

Science Classroom Observation Guide:

Science Notebook Indicators



1. Classroom Culture is Conducive to Learning Science

B. Discussions are based on scientific evidence.

Possible Indicators:

- Students use supporting and refuting evidence to inform reflection and discourse.
- Students rely on their own thinking and logical arguments to evaluate ideas.
- Students explain, question, and debate their own understanding.
- Student use observations and evidence to challenge ideas and inferences.

What specific evidence of these indicators did you see in your student notebooks?

How might you include additional opportunities for students to use evidence?

2. Science Content is Intellectually Engaging

B. Science content builds on students' prior ideas or experiences.

Possible Indicators:

- Students reveal their preconceptions about the science content, the underlying related concepts, or the nature of science.
- Students reveal their underlying thinking and reasoning and the source of their preconceptions.
- Students recognize links between their preconceptions or previously learned science concepts and the activities or experiences in the science lesson.

What specific evidence of these indicators did you see in your student notebooks?

C. Science content is intentionally connected to the classroom activities and experiences.

- Student actions and interactions focus on understanding important and relevant science content.
- Students generate and explore questions about the science in the lesson.
- Students can articulate the intended science content of lesson, activity, or experience.

What specific evidence of these indicators did you see in your student notebooks?

How might you include additional opportunities for students to make connections?

3. Instruction Fosters and Monitors Student Understanding

A. Instruction fosters students' emerging understanding of science content.

Possible Indicators:

- Students are confronted with evidence that challenges their initial ideas as opportunity for productive disequilibrium.
- Student generated questions are pursued based on their relevance to the science content and their potential to deepen student understanding.

What specific evidence of these indicators did you see in your student notebooks?

B. Instruction monitors students' emerging understanding of science content.

- Learning experiences are modified or added to ensure students develop the necessary science content knowledge.

What specific evidence of these indicators did you see in your student notebooks?

How might you include additional opportunities to foster and monitor student understanding?

4. Students Organize, Relate, and Apply Their Scientific Knowledge

A. Students make sense of the intended scientific ideas and concepts.

- Students work on answering scientific questions or problems and objectively communicate their findings.
- Students clarify their own ideas, observations, reasoning, models and explanations of core science concepts.
- Students self-monitor the accuracy of their understanding and revise their ideas based on scientific reasoning and evidence.
- Students recognize changes in their initial ideas and cite experiences and/or evidence that led to them.
- Students describe the difficulties they confronted in developing new and more accurate understanding

What specific evidence of these indicators did you see in your student notebooks?

B. Students reflect on their new understanding of the science content.

- Students engage in private think time to reflect on the content within the lesson.
- Students reflect critically on their own and each others' processes, reasoning, and explanations.
- Students discuss what they understand and don't understand about the intended content.

What specific evidence of these indicators did you see in your student notebooks?

How might you include additional opportunities for student sense making and reflection?

4. Students Organize, Relate, and Apply Their Scientific Knowledge

C. Students make connections between the science content in the current lesson and prior experiences in and out of school.

- Students articulate a purpose for the content beyond the immediate classroom lesson.
- Students make multiple connections to what they already know or to applications in real world contexts.
- Students apply what they learn beyond the context of the original problem.
- Students connect the science ideas to everyday life.

What specific evidence of these indicators did you see in your student notebooks?

How might you include additional opportunities for students to make connections?

Next Steps: