

Module Study Protocol



PREVIEW THE LEARNING

Step 1: Explore the Module Content and Ideas

| Action Items | Guiding Questions | Resources |
|---|--|--|
| <p>A. Read the Introduction in the Module Overview.</p> <ul style="list-style-type: none"> Identify the anchor and supporting phenomena for the module. | <ul style="list-style-type: none"> What scientific understanding do students build by studying the anchor and supporting phenomena? | <ul style="list-style-type: none"> Module Overview–Introduction |
| <p>B. Study the questioning structure.</p> <ul style="list-style-type: none"> Identify the Essential Question, Focus Questions, and Phenomenon Questions that students explore throughout the module. Use the Enduring Understanding, Concept Statements, and Knowledge Statements to answer the guiding questions. | <ul style="list-style-type: none"> How do the Focus Questions work together to build a coherent understanding of the Essential Question? How does exploring the Phenomenon Questions help students answer the Focus Questions? | <ul style="list-style-type: none"> Module Overview–Module Map Module questioning structure |

Step 2: Identify the Module Focus Standards

| Action Items | Guiding Questions | Resources |
|---|---|--|
| <p>A. Examine the focus standards.</p> | <ul style="list-style-type: none"> How does exploring the anchor phenomenon help students develop the targeted science ideas? (Content Standards) What scientific and engineering practices do students use to develop an understanding of the targeted science ideas? (Scientific and Engineering Practices, or SEPs) What recurring science concepts do students apply to uncover the targeted science ideas? (Recurring Themes and Concepts, or RTCs) | <ul style="list-style-type: none"> Module Overview–Focus Standards |
| <p>B. Read the Building Content Knowledge section in the Module Overview.</p> | <ul style="list-style-type: none"> How are students building content knowledge as they navigate through each concept in the module? | <ul style="list-style-type: none"> Module Overview–Building Content Knowledge |

Step 3: Examine the Module Assessments

| Action Items | Guiding Questions | Resources |
|---|---|---|
| <p>A. Examine the End-of-Module Assessment (EOMA) and the EOMA rubric.</p> <ul style="list-style-type: none"> Review the EOMA by taking the assessment or looking at the sample student responses. Explore the EOMA rubric. | <ul style="list-style-type: none"> How do students demonstrate their understanding? What evidence do you see of students applying science knowledge (Content Standards), scientific and engineering practices (SEPs), recurring science concepts (RTCs)? | <ul style="list-style-type: none"> EOMA and EOMA rubric Module Overview–Focus Standards |
| <p>B. Examine the Conceptual Checkpoints.</p> | <ul style="list-style-type: none"> What connections exist between the Conceptual Checkpoints and the EOMA? | <ul style="list-style-type: none"> Conceptual Checkpoints EOMA and EOMA rubric |

INVESTIGATE THE DEVELOPMENT OF LEARNING

Step 4: Determine the Module Investigations

| Action Items | Guiding Questions | Resources |
|---|--|--|
| <p>A. Examine the anchor visual progression.</p> <ul style="list-style-type: none"> Identify the anchor visual updates for each concept in the module. | <ul style="list-style-type: none"> What are the critical components of the anchor visual updates? How do students progress toward answering the Essential Question? | <ul style="list-style-type: none"> Appendix A: Module Storyline |
| <p>B. Analyze the learning progression in the module.</p> <ul style="list-style-type: none"> Consider these questions one concept at a time. | <ul style="list-style-type: none"> What question are students exploring? What investigations and activities are students engaging in? What are students figuring out? How does what students figure out connect to other learning? How does it connect to previous learning? How does it move or drive the learning forward? | <ul style="list-style-type: none"> Appendix A: Module Storyline |

PREPARE FOR INSTRUCTION

Step 5: Deepen the Learning and Preparation

| Action Items | Guiding Questions | Resources |
|---|---|--|
| A. Leverage student strengths and anticipate barriers. | <ul style="list-style-type: none"> • How can your students leverage their strengths? • What barriers may exist for your students within the module's content? How will you support access to the content for students who have gaps in background knowledge? • How will you support students in building a coherent understanding of the science content? • How can you use local or culturally relevant phenomena to support students? | |
| B. Prepare the necessary materials and plan for materials management. | <ul style="list-style-type: none"> • What materials are needed? • What advance materials preparation needs to occur? • What is your materials management plan/routine? | <ul style="list-style-type: none"> • Module Overview–Advance Materials Preparation • Module Resources • Great Minds Digital Platform: Materials List • Great Minds Digital Platform: Preparation Guide |
| C. Consider pacing needs and how to address pacing obstacles. | <ul style="list-style-type: none"> • How many days are allotted for the module and each lesson set? • What pacing concerns need to be addressed when planning a lesson set? • Optional: How does the pacing for this module compare to state or district pacing guides? | <ul style="list-style-type: none"> • Module Overview–Module Map |
| D. Engage in any additional study you need to be fully prepared. | <ul style="list-style-type: none"> • What questions do you have about the science? • What additional resources or information do you need to feel fully prepared to teach the module? | <ul style="list-style-type: none"> • Module Overview–Additional Reading for Teachers • Credible outside resources |

