



Integrating the arts into STEM learning encourages young children to explore STEM concepts creatively through visual arts, music, and drama. This approach fosters critical thinking and problem-solving, making STEM subjects more engaging and accessible for early learners.

Defining the Arts as a STEM Learning Tool

The "arts" encompass a wide range of creative disciplines, such as Visual, Media, and Performing, (National Coalition for Core Arts Standards, 2016), that involve expression, imagination, and skill, which can be used as a learning tool to support understanding of STEM concepts and processes.

Search Terms

['STEM' OR 'Science' OR 'Technology' OR 'Computational Thinking' OR 'Engineering' OR 'Math'] AND ['Arts' OR 'Visual Arts' OR 'Media Arts' OR 'Folk Arts' OR 'Performing Arts' OR 'Language Arts'] AND ['Young children' OR 'Early childhood' OR 'Infant' OR 'Toddler' OR 'Preschool' OR 'Kindergarten']

Databases

PsycINFO, ERIC, Academic Search Premier, ProQuest, SCOPUS, and Google Scholar (n =2299)

Title/Abstract Screening (n = 2290; 87% IR)

Full Text Review Inclusion Criteria (n = 233; 94% IR)

- Available full text in English
- Included the arts in some form being used to support STEM learning (and not as an assessment) in young children (birth to kindergarten)

Included (n = 54)

OBJECTIVE

How are the arts being used as a tool for STEM learning for young children (birth-kindergarten), as documented in the literature?

METHODS

Developed systematic review protocol with assistance of UNC Libraries
Conducted systematic review with 2 reviewers using Covidence (Import references, Title/Abstract screening, Full text review, and Extraction) following PRISMA guidelines (Identification, Screening, and Included) and meeting to resolve conflicts.

KEY FINDINGS

		N = 54
STEM	Science	27
	Computational Thinking	5
	Engineering	10
	Math	16
Age	Infants	1
	Toddlers	2
	Older Toddlers	1
	Preschoolers	36
Arts	Kindergarteners	22
	Visual Arts (drawing, sculpture, painting, photography)	33
	Media Arts (film, graphics, animation)	3
	Performing Arts (dramatic play, dance, music, puppetry)	26

Many of the included (N = 54) overlapped in several areas for STEM, Age, and Arts.

FUTURE DIRECTIONS

Assess art's role in cultivating STEM identity for children who may not yet see themselves in STEM. Examine how art allows children to express their understanding and sense of belonging in STEM.