Design, Build, Create: Early Childhood STEM Toolbox

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OC STEM INITIATIVE

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Challenges in Early Childhood STEM

- Professional Development for Early Childhood STEM Educators
- Education/Certification/Credentialing
- Measuring impact and quality of programs
- Developmentally appropriate STEM curriculum/content
- Family Engagement

Early Childhood STEM Toolbox

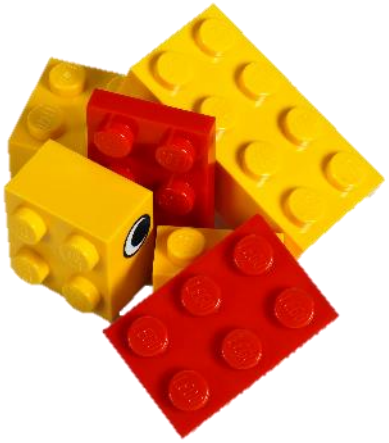
- The OC STEM initiative has partnered with Lego Education to create an "Early Childhood STEM Toolbox" complete with resources that can help an ecosystem launch programs and initiatives in this space. Activities model instructional strategies that build literacy in STEM, foundational math, early coding literacy and social and emotional learning.

Your **hands** know a lot more
than **you think** they know!

Your **hands** know
things that **your mind**
doesn't know that it knows!

Let's try…

Place the six bricks in front of you.

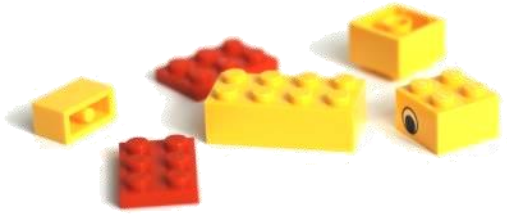


Please build a duck.


The Power of Imagination

Play is learning!

emotional regulation
self-efficacy
self-regulation
visual search
long-term memory
symbolic representations
attention
kinesthetic awareness
mental imagery
spatial visualization
imagination
sensory-motor skills
pretense
mental rotation
visual perception
working memory
imitation
spatial abilities
adaptive social functioning
fine motor skills
perspective-taking
short-term memory
self-assessment
cognitive flexibility



6	24
LEGO® bricks	Skills are used

Model developed by the LEGO Foundation

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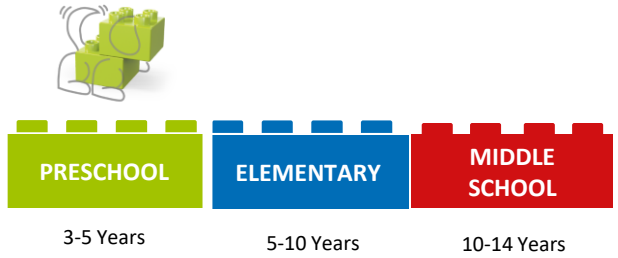
Five Characteristics of Playful Experiences

- Joyful
- Meaningful
- Actively engaging
- Iterative
- Socially interactive

Model developed by the LEGO Foundation

LEGO® Education Early Childhood Education Mission

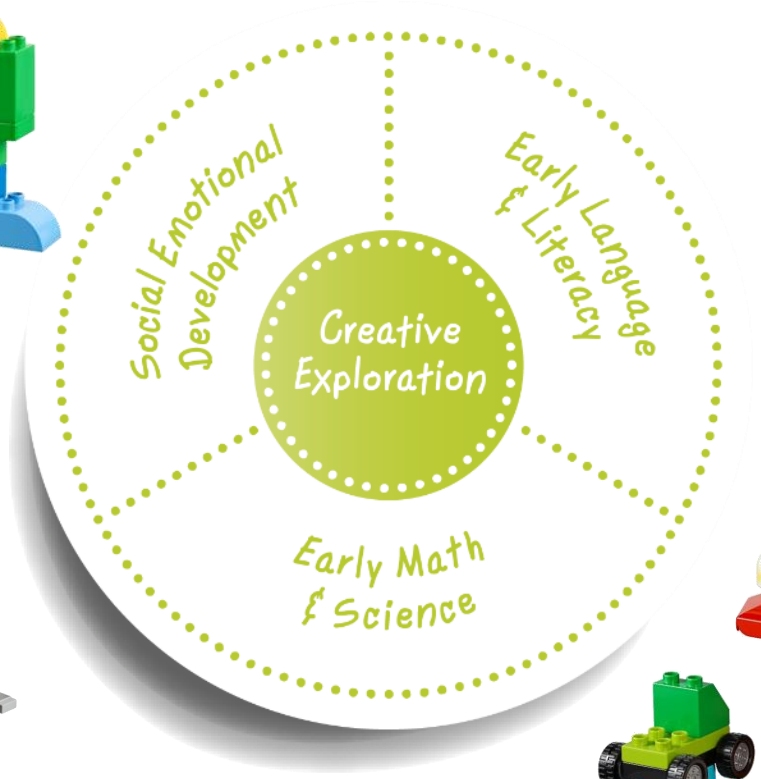
- Stimulating children's curiosity to explore together and learn through play.



