for every Lesson, Assignment, Quiz, and Test. However, resubmissions may be permitted in the following circumstances:

- **Lesson:** Students are automatically permitted two attempts on a lesson. Students may freely resubmit for their first two attempts without the need for teacher approval.

If a student feels that he or she deserves a resubmission on a Lesson, Assignment, Quiz, or Test due to a technical issue such as a computer malfunction, the student should message his or her teacher to make the request. With Ember, the teacher may be a physical school teacher or the student's parent/guardian. The teacher can give another attempt from his or her Canvas account. For more information on how to do this, please review the Ember orientation course.

Schedule

Module 1: Creation

- Week 1: Introduction to Creation
- Week 2: Creation

Module 2: Scientific Method and Engineering Design Process

- Week 3: Introduction to the Scientific Method
- Week 4: Designing an Experiment
- Week 5: Conducting and Experiment
- Week 6: Introduction to Engineering Design Process
- Week 7: Engineering Design Process
- Week 8: Engineering Design Process in Action
- Week 9: Review Week

Module 3: Matter

- Week 10: Matter
- Week 11: States of Matter

Module 4: Energy and Machines

- Week 12: Introduction to Energy
- Week 13: Forms of Energy
- Week 14: Machines

Module 5: Force and Motion

- Week 15: Introduction to Force and Motion
- Week 16: Work
- Week 17: Motion
- Week 18: Review Week

Module 6: Electricity and Circuits

- Week 19: Electricity
- Week 20: Circuits
- Week 21: Magnetism

Module 7: Sound

- Week 22: Introduction to Sound
- Week 23: Sound

Module 8: Light

- Week 24: Introduction to Light
- Week 25: Light
- Week 26: Transmission of Light
- Week 27: Review Week

Module 9: Geology

- Week 28: Introduction to Geology
- Week 29: Rocks
- Week 30: Natural Science
- Week 31: The Earth's Surface

Module 10: Earth's Resources

- Week 32: Introduction to Resources
- Week 33: Energy Resources
- Week 34: Resources
- Week 35: Conservation
- Week 36: Review Week