Protocol: Evaluating an Existing Science Curricular Resource

This protocol is designed for districts that already have a science curriculum in place and want to systematically evaluate its effectiveness before deciding to retain, revise, supplement, or replace it. The process mirrors adoption best practices while recognizing existing implementation history.

Purpose of the Protocol

To answer four essential questions:

1. Is the current resource aligned to NGSS expectations?
2. Is it supporting high-quality science instruction and student sense-making?
3. Is it usable and sustainable for teachers?
4. Can identified gaps be reasonably addressed without full replacement?

Step 1: Clarify the Evaluation Scope and Intent

Key Decision: Why is the district evaluating the current resource?

Possible Triggers

- Persistent student performance concerns
- Teacher feedback or usability issues
- NGSS alignment concerns
- End of contract cycle
- Leadership or instructional vision shifts

Required Actions

- Identify grade bands included in the review
- Clarify whether the evaluation will inform:
    - Retention
    - Targeted supplementation
    - Phased replacement
    - Full adoption cycle

Output: Evaluation purpose statement and scope document

Step 2: Standards and Alignment Review

Purpose: Determine how well the existing resource aligns to NGSS.

Key Actions

- Review the resource using:
  - NGSS alignment tools (e.g., EQuIP Rubric for Science)
  - State science learning standards
- Examine:
  - Anchoring phenomena
  - Integration of SEPs, CCCs, and DCIs
  - Coherence across grade levels

Guiding Questions

- Are phenomena driving instruction or serving as hooks only?
- Are students regularly engaged in sense-making?
- Do lessons reflect three-dimensional learning?

Output: Alignment summary with strengths, gaps, and risk areas

Step 3: Instructional Design and Lesson-Level Review

Purpose: Evaluate the quality of day-to-day classroom instruction.

Key Actions

- Select representative units or lessons across grade bands
- Review materials using a Science Lesson Review Tool

Look-Fors

- Clear learning goals tied to phenomena
- Opportunities for student questioning, modeling, and explanation
- Coherence across lessons within units
- Embedded formative assessment

Output: Lesson-level review rubric scores and narrative feedback

Step 4: Teacher Experience and Usability Analysis

Purpose: Understand how the resource functions for educators.

Data Sources

- Teacher surveys
- Focus groups or PLC discussions
- Planning time analysis

Guiding Questions

- How much preparation time is required?
- How clear is the instructional guidance?
- Does the resource support differentiation?
- What workarounds are teachers using?

Output: Teacher usability summary with patterns and themes

Step 5: Student Experience and Engagement Review

Purpose: Examine the impact on student learning and engagement.

Key Actions

- Conduct student surveys or interviews
- Review student work samples
- Observe classroom instruction

Look-Fors

- Student discourse and collaboration
- Evidence of sense-making
- Engagement during investigations
- Equity of access for all learners

Output: Student experience summary and engagement indicators

Step 6: Implementation Fidelity and Support Review

Purpose: Distinguish between curriculum design issues and implementation gaps.

Key Actions

- Review professional learning provided
- Analyze implementation consistency across classrooms
- Identify support structures currently in place

Guiding Questions

- Have teachers been trained adequately?
- Is implementation consistent across grade levels?
- Are gaps due to design or support?

Output: Fidelity and support analysis

Step 7: Synthesis and Decision-Making

Purpose: Make an evidence-based determination.

Decision Pathways

- **Retain:** Resource meets expectations with minimal gaps
- **Revise/Supplement:** Gaps are targeted and addressable
- **Replace:** Structural misalignment or usability issues persist

Required Evidence

- Alignment findings
- Teacher and student feedback
- Lesson-level quality review
- Implementation analysis

Output: Evaluation report and recommendation

Design Principles for Effective Evaluation

- Separate **curriculum quality** from **implementation quality**
- Use multiple data sources
- Look for patterns, not anecdotes
- Center student sense-making
- Ensure transparency throughout the process

This protocol may be used independently or as a precursor to a full science curriculum adoption process.