

DISCOVERY ZONE: SUMMER

Study Investigation:

Adventures in
STEM

Infant Edition



STUDY EXPLANATION

Adventures in STEM



In our current fast paced and technology driven times, we want to provide children with tools to lead them down the path of innovation. STEM activities, featuring science, technology, engineering, and math, help to build critical thinking and creativity, while facilitating curiosity and exploration for becoming the next generation of changemakers! This study topic will inspire infants to explore, learn cause and effect relationships, and begin to understand their worlds. Children will excite and delight as they make discoveries and innovate!



A close-up photograph of a baby with light skin and blue eyes, smiling broadly. The baby is wearing a blue and white horizontally striped long-sleeved shirt. They are sitting on a play mat with colorful, textured toys. A large, semi-transparent blue circle is overlaid on the right side of the image, containing text.

Inquiry Questions:

I wonder how I can support exploration and joyful discovery?

I wonder how I can nurture curiosity?

I wonder how I can help children understand cause and effect?

Building Connections

Activity One

Title of Activity: It Takes Two to Build

Skill(s) Focus: Connections/Eye-hand Coordination/Cognitive Growth

Objectives: Children will take turns building with soft blocks.

Materials:

- Big soft blocks
- Stuffed animals

Process:

- Gather children on the carpet and place blocks in the middle, joyfully connecting with each child and informing them they are going to build together.
- Model by placing the blocks in front of you and begin stacking one on top of the other.
- Encourage children to put another block on top. Continue until all children have a turn
- Educators may encourage children to knock them over and start over.
- Use an engaging response, such as laughing and exclaiming to make it fun.
- Place a stuffed animal on the top to complete the tower.
- Educators may wish to use blocks of different colours, sizes, and textures for added exploration.

Activity Two

Title of Activity: Bubble Play

Skill(s) Focus: Connections/Joyful Exploration/Curiosity/Cause and Effect

Objectives: Children will engage in joyful interactions with others through bubble play.

Materials:

- Large bubble wands
- Infant safe bubble solution
- Music
- Scarves

Process:

- Support infants to move to an open space.
- Ask them with enthusiasm if they would like to see bubbles, narrating the steps as educators bring out the bubble wands and solution.
- Blow some bubbles in the direction of each child, guiding infants to reach out and touch them.
- Laugh with each child as they pop them, and narrate the action by stating, "Wow! You did it! You popped the bubble!".
- Play some music in the background for added engagement.
- Educators may wish to use different sized wands to promote different sized bubbles, and use scarves as they are dancing and blowing!

Learning Discovery

Activity One

Title of Activity: Downhill Run

Skill(s) Focus: Cause and Effect/Joyful Exploration/Curiosity

Objectives: Children to understand downward movement through the repetition of cause and effect actions.

Materials:

- Ramp:
 - Piece of cardboard, plank block, metal pan or book, support block
- Infant appropriate cars/lightweight balls

Process:

- Set up a ramp on a carpet by using one of the items above.
- Support infants to move to the carpet and introduce them to the activity by rolling the car up and down the ramp.
- Narrate your actions as they are being completed by stating "Watch the car moving up, and watch the car moving down!".
- Support infants to roll cars up and down the hill.
- Narrate and action the difference between pushing the car up the hill and letting it roll down the hill freely.
- Encourage infants to watch the car roll off of the ramp and onto the carpet.
- Introduce other cars and lightweight balls, and narrate actions while describing features such as how fast the items move.

Activity Two

Title of Activity: Shake it Out

Skill(s) Focus: Problem-solving/Cause and Effect/ Joyful Curiosity

Objectives: Children will put toys into a box and pull or shake them out while learning the names of familiar objects.

Materials:

- Shoe box with lid
- Infant appropriate toys/balls

Process:

- Access a shoe box, and cut a medium sized hole into the lid, placing the lid back on the box and taping it closed.
- Narrate your actions as you place a toy into the box with enthusiasm, "Where did the ball go?".
- Shake the box, turning it over and guide infants to watch it fall out.
- Show the child how to shake the box to get the toy out.
- Once the toy comes out, demonstrate how to put the toy back in the box and shake it out again. Infants may pull the toy out as well.
- Communicate with infants the processes for each action by using words such as "in" or "bye bye ball" each time you drop in the object. You can also ask, "Where did the ball go?" or "Can you find it?"

Expressive Language

Activity One

Title of Activity: Baggy Fingerprinting

Skill(s) Focus: Language Development/Sensory Exploration/Fine Motor Skills/Cause and Effect/Early Writing Skills

Objectives: Children will explore mark making and scribbling on a baggy of paint.

