Integration Strategies

Intended Audience: Educators

Purpose of the tool: When science, technology, engineering, and mathematics disciplines combine to form STEM, a common approach is to promote STEM as an integrated concept that removes boundaries between disciplines and focuses on the connections between fields. The term integration is an overarching term that has a variety of meanings and may be associated with terms such as multidisciplinary, interdisciplinary, cross-disciplinary, or transdisciplinary. Although these approaches have their own unique format and framework, an overarching commonality is the idea that disciplinary concepts and skills are linked. This tool provides an overview, definitions, and examples of integration types and strategies.

- **Multidisciplinary integration** refers to instruction in which core concepts and skills are being taught separately in each discipline but housed within a common theme, topic, or problem. This theme, topic, or problem may be examined from multiple disciplinary perspectives, but no effort is taken to connect these perspectives to one another.

- **Interdisciplinary integration** also examines a theme, topic, or problem from multiple perspectives, however there is an effort to integrate perspectives into a unified or coherent framework. It is a way to incorporate and link a topic or subject across different classes and therefore may require teachers to collaborate in developing a lesson/project/unit together.

- **Cross-disciplinary instruction** introduces closely linked concepts and skills from two or more disciplines with the aim of deepening understanding and skills. Content/skill of one discipline is studied through the lens of another discipline.

- **A transdisciplinary approach** unifies knowledge and skills from two or more disciplines resulting in a new holistic approach. This type of integration transcends traditional disciplinary boundaries leading to new teaching and learning innovations that go beyond the mixing of content knowledge and skill.

**This table provides a visual overview of common components between the different types of integration.*

Integration Approach	Core content taught separately	Common theme, topic, or problem	Information is studied through multiple disciplines separately	Connections made between different content areas	Seeing content/ skill through the lens of another content
Multidisciplinary integration	X	X	X		
Interdisciplinary integration		X	X	X	
Cross-disciplinary instruction		X	X	X	X
Transdisciplinary approach		X		X	X