

# Principles of STEM Education: Exploring a system-wide action research project

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## ABSTRACT

The Alice Springs Declaration (2019) set all educators the goal of developing students that are confident and creative individuals, successful lifelong learners, active and informed members of the community; students who are resilient and develop the skills and strategies they need to tackle current and future challenges. In conjunction with the National STEM Education Strategy (2016 - 2026) where all Australian Education ministers agreed to the strategy, The Archdiocese of Sydney Catholic Schools placed STEM Education at the forefront of its learning agenda to provide schools with a framework for school leaders and students to implement STEM Education into their contexts.

STEM Education provides opportunities for students to empathise with real-world, authentic problems that place curiosity, relevance and motivation as the cornerstones of sustained engagement and meaningful learning which nurtures students as global citizens.

This presentation will explore and unpack:

local and global research around key characteristics of knowledge and capabilities in STEM Education which led to the development of six key principles of STEM Education and how they work in synergy to develop creative and divergent thinking skills in all gifted learners.

The literature around what is not STEM and models of integration into curriculum.

The action research methodology and project used to launch STEM Education across the 150 Primary, Secondary and K-12 schools which make up the Archdiocese of Sydney, findings, successes, and areas for growth.

Best practice modelled by schools and ways they catered for gifted learners

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## KEYWORDS:

*Creative Key characteristics of knowledge, Capabilities in STEM Education, Creative and divergent thinking skills*