Lesson Study Protocol

Preview the Learning

Investigate the Development of Learning

Prepare for Instruction

PREVIEW THE LEARNING

Step 1: Explore the Lesson Set Content and Ideas

| Action Items | Guiding Questions | Resources |
|--|--|---|
| <p>A. Read the Prepare section.</p> <ul style="list-style-type: none"> Identify the Phenomenon Question. Note the Knowledge Statement and the lesson objectives. | <ul style="list-style-type: none"> What science understanding do students develop by the end of this lesson set? How does this new understanding build toward their explanation of the anchor phenomenon? How will exploring the Phenomenon Question help students build a coherent understanding of the Focus Question? | <ul style="list-style-type: none"> Prepare section |

Step 2: Identify the Lesson Set Standards Addressed

| Action Items | Guiding Questions | Resources |
|--|---|---|
| <p>A. Examine the Standards Addressed.</p> | <ul style="list-style-type: none"> How does exploring the anchor and supporting phenomena develop the targeted science ideas? (Content Standards) How do students use scientific and engineering practices to develop an understanding of the module's science ideas? (Scientific and Engineering Practices, or SEPs) How do students apply recurring science concepts to uncover the module's science ideas? (Recurring Themes and Concepts, or RTCs) | <ul style="list-style-type: none"> Prepare section—Standards Addressed |

Step 3: Examine the Lesson Set Assessments

| Action Items | Guiding Questions | Resources |
|---|---|---|
| <p>C. Examine the Checks for Understanding.</p> <ul style="list-style-type: none"> Locate and read the Checks for Understanding in the lesson set. | <ul style="list-style-type: none"> What evidence do you see of students applying science ideas (Content Standards), scientific and engineering practices (SEPs), and recurring science concepts (RTCs)? Why are the science ideas (Content Standards), scientific and engineering practices (SEPs), and recurring science concepts (RTCs) in the Check for Understanding important to formatively assess? | <ul style="list-style-type: none"> Checks for Understanding (inline and sidebar) |
| <p>D. Make connections to the Conceptual Checkpoint and the End-of-Module Assessment (EOMA).</p> | <ul style="list-style-type: none"> How do the Checks for Understanding connect to the Conceptual Checkpoint and the EOMA? | <ul style="list-style-type: none"> Conceptual Checkpoint EOMA and EOMA rubric Checks for Understanding |

INVESTIGATE THE DEVELOPMENT OF LEARNING

Step 4: Determine the Lesson Set Investigations

| Action Items | Guiding Questions | Resources |
|---|--|--|
| <p>A. Analyze the learning progression.</p> <ul style="list-style-type: none"> Identify student-generated questions that connect to exploration of the phenomena in this lesson set. | <ul style="list-style-type: none"> What question are students exploring? What investigations and activities are students engaging in? What are students figuring out? How does what students figure out connect to other learning? How does it connect to previous learning? How does it move or drive the learning forward? How does what students figure out connect to the anchor visual updates in the concept? | <ul style="list-style-type: none"> Appendix A: Module Storyline Lesson pages Classroom anchor visuals: anchor model, anchor chart, driving question board |

PREPARE FOR INSTRUCTION

Step 5: Deepen the Learning and Preparation

| Action Items | Guiding Questions | Resources |
|--|--|--|
| <p>A. Plan for each lesson in the lesson set.</p> <ul style="list-style-type: none"> Complete the lesson's investigations prior to facilitating with students. | <ul style="list-style-type: none"> What student-generated questions are explored and answered? How can you support students while maintaining rigor and keeping instruction student-driven? How will you support students in building a coherent understanding of the science content and understanding the purpose behind the lesson's investigations? How do the lesson's questions move students toward answering the Phenomenon Question and achieving the lesson's objective? Are there any parts of the lesson that you need to practice prior to facilitating this lesson with students? | <ul style="list-style-type: none"> Lesson pages, including Just-in-Time notes Science Logbook Great Minds Digital Platform: Pacing Guide Great Minds Digital Platform: Investigation Videos for Students |
| <p>B. Prepare the necessary materials and plan for materials management.</p> | <ul style="list-style-type: none"> What materials are needed? What advance materials preparation needs to occur? What is your materials management plan/routine? How can you plan to overcome any environmental barriers that may exist for students? | <ul style="list-style-type: none"> Great Minds Digital Platform: Investigation Videos for Teachers Module Resources Great Minds Digital Platform: Materials List Great Minds Digital Platform: Preparation Guide |
| <p>C. Consider pacing needs and how to address pacing obstacles.</p> | <ul style="list-style-type: none"> How can you maximize instructional time while honoring the curriculum's intentional design and structure? Optional: How does the pacing for this lesson set compare to state or district pacing guides? | <ul style="list-style-type: none"> Lesson pages Great Minds Digital Platform: Pacing Guide |
| <p>D. Explore connections to other content areas.</p> <ul style="list-style-type: none"> Identify any mathematics or English language arts (ELA) skills and knowledge students may need to apply. | <ul style="list-style-type: none"> How can you leverage the coherence between content areas to support and/or accelerate student learning? How can you ensure coherence between content areas? How can you ensure these mathematics and ELA connections are coherent from the student perspective? | <ul style="list-style-type: none"> Lesson pages, including Just-in-Time notes District, state, or national mathematics and ELAR resources Mathematics and/or ELAR curricula |