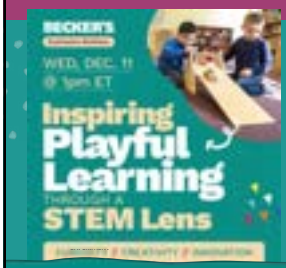
Inspiring Playful Learning

through a **STEM** Lens



Welcome! We're so glad you're here.

In the chat, please share:

- Your name and role (teacher, coach, administrator)
- Your location
- What are your favorite open-ended play materials that support STEM learning?

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MINDFULNESS MOMENT

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LEARNING OUTCOMES

- Understand how the cycle of inquiry supports STEM learning through play
- Identify a collection of play-based activities that support STEM learning in early childhood settings
- Know where to go on ShopBecker.com to find additional STEM activities and educator resources

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SCIENTIFIC INQUIRY

A Framework for Scientific Inquiry in Preschool

Early Childhood Education Journal (2022) 50:1263-1277

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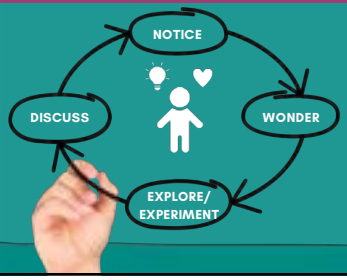
THE CYCLE OF INQUIRY



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STEM: S is for SCIENCE

Encourage the exploration of the natural world! Whether its observing plants grow or experimenting with water, science helps children learn about their environment.

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SCIENCE - NATURE COLLECTIONS

Curate collections of naturally found objects in nature.
Compare and sort objects by attributes.

- "**I notice** some of the shells have bumpy ridges and some are smooth. **I wonder** why?"
- "**I notice** the scales on the pine cone look sort of like petals on a flower. They're not soft like a petal though. **I wonder** if pine cones bloom?"
- "**I notice** the rocks and the shells both feel kind of hard and cold. **I wonder** if they're made from the same type of material?"

https://www.shopbecker.com/Beckers-Science-Center-Activity-Cards-BSS1123130/

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SCIENCE - RIVER ROCKS

Build a bird's nest using river rocks
Use river rocks to grind up dried leaves

https://www.shopbecker.com/resource-cafe/webinars/science-shorts/

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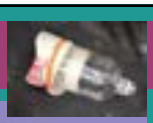
SCIENCE - BUBBLE SNAKE



https://www.shopbecker.com/resource-cafe/webinars/kitchen...

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SCIENCE - PAINTED ICE

- Add snow or ice to a bin.
- Add kosher salt to 1/2 cup of tempera paint to make a paste.
- Place a small amount of the paste on the surface of the ice and watch what happens.
- Check back in 5 minutes, 10 minutes, 15 minutes, and 20 minutes.
- Wipe off the ice. Rinse with cold water. Make observations about the ice after the paste is removed.

https://www.abcbecker.com/resource-safe/activity-pages/science/ice-sculpting-

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THE CYCLE OF INQUIRY

SCIENCE - PAINTED ICE

I notice that the salt paste didn't move but the ice underneath melted.

I wonder what would happen if we used a different kind of salt.

Let's try using snow and see what happens.

Discuss! What happened? What did we notice? The Inquiry cycle repeats!

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THE CYCLE OF INQUIRY

SCIENCE - PAINTED ICE

Your Turn!

Imagine exploring the Painted Ice experience with your children.

In the chat, share how you might finish this sentence:

"I notice ..."

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STEM: T is for TECHNOLOGY

Technology

=

How can tools be used to solve everyday problems?

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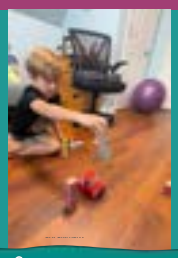
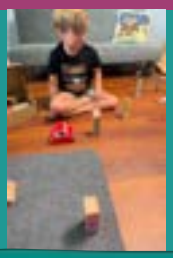
TECHNOLOGY - CODY BLOCK





https://www.shopbecker.com/resource-safe/webinars/coding-skills/_

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TECHNOLOGY - CODE & GO MOUSE

https://bit.ly/CodingMouseChallenge

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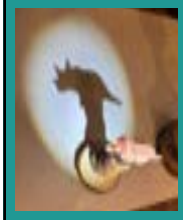
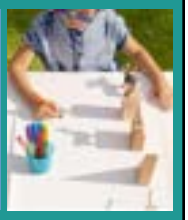
TECHNOLOGY - LIGHT & SHADOW





https://www.shopbecker.com/resource-safe/webinars/kitchen-...

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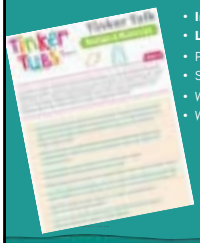
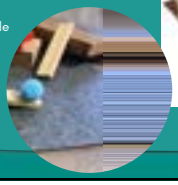
TECHNOLOGY - SIMPLE MACHINES



- **Inclined plane**
- **Lever**
- Pulley
- Screw
- Wedge
- Wheel and axle



https://www.shopbecker.com/tinkertubs

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THE CYCLE OF INQUIRY

TECHNOLOGY: SIMPLE MACHINES

I notice that the lever moves higher when the fulcrum is taller.

I wonder if it will change how far the pompoms fly?

Now let's collect items of different sizes to be the fulcrum.

Discuss! What happened? What did we notice?

Inquiry cycle repeats!

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THE CYCLE OF INQUIRY

TECHNOLOGY: SIMPLE MACHINES

Your Turn!

Imagine exploring loose parts and simple machines with your children.

