

Intel® Teach Elements

Inquiry in the Science Classroom

Action Plan: _____

Instructions: Click any of the activity names in the Contents to go directly to that section. On a PC, click or press Ctrl+click to make your selection. On a Mac, press Command+click. Type your notes in the sections indicated.

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Module 1: Introduction to Scientific Inquiry

Lesson 1: Scientific Inquiry

Activity 2: Integrating Inquiry

Estimated Time: 10 minutes

What questions do you have about inquiry? List your questions below.

Module 1: Introduction to Scientific Inquiry

Lesson 1: Scientific Inquiry

Activity 4: Misconceptions and Challenges of Scientific Inquiry

Estimated Time: 10 minutes

What aspect of scientific inquiry are you already doing or what appeals to you about scientific inquiry? Record your ideas below.

Module 1: Introduction to Scientific Inquiry

Lesson 2: Scientific Inquiry in the Classroom

Activity 2: Pedagogical Approaches

Estimated Time: 10 minutes

List ideas that you have for adding scientific inquiry to a particular lab or activity that you already teach.

Module 1: Introduction to Scientific Inquiry

Lesson 2: Scientific Inquiry in the Classroom

Activity 3: Scientific Inquiry Continuum

Estimated Time: 15 minutes

List recent inquiry-based investigations in your classrooms and identify where each is on the continuum.

Open	Guided	Structured	Limited

How does the continuum help you consider opportunities to build more inquiry into the curriculum?

Module 1: Introduction to Scientific Inquiry

Lesson 4: Module Review

Activity 1: Module Summary

Estimated Time: 5 minutes

Reflect on your learning in this module.

Module 2: Phases of Scientific Inquiry

Lesson 1: The Nature of Scientific Knowledge

Activity 2: An Inquiry-Ready Mind

Estimated Time: 10 minutes

What specific habits of mind and inquiry-based abilities do you want your students to learn first to help them be successful in scientific inquiry? Record your thoughts below.

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Module 2: Phases of Scientific Inquiry

Lesson 2: Skills for Scientific Inquiry

Activity 3: Methodology Errors

Estimated Time: 15 minutes

Which skills will you focus on to help your students be successful in scientific inquiry? Identify skills and note which activities or units will emphasize these skills.

Skill	Activity or Unit
Measuring	
Observing	
Estimating	
Predicting	
Classifying	
Interpreting	
Inferring	
Communicating	
Asking inquiry questions	
Creating a hypothesis	
Designing procedures	
Designing methods for documenting data	

Module 2: Phases of Scientific Inquiry

Lesson 3: Scientific Inquiry Phases

Activity 2: Examples of Scientific Inquiry

Estimated Time: 10 minutes

What topics do you currently teach that would benefit from the Scientific Inquiry Phases? Brainstorm some activities, lessons, or projects in which you could incorporate the Scientific Inquiry Phases.

Topic	Activities, Lessons, or Projects

Module 2: Phases of Scientific Inquiry

Lesson 4: Module Review

Activity 1: Module Summary

Estimated Time: 5 minutes

Reflect on your learning in this module.

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Module 3: Instructional Design for Scientific Inquiry

Lesson 1: Standards and Objectives

Activity 2: Objectives

Estimated Time: 15 minutes

Select a topic from the brainstormed list you created in Module 2, Lesson 2, Activity 3 of your Action Plan. What standards and objectives would you address with that topic?

Standards	Objectives

Module 3: Instructional Design for Scientific Inquiry

Lesson 2: Inquiry Projects

Activity 2: Project Introduction

Estimated Time: 10 minutes

What areas in your curriculum would be appropriate for a scientific inquiry project?

What level of inquiry will your students participate in?

What kind of investigation would students conduct?

How might you introduce the project?

Module 3: Instructional Design for Scientific Inquiry

Lesson 3: Assessment in Inquiry-Based Science Classrooms

Activity 3: Summative Assessment

Estimated Time: 10 minutes

Identify any assessments you have saved for use in your classroom. Describe how you will use these assessments.

Assessment	How You Will Use It

Module 3: Instructional Design for Scientific Inquiry

Lesson 4: Module Review

Activity 1: Module Summary

Estimated Time: 5 minutes

Reflect on your learning in this module. What aspects of scientific inquiry are you most likely to use in your planning?

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Module 4: Science Inquiry in the Classroom

Lesson 1: Inquiry Learning Experiences

Activity 3: Fieldwork

Estimated Time: 15 minutes

Describe a scientific inquiry activity that you can use to address one or more objectives you developed in Module 3.

Objective

Scientific Inquiry Activity

Module 4: Science Inquiry in the Classroom

Lesson 2: Environments that Support Inquiry

Activity 3: Self-Direction

Estimated Time: 15 minutes

What goals can you set to make your classroom more of a learning community?

What collaborative activities will you design for your students?

How could you help your students be more self-directed?

Module 4: Science Inquiry in the Classroom

Lesson 3: Scientific Discourse

Activity 2: Science Writing

Estimated Time: 10 minutes

Describe ways you can include more scientific discourse in your classroom. How can you add or modify speaking and writing activities to support scientific inquiry

practices?

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Module 4: Science Inquiry in the Classroom

Lesson 4: Inquiry Practices Instruction

Activity 3: Feedback

Estimated Time: 10 minutes

What scientific inquiry practices will you target with instruction? What teaching strategies will you use?

Inquiry Practice	Teaching Strategies

Module 4: Science Inquiry in the Classroom

Lesson 5: Module Review

Activity 1: Module Summary

Estimated Time: 5 minutes

Reflect on your learning in this module.

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Module 5: Technology that Supports Scientific Inquiry

Lesson 1: Technology Tools for Exploration and Investigation

Activity 4: Intel Education Thinking Tools

Estimated Time: 15 minutes

What data collection tool(s) would you like to investigate for your students to use?

Online Tool	Web Address	Possible Use

Module 5: Technology that Supports Scientific Inquiry

Lesson 2: Technology Tools for Interpretation

Activity 2: The Right Tool for the Job

Estimated Time: 15 minutes

What online data interpretation tool(s) would you like to investigate for your students to use?

Online Tool	Web Address	Possible Use

What skills will your students need to develop in order to choose the best tool for their purpose and type of data? Choose two or three thinking skills below, and briefly describe why you think each one would benefit your students when selecting tools for scientific inquiry.

Thinking Skill	Role in Inquiry Tool Selection
Refine Compare	

Clarify	
Analyze	
Evaluate	
Question	
Connect	
Reason	
Examine	

Module 5: Technology that Supports Scientific Inquiry

Lesson 3: Technology Tools for Presentation and Collaboration

Activity 1: Tools for Data Presentation

Estimated Time: 10 minutes

Consider the types of data your students will collect for their inquiry investigations. What technology tools might be the most useful and relevant for your students to present their data?

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Module 5: Technology that Supports Scientific Inquiry

Lesson 3: Technology Tools for Presentation and Collaboration

Activity 2: Tools for Data Collaboration

Estimated Time: 10 minutes

Which type(s) of collaborative Internet projects would you like to investigate?

Project Type	Possible Use

What guidelines for online collaboration will you follow to ensure a successful project experience?

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Module 5: Technology that Supports Scientific Inquiry

Lesson 4: Module Review

Activity 1: Module Summary

Estimated Time: 5 minutes

Reflect on your learning in this module. How will you successfully incorporate technology tools to support each phase of scientific inquiry in your classroom?

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Course Wrap-Up

Summary

Estimated Time: 15 minutes

How will you use the ideas presented in the course?

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