LEGO® Education Preschool Toolbox

Based on the needs of a preschool teacher

Build Me “Emotions”



StoryTales

Coding Express

STEAM Park

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LEARN THROUGH PLAY

Explore early coding concepts while developing confidence, creativity and collaboration.

Coding Express

- 167 LEGO® DUPLO® elements
- Push train engine; loadable cars; track; number bricks
- 3 double-sided activity cards

Math Train

•Key Learning Values

•Math Train is designed to help children develop early math skills such as;

- •counting
- • matching quantities
- •simple addition,
- •comparing
- •creating patterns
- •recording data

Math Train

What is in the box?

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Math Train Lesson- Intermediate

"Patterns"

•In this lesson, the children will:

- Recognize and continue patterns
- Create new patterns
- Answer questions like:
  - What colors are in your pattern?
  - How many times does your pattern repeat?
  - How can you use the train cars in a pattern?
  -

Learning Outcomes:

- Sort by size and color
- Practice making pat terns
- Recognize patterns

Vocabulary

- patterns, repeat, color, size,
- shapes, order

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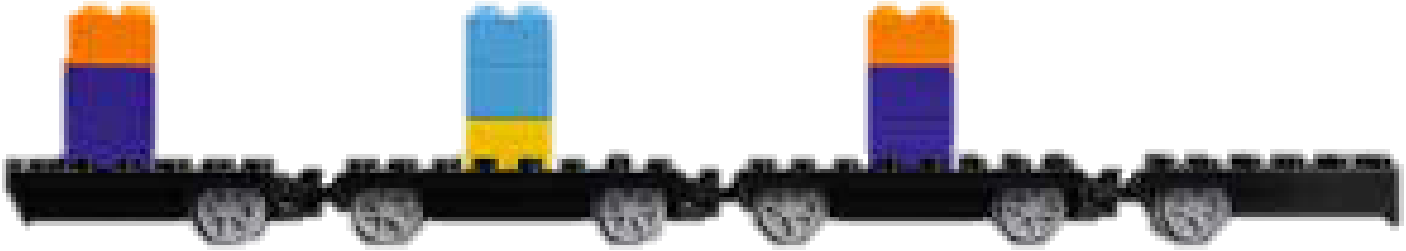
Math Train

Inspiration Photos



CREATE

EXPLORE AND

INVESTIGATE

With every trip to STEAM Park, children grow their understanding of STEAM through creative play

EXPLORE

EMOTIONS AND PHYSICAL CHARACTERISTICS

Collaborate on a range of character-building experiences

EXPERIMENT

OBSERVE AND

PLAY

Work together, construct, discover the world

ENCOURAGE

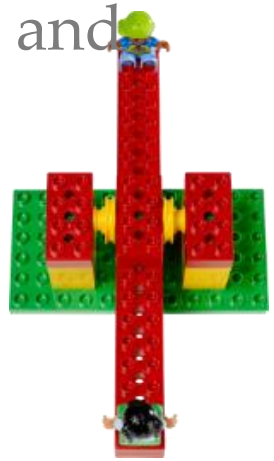
CREATIVITY

Introduces young minds to basic engineering concepts

DARE TO

DISCOVER

Discover mechanical principles by exploring, investigating, and solving tasks



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