Picking Up STEAM

A Guide to Teaching Children
How to Think Scientifically

LAUP®

What do we know about math and science in preschool?

- Research continues to demonstrate the **importance of teaching science and math** in preschool.
- Preschool-aged children are **biologically adapted to learning** about their environment.
- Simply talking about math in preschool **significantly improves children's math knowledge**.
- Children are **naturally motivated to explore** math and science concepts they encounter day to day.

STEAM - **Science, Technology, Engineering, Arts, and Math** - is where our world is going. Help your child embrace STEAM by asking them open-ended questions, sharing in their excitement, and giving them ample opportunities to explore.

Now is the time to start asking the right questions to get children interested in math and science. Consider the following tips next time you have a conversation with your preschooler. In doing so, you will be helping build a strong, capable young mind.

S

SCIENCE

Science in preschool is all about facilitating curiosity and finding the resources already at one's fingertips. Explore your surroundings and how you can bring science "alive" in this environment? Don't be afraid to use scientific language, and always remember to ask questions!

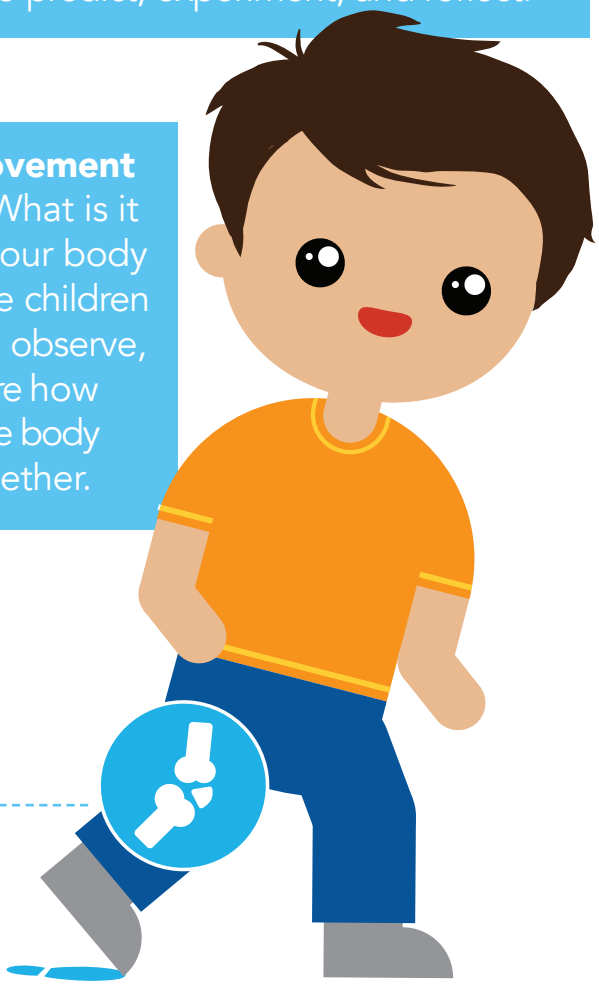
Common materials

- Plants
- Animals
- Weather
- Recycling

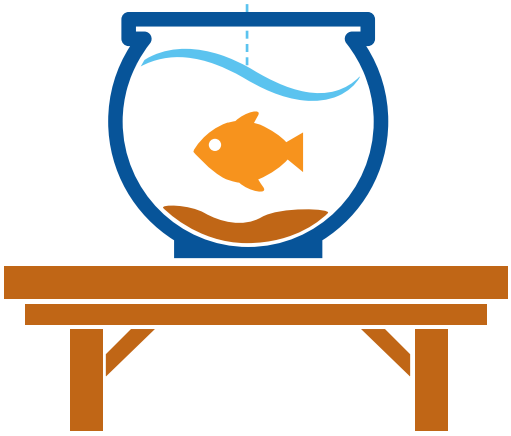
Use the following examples to help children think about science in a home or classroom environment:

Explore measurements by asking "How many of your feet does it take to get all the way across the room?" Teach children how to predict, experiment, and reflect.

Explore movement by asking "What is it that makes your body move?" Have children hypothesize, observe, and explore how parts of the body work together.



Explore nature by asking "What living creatures do you see in or outside of our home or classroom? In what ways are they alike, different or special?" Encourage children to be as descriptive as possible.



T

TECHNOLOGY

Technology includes more than just computers or mobile devices. Use what's already at home or in the classroom to discuss how technology is used, why it's important, and to deepen children's thinking about the problems it solves.

Common materials

- Lights
- Mobile devices
- Household appliances
- Pencil sharpeners

Allow children to experiment with technology, while offering support and asking about their experience.

"Let's use this **phone** to take a picture of your favorite toy."

"Do you notice how **light bulbs** make the room bright? Have you ever wondered about that?"

"I see you are using a **pencil**. What does a pencil do?"

"Tell me all the things you can use **scissors** for."

E

ENGINEERING

Engineering is reinventing what is already present in a way that solves real problems. Allow children to build, innovate, change, and mold objects or materials in the classroom with this question in mind: "How can we use tools or our ideas to solve a problem?"

