Unit code	CHCECEXXX
Unit title	Design STEM experiences
Unit mapping information	No equivalent unit.
Modification history	
Unit outcomes	This unit describes the skills and knowledge required to support children's learning and development through science, technology, engineering and mathematical (STEM) experiences. This unit applies to early childhood educators in, or seeking, leadership roles in long day care, family day care, in home care and out of school hours care settings. The skills in this unit must be applied in accordance with Commonwealth and State/Territory legislation, Australian standards and industry codes of practice.
Knowledge	Learners must demonstrate the following knowledge outcomes: • outline topics of STEM investigation relevant to a play based early childhood learning context • discuss Indigenous Ecological Knowledge to support STEM based investigation • outline the connection between STEM and nature based learning and sustainability • describe domains and stages of development that can be supported through STEM based experiences across the birth to 6 years learning trajectory
Skills	Learners must demonstrate the following skill outcomes: • assess child observations to identify opportunities to extend STEM based learning and interests • choose STEM based learning resources that are safe, inclusive, developmentally appropriate

	• plan development and learning outcomes for STEM based experiences and link to the approved learning framework outcomes • design play based experiences, provocations and topics of investigation to promote STEM based learning • plan pedagogical strategies to promote STEM based knowledge and learning dispositions
Application of Knowledge & Skills	The individual applies knowledge and skills to understand the resources, provocations and topics of investigation that can be used to promote STEM based learning in early childhood contexts. They integrate knowledge of child development to select and design experiences and pedagogical practices to support STEM learning.
Pre-requisite unit	Nil
Competency field	Early Childhood Education and Care
Unit sector	Children's Education and Care
Foundation skills	
Range of conditions	
Assessment Requirements	
Performance evidence	Learners must demonstrate the ability to: • assess child observations to identify STEM learning opportunities and interests and design two STEM based learning experiences for each of the following age groups: 　○ infants (birth to 18 months) 　○ toddlers (18 months to 3 years) 　○ preschoolers (3 to 6 years) • the two STEM based learning experiences design must be tailored to specific, identified developmental and learning goals and collectively include: 　○ physical science 　○ life science

	- o earth and space science - o Indigenous Ecological Knowledge - o simple technology - o complex digital technology - o engineering - o mathematics - for each learning experience, the learner must provide evidence of: - o age-appropriate experiences - o specific STEM based learning outcomes - o age-appropriate developmental outcomes - o pedagogical practices to achieve the experience outcomes.
Knowledge evidence	Learners must demonstrate knowledge of: - requirements of the following National Quality Standards and related regulations and laws applicable to this unit including: - o Educational program and practice - o Physical environment ▪ environment is inclusive ▪ resources support play-based learning ▪ environmentally responsible - Early Years Learning Framework - Early Childhood Australia Statement on young children and digital technologies - current approaches to STEM learning in early childhood including: - o using nature based opportunities - o connections between STEM and environmental awareness and sustainability - o using stories and literature as provocation - o Indigenous Ecological Knowledge

	- accessing contemporary examples of STEM career professionals representing gender and cultural diversity - using child or educator interests as a platform to introduce STEM experiences - STEM and its relationship to early childhood development and learning - supporting all developmental domains through STEM - incorporation of STEM across early childhood curriculum - mathematical thinking: - number sense - patterns - spatial awareness - executive functions: - attention - memory - self-regulation - dispositions for STEM learning including: - curiosity - resilience - creativity - innovation - problem solving - pedagogical practices for supporting STEM learning - scaffolding - demonstration - moderating between child led and adult facilitation - utilising child interests - utilising provocations

	- optimising spontaneous opportunities for STEM learning - questioning techniques - modelling dispositions - promoting investigative processes including observation, hypothesising, testing, iterating, recording and sharing findings - using routines, transitions, care moments, spontaneous teachable moments - areas of STEM investigation including: - science: - physical sciences - life sciences - earth and space sciences - technology: - simple tools - complex digital tools - skills for digital technology - using technology for innovation and design - engineering: - maker spaces - construction - experiments - supporting children to design, build, test and iterate - mathematics: - patterns - predictions - shapes - spatial thinking - measurement - data - quantity

	▪ counting
Assessment conditions	Assessment of performance evidence may be in a workplace setting or an environment that accurately represents a real workplace. Assessment must ensure access to: • suitable …. • workplace or simulated conditions that • scenarios, preprepared documentation or pre-recorded videos may be used for observation Assessors must satisfy the Standards for Registered Training Organisations (RTOs) /AQTF mandatory competency requirements for assessors.
Unit mapping information	No equivalent unit.
Links	