A Shift for Science Education in Alaska

Implications of the vision inspired by the Framework for K-12 Science Education and incorporated into Science Standards for Alaska

SCIENCE EDUCATION WILL INVOLVE LESS:	SCIENCE EDUCATION WILL INVOLVE MORE:
Rote memorization of facts, principles, scientific laws, and terminology.	Facts and terminology are learned as needed while developing explanations and designing solutions supported by evidence-based arguments and reasoning.
Learning of ideas disconnected from questions about phenomena experienced or recognized by students.	Systems thinking and modeling to explain phenomena and to give a context for the ideas to be learned
Teachers providing information to the whole class	Students conducting collaborative investigations, solving problems, and engaging in discussions with teachers' guidance
Teachers posing questions with only one right answer	Students discussing open-ended questions that focus on the strength of the evidence used to generate claims and inspire new questions.
Students reading textbooks and answering questions at the end of the chapter	Students reading multiple sources, including science-related publications and web-based resource and listening to first-hand accounts; students summarizing and applying credible information.
Pre-planned outcome for "cookbook" laboratories or hands-on activities	Multiple investigations driven by students' questions with a range of possible outcomes that collectively lead to a deep understanding of established core scientific ideas.
Worksheets and fill-in-the-blank lab write-ups.	Student writing of journals and reports, creation of posters and media presentations that explain and engage argument
Oversimplification of activities for students who are perceived to be less able to do science and engineering	Provision of supports and recognition of various types of thinking skills so that all students can engage in sophisticated science and engineering practices.

Source: National Research Council. (2015). *Guide to Implementing the Next Generation Science Standards* (pp. 8-9). Washington, DC: National Academies Press. http://www.nap.edu/catalog/18802/guide-to-implementing-the-next-generation-science-standards