

ELEMENTS OF D-STEM RUBRIC AND THEIR DESCRIPTIONS

(Hatisaru, Fraser, & Beswick, 2020).

Element	Description
STEM integration	Refers to a context that might require students to use knowledge and skills from multiple STEM disciplines.
Realistic problems	Refers to interdisciplinary problems grounded in the real world.
Collaborative nature of STEM	Refers to collaboration among students in which members have roles and responsibilities; that is, teamwork.
Personal experience	Refers to a context that problems or tasks are linked to students' lives and tap into their interests.
Multiple representations	Refers to a problem or context that could support multiple representation, and at least two representational models (such as, symbols, visual diagrams, verbal statements) are explicit.
Community-industry engagement	Refers to linking content with industry, community or families in a variety of ways (for example, expert talks, joint works, using business/community contexts).
Teaching and learning Teaching and learning practices Tools Roles of the teacher Roles of the student	Refers to open-ended student-centred instruction (such as, inquiry, problem-based). Refers to using a range of teaching and learning tools. Refers to the teacher role other than giving knowledge (for example, facilitator, guide). Refers to the student roles other than receiving knowledge (such as a planner, experimenter).