LOUISIANA STUDENT STANDARDS SCIENCE

Planning Guide for Science Instruction

This document is designed to support teachers in planning with high-quality science materials. The guide consists of four sections:

- Unit Unpacking
- Unit Launch Deep Dive
- Lesson Set Annotation
- Student Work Analysis

Educators should use the guide during teacher collaboration time and revisit the guide's steps at various times throughout the unit planning process.

Considerations Before Collaborative Planning

Teachers should have a printed or digital copy of the unit, lesson set, or lesson being analyzed during collaboration. To maximize time in collaboration, teachers need to review materials before meeting and be familiar with guidance on meaningfully annotating instructional materials.

What does it mean to annotate my curriculum?	What does annotation look like?
• Carefully reading all parts of the materials • Showing your thinking while you read and study • Noting questions you have that need to be answered before you start teaching • Marking ideas you want to revisit for your professional learning or that you may need to consider extra supports for your students • Creating or analyzing “looks fors” and student exemplar responses • Identifying places where students may struggle • Identifying places for extension	• Highlighting, underlining, or adding stars to emphasize essential teaching moments • Writing questions or support ideas in the margins • Bracketing or circling content you want to revisit • Using symbols to indicate key questions or ideas • Noting instructional strategies or moves you want to implement • Indicating accommodations to meet the needs of diverse learners

Step 1: Unit Unpacking

Focus Question: As students engage with the phenomenon, how will they use science and engineering practices and think through the crosscutting concepts to determine disciplinary core ideas?

Purpose of Step 1: Team members analyze the unit performance expectations to deepen their understanding of what students should know and be able to do according to the Louisiana Student Standards for Science. Appendix A - Learning Progressions should be referenced to understand what content students learned in previous grades and what will be taught in future courses.

What does it mean to annotate my curriculum?	What does annotation look like?
• Use the appropriate Louisiana Guide to Implementing (found on the K-12 Science Resources page) to determine the targeted standards of the unit. • Analyze the targeted standards to identify three-dimensional learning goals. • Examine the Learning Progressions (Appendix A) to reflect on previous and future learning goals. • Annotate with unit focus questions in mind.	• What will students learn about the phenomenon by the end of the unit? • What science concepts will students learn by the end of the unit? • How will you assess and support students' understanding of the three dimensions? • What incremental checkpoints will you use throughout the unit to assess students' knowledge of the phenomenon and scientific ideas? • How will students deepen their understanding of the three dimensions by building on previously learned content?

Step 2: Unit Launch Deep Dive

Focus Question: How will students engage in phenomenon-based instruction?

Purpose of Step 1: Team members build an understanding of the unit experience by exploring the unit overview and elements of the anchor lesson from the student's perspective.

Process	
As a group, annotate the lesson(s) in the unit launch through the lens of the anchoring phenomenon routine elements (listed below) using the focus questions for each element.	
Anchoring Phenomenon Routine Element	**Focus Questions**
Explore Phenomenon	How will students engage with the phenomenon during the lesson or lesson set?
	What structures or strategies are in place or need to be planned to ensure all students have an opportunity to engage with the phenomenon?
	How will the investigations help students develop an understanding of the phenomenon?
Make Sense of the Phenomenon	Highlight or note relevant data, models, images, texts, and other ways scientists communicate that students will use to generate initial explanations about the anchoring phenomenon.
	Create or annotate examples of anchor charts (e.g., notice and wonder charts, initial models, etc.) to prepare for the unit's launch. Consider what students may say and how you can guide them to an understanding of the standards.
	Identify places in the unit launch where students may struggle and determine appropriate supports.
Identify Related Phenomenon	Identify local or culturally relevant phenomena students may identify during the unit launch.

	How might students connect to the identified examples in the curriculum?
	How will you support access to the content for students who need additional support?
Develop Questions about the Phenomenon	Develop evidence-based questions students may pose that can be used to navigate to future lessons and investigations that advance the storyline.

Step 3: Lesson or Lesson Set Annotation

Focus Question: How will students incrementally develop an understanding of the anchoring phenomenon and science concepts?

Purpose of Step 1: Team members annotate a lesson or sequences of lessons (i.e., lesson sets) to determine where incremental sensemaking occurs in the unit of study. Team members will use this to make instructional decisions that best meet the intent of the standards and the needs of all students.

Process	
As a group, use the focus questions provided to annotate a lesson or lesson set in a unit of study using the lens of three-dimensional learning, incremental sensemaking, instructional strategies, and assessment opportunities.	
Teacher Actions	**Potential Focus Questions for Annotation**
Critically read the lesson or lesson set performance expectation(s).	What Science and Engineering Practice(s) (SEPs) will students use?
	Where are the conceptual checkpoints for the Disciplinary Core Idea(s) (DCIs)?
	How will students apply the Crosscutting Concept(s) (CCCs)?
Identify competing ideas that students may have about the phenomenon.	How will you leverage these ideas during student sensemaking and argumentation?
Identify instructional routines you'll use throughout the unit of study (i.e., Science Instructional Model)	What strategies, routines, and discussion protocols will you use for each lesson or lesson set?
	What tools and resources will you use to facilitate student learning?
	What supports will you provide to diverse learners?

Determine how student understanding will be assessed after the lesson set.	Identify a critical checkpoint within the lesson or a critical task within the lesson set. Create or review exemplar student responses.
	For each task, note essential understandings or "look fors" in student learning.

Step 4: Student Work Analysis

Focus Question: How do you use three-dimensional assessments to evaluate students' understanding of the phenomenon and standards?

Purpose of Step 1: Team members establish norms for evaluating student work, and analyze student work to formatively assess students' understanding of the phenomenon and standards. Team members then use that analysis to determine implications for instructional practice and effectiveness and plan for future instruction.

Tips for student work analysis:

- Focus on the evidence, not what you *think* the student knows.
- Consider patterns or trends in what students know and can do.
- Approach analysis with an asset-based mindset (e.g. In what areas have students demonstrated success? How can we build on these assets?)
- Be aware of personal bias.
- Keep the discussion focused on the learning goals and standards.

Process	Potential Focus Questions for Annotation
Analyze Student Work: • Review the intent and expectations of the standard(s) • Identify or create exemplar student responses • Individually analyze student work samples for evidence of student understanding with the focus questions in mind • As a group, share and discuss the focus questions	• Where do you see evidence of students using the Science and Engineering Practices? • How are students thinking through the lens of the Crosscutting Concepts? • How are students making connections to figure out the Disciplinary Core Ideas? • What are patterns and trends in what students know and can do?
Plan for Future Instruction • Review intent and expectations of the standard(s) for future lessons • Examine how students use the SEPs and think through the CCCs to make sense of the DCIs	• What are the implications for future instruction based on this student work analysis? • What is the plan for responding to students' needs for just-in-time support and enrichment?

• Use the focus questions as a base for discussion and planning for future supports	