Science Standards Guidance

Constructive Coaching Tool

Introduction

Constructive Coaching conversations should not be used for the evaluation of Kansas educators. Conversations ***between*** observers and classroom educators should focus on ways to deepen and elicit investigative, critiquing, and sense-making behaviors from students. The intent is that this tool would collaboratively inform additional discussions and coaching cycles.

This process in a science classroom is a snapshot of a lesson based on noticing and providing data on both what the teacher is doing and what the students are doing using the eight science and engineering practices.

While disciplinary core ideas and cross-cutting concepts are critical components, science and engineering practices are the observable skills in classrooms. The intentional groupings of the Science and Engineering Practices mirror the groupings represented on the Kansas State Science Assessment.

This tool was inspired by the work of Rebecca Lowenahupt, Katherine McNeill, Rebecca Katsh-Singer, Benjamin Lowell, Kenvin Cherbow in *The Instructional Leader's Guide to Implementing K-8 Science Practices.* Additional resources and materials from their work may be found here: https://www.sciencepracticesleadership.com/supervision-tools.html

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		Teacher Moves	Student Moves
Group 1	Asking Questions & Defining Problems	☐ The teacher provides opportunities for students to ask questions.	☐ Students' questions are typically scientific (i.e. answerable through gathering evidence about the natural world). ☐ Students evaluate the merits and limitations of the questions.
	Planning & Carrying out Investigations	☐ The teacher provides opportunities for students to design and conduct investigations to gather data.	☐ Students make decisions about experimental variables, controls, and investigational methods (e.g. number of trials).
	Obtaining, evaluating, and communicating information	☐ The teacher provides opportunities for students to read and evaluate text to obtain scientific information.	☐ Students read and evaluate text to obtain scientific information. ☐ Students compare and combine information from multiple texts considering the strengths of the information and sources.
	Analyzing and interpreting data	☐ The teacher provides opportunities for students to make decisions about how to analyze data (e.g. table or graph) and work with the data to create the representation.	☐ Students make decisions about how to analyze data (e.g. table or graph) and work with the data to create the representation. ☐ Students make sense of data by recognizing patterns or relationships in the natural world.
Reflection / Observations			

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		Teacher Moves	Student Moves
Group 2	Developing and using models	☐ The teacher provides opportunities for students to create or use models focused on predicting or explaining the natural world.	☐ Students create or use models focused on predicting or explaining the natural world. ☐ Students do evaluate the merits and limitations of the model.
Observations			

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		Teacher Moves	Student Moves
Group 3	Using mathematics and computational thinking	☐ The teacher provides opportunities for students to make decisions about what mathematical skills or concepts to use.	☐ Students make decisions about what mathematical skills or concepts to use. Students use mathematical skills or concepts to answer a scientific question.
	Constructing Explanations and Designing Solutions	☐ The teacher provides opportunities for students to construct explanations that focus on explaining how or why a phenomenon occurs and use appropriate evidence to support their explanations.	☐ Students construct explanations that focus on explaining how or why a phenomenon occurs and use appropriate evidence to support their explanations.
	Engaging in argument from evidence	☐ The teacher provides opportunities for students to engage in student-driven argumentation.	☐ Students engage in student-driven argumentation. ☐ The student discourse includes evidence, reasoning that links the evidence to their claim, and critique of competing arguments during which students build on and question each other's ideas.
Observations			

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Kansas State Department of Education
900 S.W. Jackson Street, Suite 102
Topeka, Kansas 66612-1212

(785) 296-3201

www.ksde.org