10 Dimensions of Inquiry

A Framework for Analyzing and Redesigning Lessons

Adapted from Boaler (2022) and Windschitl, Thompson, & Braaten (2018)

When analyzing a lesson to see if it promotes inquiry, look for these 10 characteristics. **High-inquiry lessons** have most or all of these features. **Low-inquiry lessons** are missing many of them — but that's where the opportunity for revision comes in!

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1. OPENNESS & MULTIPLE PATHWAYS

What to look for: - Are there multiple valid ways to approach the problem? - Can students choose their own methods or strategies? - Are different representations (visual, symbolic, physical) encouraged?

Low Inquiry: Teacher shows one method; students replicate it.
High Inquiry: Task invites multiple approaches; students compare methods.

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2. LOW FLOOR / HIGH CEILING

What to look for: - Can anyone get started, even without advanced knowledge? - Is there room for deeper exploration if students are ready? - Are partial solutions valued along the way?

Low Inquiry: You need prerequisite knowledge to even begin.
High Inquiry: Easy to start, hard to finish; everyone can contribute.

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3. PROBLEM BEFORE METHOD

What to look for: - Do students encounter a puzzling phenomenon or question FIRST? - Do they develop a need for tools/methods through exploration? - Or does the teacher explain the method before students see why it matters?

Low Inquiry: Teacher shows formula → students practice problems.
High Inquiry: Students wrestle with problem → develop/discover method.

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4. CONTEXT-RICH & PHENOMENA-BASED

What to look for: - Is the problem situated in a specific, real-world case with details that matter? - Does it connect to students' lived experiences? - Or is it abstract and generic ("textbook-ish")?

Low Inquiry: "Study chemical reactions" or "solve toy problems."
High Inquiry: "Why is MY bicycle rusting in MY backyard?"

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5. CAUSAL EXPLANATION (Not Just Description)

What to look for: - Are students asked to explain WHY or HOW something happens? - Do they use models or mechanisms to explain causes? - Or do they just describe WHAT happened?

Low Inquiry: "What did you observe?" (description only)
High Inquiry: "Why did that happen? What's the mechanism?"

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6. STUDENT AGENCY IN REASONING

What to look for: - Do students generate their own ideas, conjectures, or hypotheses? - Are students expected to justify and defend their thinking? - Or does the teacher validate one "right" answer?

Low Inquiry: Teacher decides what counts as "the answer."
High Inquiry: Students convince each other with reasoning and evidence.

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7. COLLABORATION & DISCOURSE

What to look for: - Do students work together to negotiate meaning? - Do they build on each other's ideas through discussion? - Is student thinking made public (boards, presentations, gallery walks)?

Low Inquiry: Individual work only; teacher is sole authority.
High Inquiry: Students learn from and teach each other.

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8. CURIOSITY & GENUINE PUZZLEMENT

What to look for: - Does the task spark a genuine "Huh, why does that happen?" response? - Do students WANT to figure it out? - Or is it just "something we have to learn"?

Low Inquiry: Feels like a chore or compliance task.
High Inquiry: Students are genuinely curious; the question matters to them.

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9. INTEGRATION OF BIG IDEAS

What to look for: - Does the task connect to broader, transferable concepts? - Can students see how this relates to other problems or contexts? - Or is it isolated and disconnected?

Low Inquiry: One-off skill practice with no connections.
High Inquiry: Task illuminates a big idea that applies across contexts.

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10. CONNECTION-MAKING

What to look for: - Are students connecting new learning to prior knowledge? - Are they linking ideas across disciplines or situations? - Do they see relationships between concepts?

Low Inquiry: New content presented as separate/standalone.
High Inquiry: Students actively build bridges between ideas.

How to Use This Framework

When Analyzing a Lesson:

1. Read through the lesson plan carefully
2. For each dimension, ask: "Is this present in the lesson? How well?"
3. Note which dimensions are **strong** and which are **weak or missing**
4. The "missing" dimensions are your **opportunities for revision**!

When Redesigning a Lesson:

1. Choose 2-3 dimensions to strengthen (you don't have to fix everything at once!)
2. For each dimension you're targeting:
   - **What's currently happening?** (describe the low-inquiry move)
   - **What could happen instead?** (describe the high-inquiry alternative)
   - **What specific changes would you make?** (be concrete)

Remember:

- Not every lesson needs to score high on all 10 dimensions
- But most lessons can be improved on several dimensions
- Small changes can make a big difference in student thinking!

This framework will guide your work throughout Week 2 as you analyze and redesign lessons to promote inquiry.