

FRAMEWORK-ALIGNED SCIENCE INSTRUCTION ALIGNMENT WITH NORTH CAROLINA TEACHER EVALUATION PROCESS

The Framework for K-12 Science Education is the guiding document for the development of the new national science standards, the *Next Generation Science Standards* (NGSS). The Framework identifies the “big ideas” in science that students must master to meet the forthcoming NGSS. North Carolina is a state partner in the writing of the NGSS.

This document presents a crosswalk, or mapping, between the North Carolina Teacher Evaluation Process and the Framework for K-12 science education, highlighting key areas of overlap.

Standard III: Teachers know the content they teach.

a. Teachers align science instruction with content standards developed by professional organizations.

The *Framework for K-12 Science Education* has been developed by the **National Research Council (NRC)**, and promoted by the **National Science Teachers' Association (NSTA)**. Professional development for teachers in the 6th Grade Curriculum Study includes strategies for teaching science in a way that is consistent with the Framework.

Teachers incorporate literacy instruction into the content area of science.

The Framework calls for engaging students in the practices of writing explanations, making oral arguments, reading science texts, and communicating science findings. Teachers who engage in *Framework*-aligned instruction help students learn how to read complex content-rich texts; construct evidence-based explanations orally and in writing; evaluate and critique the reasoning of peers; and engage in argumentation.

b. Teachers know science content appropriate to their teaching specialty.

The *Framework* emphasizes knowing science by doing science. It requires teachers to have richness and depth of content understanding, by knowing both “what” and “how” scientists know, and teachers teach science by engaging students in scientific practices.

Standard IV: Teachers facilitate learning for students.

a. Teachers know the ways in which learning takes place.

The Framework is based on research about how students learn science. It emphasizes a focused set of *disciplinary core ideas* that are fundamental to understanding science. *Core ideas* are taught over many years (as in a spiral curriculum) and at increasing levels of depth and sophistication in different grade levels.

c. Teachers use a variety of instructional methods.

The Framework calls on teachers to teach by engaging students in various scientific practices. Students learn by doing science in a manner that resembles the work of scientists and engineers. Students ask questions about the natural world, formulate investigations, design and create models, analyze data, construct explanations, and communicate what they are learning.

d. Teachers integrate and utilize technology in their instruction.

In Framework-aligned classrooms, teachers help students learn how to use mathematics and computational thinking as tools for various tasks, such as constructing simulations and statistically analyzing data. Using computational tools helps students test predictions, and the use of statistical techniques helps students assess the significance of quantitative patterns and correlations.

e. Teachers help students develop critical thinking and problem solving skills.

In Framework-aligned classrooms, students ask questions and define problems; plan and conduct investigations; construct, evaluate, and revise models; analyze and interpret data; construct explanations; and present arguments in class related to scientific ideas.

g. Teachers encourage students to develop effective communication skills.

In Framework-aligned classrooms, teachers establish a variety of instructional practices that help students learn how to communicate effectively in science. Students learn to obtain, evaluate, and communicate complex information; report findings from investigations; and write explanations with claims supported with evidence and reasoning.