Idaho State University | Albion Center for Professional Development

Elementary Science Topics

Course Syllabus

Course Description

The elementary science curriculum has evolved dramatically over the last few decades. Students are expected to know much more than facts, but ways to engineer solutions to complex scientific problems. What are the foundational science content elementary students learn and what are the best teaching strategies and activities to use to help students understand this content? Next Generation Science Standards Topics to be covered include Forces and Interactions, Ecosystems, Earth's Systems, Earth's Place in the Universe, From Molecules to Organisms, Energy, Human Impacts on Earth, and Engineering Design.

This course enhances classroom teaching effectiveness and supports improved student outcomes by introducing new knowledge in core elementary science content aligned with NGSS, with research-based strategies and hands-on, inquiry-based learning to help young learners think critically and apply scientific concepts to real-world problems.

Course Objectives

At the end of this course you should be able to:

1. To develop a deep understanding of forces and interactions and how to teach concepts to elementary-aged students.
2. To develop a deep understanding of ecosystem concepts and how to teach these concepts to elementary-aged students.
3. To develop a deep understanding of Earth's systems and how to teach these concepts to elementary-aged students.
4. To develop a deep understanding of Earth's place in the universe and how to teach these concepts to elementary-aged students.
5. To develop a deep understanding of concepts related to organisms and how to teach these concepts to elementary-aged students.
6. To develop a deep understanding of concepts related to energy and how to teach these concepts to elementary-aged students.
7. To develop a deep understanding of concepts related to human impacts on Earth and how to teach these concepts to elementary-aged students.
8. To develop a deep understanding of concepts related to engineering design and how to teach these concepts to elementary-aged students.

Modules

- Module 1: Forces and Interactions, Quiz 1
- Module 2: Ecosystems, Quiz 2
- Module 3: Earth's Systems, Quiz 3
- Module 4: Earth's Place in the Universe, Quiz 4
- Module 5: From Molecules to Organisms, Quiz 5

- Module 6: Energy, Quiz 6
- Module 7: Human Impacts on Earth, Quiz 7
- Module 8: Engineering Design, Quiz 8

Grading

Each quiz must be passed at an 80% or higher (three attempts allowed).

Format

This is a self-paced, asynchronous (no required live meetings) course. Throughout the PD course, you will find it helpful to take notes along the way to assist with the quizzes. Within each module, you will find reflection assessments that are not graded but will help in your journey through the course. There is an interactive forum in the course to help you connect with peers and instructors, share ideas, and collaborate on best practices throughout your learning journey.