Materials:

- Washable paint
- Gallon-size zippered freezer bag
- Tape/duct tape

Process:

- Squeeze a couple of dark colors of washable finger paint into a zippered baggy and seal tightly, adding duct tape for extra security.
- Spread the paint around to coat the inside of the bag, then place it on the floor in front of your baby during tummy time.
- Ask infants joyfully if they would like to paint, supporting them to make designs and marks with their hands and fingers on the outside of the bag while engaging meaningfully and connecting at each infant's level.
- Narrate the effects each time of an infant's attempts at making marks on the bag by stating something like, "Look, you pushed the paint out of the way and made a mark!"
- Describe other features of the activity, such as colours and textures.
- Tape a series of baggies onto a table top for older infants to explore, adding in other sensory materials for enhanced engagement.

Activity Two

Title of Activity: Moving and Learning

Skill(s) Focus: Language Development/Gross Motor Skills/Joyful Engagement

Objectives: Children will hear songs that build vocabulary supported by physical activity through hand motions and body movements.

Materials:

- Open space
- Comfortable carpet/mat

Process:

- Support infants enthusiastically in music engagement by singing the song "If You're Happy and You know It."
- Ensure to showcase the actions of the song through your body movements.
- Encourage children to copy the motions as you sing.
- Introduce the following verses to the same tune of the song, emphasizing the new actions.

Expressive Language

Activity Two Continued

- If you're hungry and you know it, flap your wings. (Flap arms to the side.)
- If you're hungry and you know it, flap your wings.
- If you're hungry and you know it, then your wings can help you show it.
- If you're hungry and you know it, flap your wings.

Other Verses:

- If you're hungry and you know it, wiggle your tail. (Wiggle your bottom.)
- If you're hungry and you know it, say, tweet, tweet. (Place your hand to your mouth and mimic a beak.)

Variations:

- Sing the song in a different language for dual language learning and diversity.

FRENCH

- Si vous avez faim et que vous le savez, battez des ailes.
- Si vous avez faim et que vous le savez, battez des ailes.
- Si vous avez faim et que vous le savez, vos ailes peuvent vous aider à le montrer.
- Si vous avez faim et que vous le savez, battez des ailes.

SPANISH

- Si tienes hambre y lo sabes, agita tus alas.
- Si tienes hambre y lo sabes, agita tus alas.
- Si tienes hambre y lo sabes, entonces tus alas pueden ayudarte a demostrarlo.
- Si tienes hambre y lo sabes, agita tus alas.

Physical Literacy

Activity One

Title of Activity: Follow the Leader

Skill(s) Focus: Gross Motor Skills/Body Awareness/Physical Well-being/Joyful Engagement

Objectives: Children will mimic the actions of the educator through a follow the leader activity.

Materials:

- Carpet or mat
- Scarves

Process:

- Support infants with joyful enthusiasm to move to a carpet area and sit down with the infants.
- Engage in a physical action, and narrate to infants what you are doing, such as tapping the floor beside you. State, "Watch me tap, tap, tap the carpet!".
- Encourage infants to copy the motion you are doing.
- Engage by doing various physical moves. (Tapping, thumping, clapping hands, putting your hands on your head, etc.)
- With older infants who are more mobile, try standing up, sitting down, squatting, making kicking motions, or stomping your feet.
- Educators may wish to add scarves into the activity, and engaging in actions such as placing the scarf on a body part, and mimicking the action by placing the scarf on the infant's same body part.

Activity Two

Title of Activity: Tunnel Exploration

Skill(s) Focus: Gross Motor and Fine Motor Skills/Mobility/Coordination/Joyful Engagement

Objectives: Children will gain physical wellbeing by crawling on hands and knees through tunnels

Materials:

- 2-3 medium sized boxes/hoops
- Fabric strips

Process:

- Source the boxes, and cut arches into their ends to create tunnel openings.
- Secure ribbon or fabric strips along the top to allow for added sensorial engagement, short enough to ensure safety protocol.
- Invite and encourage children to crawl through the tunnels.
- Be sure to narrate the movements and the sensorial features of the tunnel.
- Have something attractive for when the infants make it to the end, such as a favorite toy or a teacher cheering them on.

Educator Reflections: *optional*

I wonder if I successfully observed and responded to the cues of the children to lead further investigations?

I wonder how I could improve upon my teaching practices in the future?

I wonder what support I may need to better foster child inquiry in my learning environment?

I wonder what went well, and what could be improved upon regarding child-led learning?

Investigation Materials

Building Connections

- Big, soft blocks
- Stuffed animals
- Bubble solution
- Assorted bubble wands
- Scarves
- Music player

Learning Discovery

- Makeshift ramp
- Infant appropriate toys
- Lightweight balls
- Shoe boxes

Expressive Language

- Freezer bags
- Washable paint

Physical Literacy

- Medium sized boxes/hoops
- Scarves
- Fabric strips (manage safe lengths)