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SIPS Survey

	Never	***Rarely (a few times a year)***	***Sometimes (once or twice a month)***	***Often (once or twice a week)***	***Daily or almost daily***
How often do your students do each of the following in your science classes:					
1. Generate questions or predictions to explore	1	2	3	4	5
2. Identify questions from observations of phenomena	1	2	3	4	5
3. Choose variables to investigate (such as in a lab setting)	1	2	3	4	5
4. Design or implement their OWN investigations	1	2	3	4	5
5. Make and record observations	1	2	3	4	5
6. Gather quantitative or qualitative data	1	2	3	4	5
7. Organize data into charts or graphs	1	2	3	4	5
8. Analyze relationships using charts or graphs	1	2	3	4	5
9. Analyze results using basic calculations	1	2	3	4	5
10. Explain the reasoning behind an idea	1	2	3	4	5
11. Respectfully critique each others' reasoning	1	2	3	4	5
12. Supply evidence to support a claim or explanation	1	2	3	4	5
13. Consider alternative explanations	1	2	3	4	5
14. Make an argument that supports or refutes a claim	1	2	3	4	5
15. Create a physical model of a scientific phenomenon (like creating a representation of the solar system)	1	2	3	4	5
16. Develop a conceptual model based on data or observations (model is not provided by textbook or teacher)	1	2	3	4	5
17. Use models to predict outcomes	1	2	3	4	5
How often do you do each of the following in your science instruction:					
18. Provide direct instruction to explain science concepts	1	2	3	4	5
19. Demonstrate an experiment and have students watch	1	2	3	4	5
20. Use activity sheets to reinforce skills or content	1	2	3	4	5
21. Go over science vocabulary	1	2	3	4	5
22. Apply science concepts to explain natural events or real-world situations.	1	2	3	4	5
23. Talk with your students about things they do at home that are similar to what is done in science class (e.g., measuring, boiling water).	1	2	3	4	5
24. Discuss students' prior knowledge or experience related to the science topic or concept.	1	2	3	4	5

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Science Discourse and Communication ***(for consideration- items 25 to 31 were not included in the final survey)***					
How often do your students do each of the following in your science classes:					
25. Write about what was observed and why it happened	1	2	3	4	5
26. Present procedures, data and conclusions to the class (either informally or in formal presentations)	1	2	3	4	5
27. Read from a science textbook or other hand-outs in class	1	2	3	4	5
28. Critically synthesize information from different sources (i.e. text or media)	1	2	3	4	5
How often do you do each of the following in your science instruction:					
29. Use open-ended questions to stimulate whole class discussion (most students participate)	1	2	3	4	5
30. Have students work with each other in small groups	1	2	3	4	5
31. Encourage students to explain concepts to one another	1	2	3	4	5

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SIPS Survey Scoring Guide

To score the SIPs survey, a unique score should be calculated by averaging the ratings of items within that factor. For example, for the factor "Instigating an Investigation", the score will be the average ratings from items 1 to 4.

Factor	NGSS SE Practice	Survey Item	Score
1. Instigating an Investigation	1 (Questioning) 3 (Planning and Carrying Out an Investigation)	1. Generate questions or predictions to explore	Average of items 1 to 4: _____
		2. Identify questions from observations of phenomena	
		3. Choose variables to investigate (such as in a lab setting)	
		4. Design or implement their OWN investigations	
2. Data Collection and Analyses	3 (Planning and Carrying Out an Investigation) 4 (Analyzing and Interpreting Data) 5 (Using Mathematical and Computational Thinking)	5. Make and record observations	Average of items 5 to 9: _____
		6. Gather quantitative or qualitative data	
		7. Organize data into charts or graphs	
		8. Analyze relationships using charts or graphs	
		9. Analyze results using basic calculations	
3. Critique, Argumentation, and Explanation	6 (Constructing Explanations) 7 (Engaging in Argument from Evidence)	10. Explain the reasoning behind an idea	Average of items 10 to 15: _____
		11. Respectfully critique each others' reasoning	
		12. Supply evidence to support a claim or explanation	
		13. Consider alternative explanations	
		14. Make an argument that supports or refutes a claim	
4. Modeling	2 (Developing and Using Models)	15. Create a physical model of a scientific phenomenon (like creating a representation of the solar system)	Average of items 16 to 18: _____
		16. Develop a conceptual model based on data or observations (model is not provided by textbook or teacher)	
		17. Use models to predict outcomes	
5. Traditional Instruction		18. Provide direct instruction to explain science concepts	Average of items 19 to 22:
		19. Demonstrate an experiment and have students watch	

		20. Use activity sheets to reinforce skills or content	_____
		21. Go over science vocabulary	
6. Prior Knowledge		22. Apply science concepts to explain natural events or real-world situations.	Average of items 22 to 24: _____
		23. Talk with your students about things they do at home that are similar to what is done in science class (e.g., measuring, boiling water).	
		24. Discuss students' prior knowledge or experience related to the science topic or concept.	
Science Discourse and Communication ***(For consideration- items 25 to 31 were not included in the final survey)***	8 (Obtaining, Communicating, and Evaluating Information)	25. Write about what was observed and why it happened	Average of items 25 to 31: _____
		26. Present procedures, data and conclusions to the class (either informally or in formal presentations)	
		27. Read from a science textbook or other hand-outs in class	
		28. Critically synthesize information from different sources (i.e. text or media)	
		29. Use open-ended questions to stimulate whole class discussion (most students participate)	
		30. Have students work with each other in small groups	
		31. Encourage students to explain concepts to one another	