In the chat, share how you might finish this sentence:

"I wonder ..."

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STEM: E is for ENGINEERING

Design, build and test your construction! Stacking blocks to create a tower or constructing a bridge out of straws are simple examples of play-based engineering thinking!

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ENGINEERING - AIR TOOBZ

The Scientific Method Song

1. You have a problem.
2. You make a plan.
3. You build it.
   - Did it work? Yes or No?
   - If No... Redesign x3

https://www.shopbecker.com/Air-Toobz-Classroom-Set-FA4821/

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ENGINEERING - KODO RAMPS
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ENGINEERING - BRIDGES
How Strong is this Bridge?
5
BUILD-A-BRIDGE
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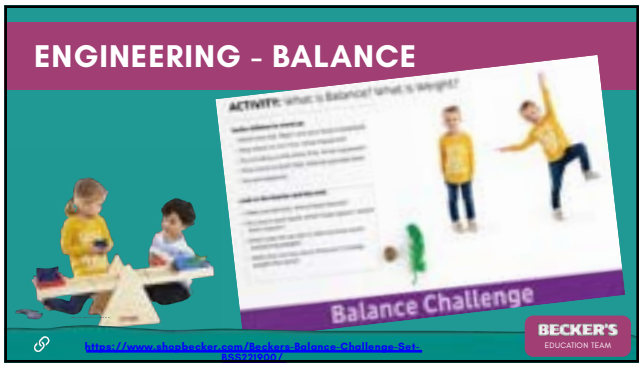
ENGINEERING - BALANCE
ACTIVITY: what is Balance? what is Weight?
Balance Challenge
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ENGINEERING - BUILDING

I wonder...

- What happens if we use soft materials to build?
- Can we build something tall with a small base?
- Can we use rocks or leaves to build?
- What shapes make a strong structure??

https://www.shopbecker.com/resource-cafe/webinars/Early-Childhood-STEAM/

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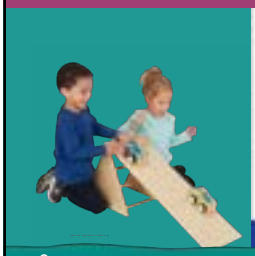
ENGINEERING - RAMPS



https://www.shopbecker.com/Beckers-Ramp-n-Roll-STEM-Set-BSS219180/

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THE CYCLE OF INQUIRY

ENGINEERING - RAMPS

I notice... that our car slowed down when we taped three popsicle sticks to our ramp.

I wonder... what will happen if we add even more sticks.

Now let's... add more sticks to the ramp and continue to roll our car down it.

Discuss... what happened to our car when we added more and more popsicle sticks?

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THE CYCLE OF INQUIRY

ENGINEERING - RAMPS

Your Turn!

Imagine exploring friction with your children through the use of ramps. In the chat, reply with your answer to,

What other materials could you introduce to explore friction with your ramp?

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STEM: M is for MATH & MUSIC

Music is a collection of patterns – of sound frequencies and rhythms. Math provides the framework for understanding, creating, and analyzing music.

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MUSIC - MATCH THE SOUND

- As a class, listen to and play along with Ella Jenkins's song, *Play Your Instruments and Make a Pretty Sound*
- Play a segment of the song in which a specific instrument is clear.
- When you stop the song, present 2-3 instruments, playing each one.
- Children try to identify which one matches the one they heard in the song.

https://www.shopbecker.com/resource-cafe/webinars/everyone-

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MUSIC - BODY PERCUSSION PATTERNS

- Play one of the children's favorite songs that has a catchy tune and a good beat.
- Model clapping, patting, stomping, or snapping with the beat of the song.
- Invite the children to create patterns of body perucssion movements.

https://www.shopbecker.com/resource-cafe/webinars/everyone-

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MUSIC - SOUND WALL

- PVC pipes of different length and diameter
- Cylindrical containers of different sizes and materials
- Metal racks
- Metal baking tins
- Variety of strikers

https://www.shopbecker.com/resource-cafe/beckers-blog/outdoor-learning/benefits-of-outdoor-music-experiences/

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THE CYCLE OF INQUIRY

MUSIC: SOUND WALL

I notice that when you strike the different cylinders with the wooden stick, they make different sounds.

I wonder how it will sound if you use a metal spoon to strike the cylinders?

Now let's try using different strikers on different pieces on the sound wall.

Discuss! What happened? What did we discover? Inquiry cycle repeats!

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THE CYCLE OF INQUIRY

MUSIC: SOUND WALL

Your Turn!

Imagine exploring an outdoor sound wall with your children.

In the chat, share how you might finish this sentence:

"You discovered..."

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WRAP UP


SCIENCE


TECHNOLOGY


ENGINEERING


MUSIC

By intentionally fostering the cycle of inquiry, we create a culture of inquiry-based learning that influences everything we do within our early childhood environment.

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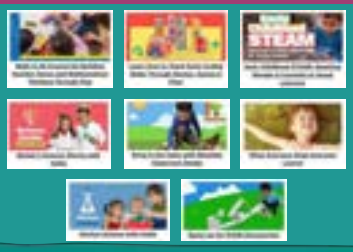
REFERENCES



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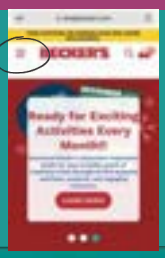
TOUR OF EDUCATOR RESOURCES



shopbecker.com/resource-cafe

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THANK YOU FOR ATTENDING!

Mark your calendars for
January 22nd!

Self-Regulation in Early Childhood
Strategies for Emotional and Sensory Support

Register today!

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