

How to Provide an Early Foundation in STEM skills:

The Connection Between Early Developmental Milestones and Kindergarten
Readiness in learning STEM concepts

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Course Outline

Introductions

Brain Development Overview

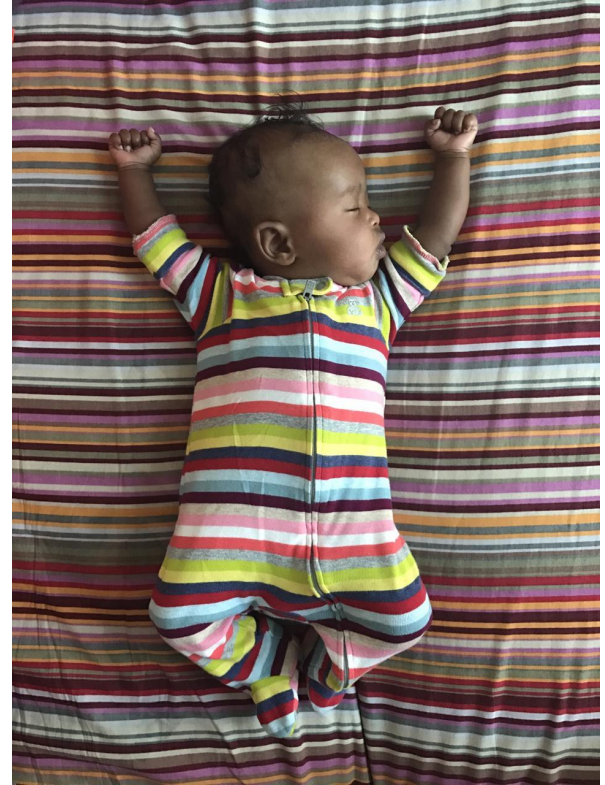
STEM for Babies

- Hearing- Language and Communication
- Vision
- Taste and Smell
- Balance
- Movement



Neuro-Development

- Trunk to extremities/head to toe
- One million brain cells per second
- Neuroplasticity
- Brain doubles in weight
- 0-5 critical period
- Important to know general development and milestones
- Milestone guidelines



STEM for Babies

- Natural curiosity and wonder
- Language and communication
- Sensory experiences
- Exploration
- Movement



Hearing

- First sense to develop in utero
- Low frequencies
- Swishing of amniotic fluid
- Heartbeats
- Rhythm!



Hearing

- Well-developed at birth
- Communication and Language
- Predictor of future skills
- Word Gap
- 18 months- 24 months is a critical window



STEM Hearing Activities

- Talk/read/sing
- Music
- Instruments create rhythm and beat
- Early math skills
- Serve and Return conversations
- Use hearing to build concepts



Vision

- Poor at birth
- Red/Black/White
- Novel and unfamiliar
- Visual motor and visual acuity
- Near sighted- importance of tummy time



Vision

- Depth perception around 6 months
- Peripheral vision
- Stimulating visual environments
- Variety is important



Vision Issues

- Sitting too close to TV or holding book close
- Squinting
- Tilting head
- Frequently rubbing eyes
- Very short attention span
- Eye turns in or out
- Sensitivity to light
- Difficulty with coordination



STEM Vision Activities

- Focusing and Tracking
- Books
- Face to face interactions
- Coloring, beading, lacing
- Bean bag toss, peg hammering
- Sorting, puzzles, blocks
- Scissor skills



Touch

- Skin is largest organ
- Large representation in brain
- Touch for exploration
- Sensorimotor period
- Mouthing items to explore
- 16-18 months - more exploration with hands and eyes takes place



Touch

- Consider whole body
- Body awareness
- Proprioception
- Textures against skin
- Crawling milestone



Touch



STEM Touch Activities

- Baby Massage
- Water play
- Textures against skin
- Sensory bins
- Tactile activities



Taste and Smell

- Well-developed at birth
- Strongest sense of taste with 40,000 taste buds
- Smell is strongest sense
- Cause and Effect



STEM Taste and Smell

- Taste tests
- Identify the Smell game
- Cause and Effect for babies
- Provide experiences



Balance

- Begins developing at birth
- Inner ear
- Vertical movements
- Physical Milestones



Balance Milestones

- Tummy Time
- Crawling
- Functional Sitting



STEM Balance Activities

- Building reflexes
- Movement
- Ball exercises
- Functional movement
- Walking on a line
- Swings/slides
- Ride on toys

