



# Creating a Local NGSS Curriculum

## Course Syllabus

### Course Description

The adoption of the Next Generation Science Standards (NGSS) has energized educators to engage K–12 students in meaningful, inquiry-based science learning. With its 3-Dimensional Framework—encompassing Science and Engineering Practices, Crosscutting Concepts, and Disciplinary Core Ideas—NGSS helps students develop the skills needed to explore and make sense of the world around them. However, many widely available curricula lack the local relevance needed to fully engage students in scientific investigation. This course emphasizes the importance of place-based, locally relevant science instruction and guides educators in designing NGSS-aligned curriculum that connects students to the phenomena and environments they know best. Participants will learn strategies for integrating local context into science teaching to make learning more authentic, accessible, and impactful for all students.

This course enhances classroom teaching effectiveness and supports improved student outcomes by introducing new knowledge in designing and implementing NGSS-aligned science instruction that leverages place-based and locally relevant phenomena to deepen student engagement, foster inquiry-based learning, and develop scientific literacy through authentic, meaningful connections to students' own communities and environments.

### Course Objectives

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

1. Identify and explain at least two ways that place and locality can enhance student engagement and understanding in science instruction.
2. Analyze and apply one strategy to transform the classroom into a space where students regularly observe and interpret real-world scientific phenomena.
3. Design and present one differentiated science learning experience that meets the needs of diverse learners in a specific educational context.
4. Select and implement one new instructional tool that supports student-led inquiry into a local scientific phenomenon.
5. Develop and teach a lesson that connects local scientific observations to broader, global scientific concepts.
6. Create and evaluate a classroom activity that incorporates inquiry and empathy using design thinking to address a local community science-related issue.
7. Develop a cross-disciplinary lesson plan that integrates science learning with at least one other subject area (e.g., math, ELA, social studies).
8. Draft and refine an action plan that outlines concrete steps for integrating place-based science strategies into your classroom curriculum.



## **Modules**

- Module 1: Why Place Matters, Quiz 1
- Module 2: Community as Classroom, Quiz 2
- Module 3: Learner-Centered Teaching, Quiz 3
- Module 4: Inquiry-Based Learning in Science, Quiz 4
- Module 5: Local to Global Perspective for Students, Quiz 5
- Module 6: Design Thinking, Quiz 6
- Module 7: Interdisciplinary Learning in Science, Quiz 7
- Module 8: PBL How-Tos, 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.