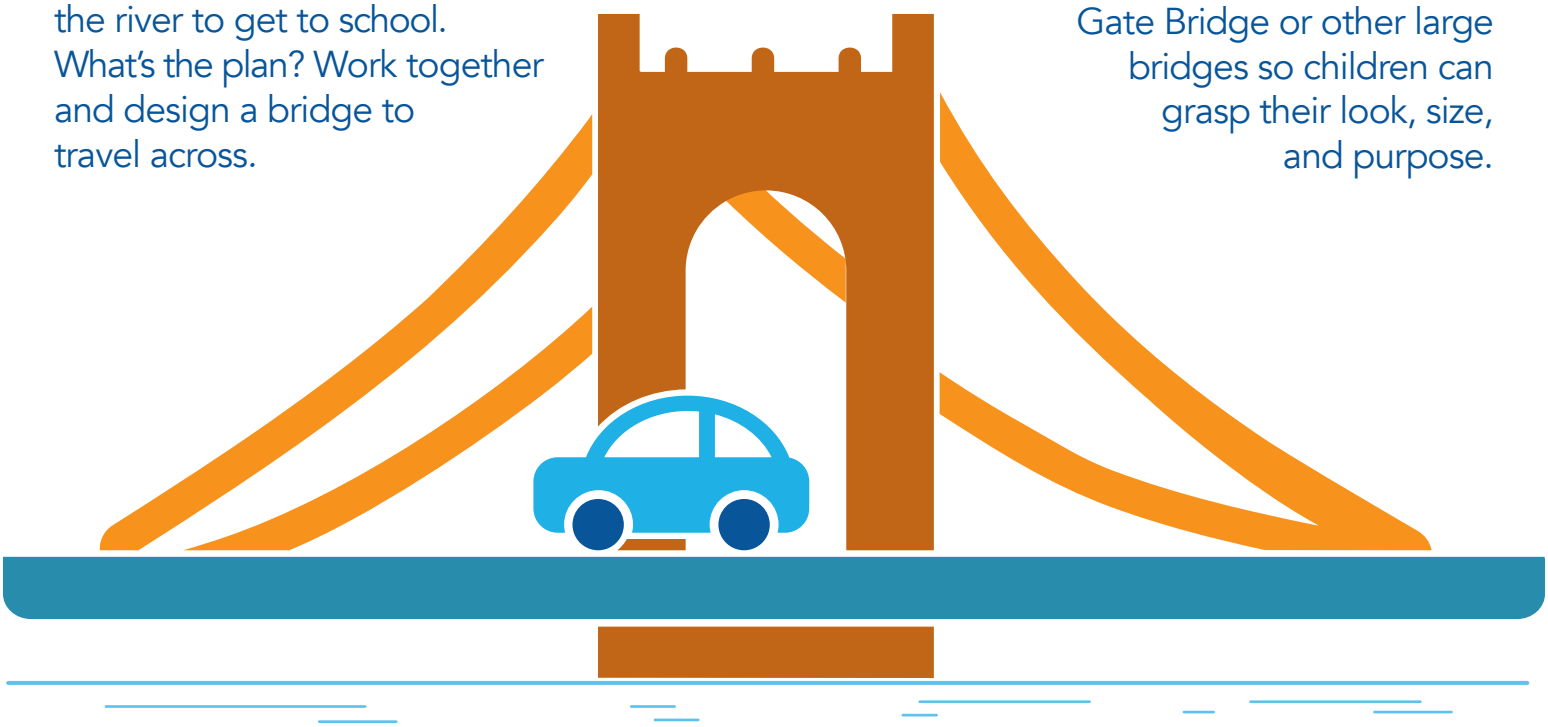
Common materials

- Blocks
- Wheels
- String
- Tape

Use the steps and examples below to make an engineering play center:

Step 1: Formulate a problem and develop a plan.
Ex. The children need to cross the river to get to school. What's the plan? Work together and design a bridge to travel across.

Step 2: Extend the plan through interactive reading.
Ex. Read a book on the Golden Gate Bridge or other large bridges so children can grasp their look, size, and purpose.



Step 3: Build, test, redesign.
Ex. Allow children to brainstorm materials, methods, as well as approaches to making the bridge. Once tested, ask them questions about how they think the bridge will work.

Step 4: Explain the results.
Ex. Talk to children about how they successfully engineered a bridge to help their friends. Encourage them to explore the block center on their own in new, meaningful ways.

A

ARTS

Art is all about the creative expression of science and math. Science and math can be fun, creative, and exciting – both fields influence art constantly, as well as vice versa.

Common materials

- Colors
- Drawing tools
- Glue
- Musical instruments

Keep artistic expression on children's minds during STEAM activities by providing the following questions and feedback:

- "What colors will you use? **Tell me why** you chose them."
- "I see you are painting a tree. **Tell me the steps** you took to make it."
- "**How many** leaves will you paint? How many leaves do you think the trees outside have?"
- "**What makes your project different** from your friend's?"
- "Let's come up with **three other ways to create that** using different colors and materials."

M

MATHEMATICS

Math is the universal language of STEAM, and a critical aspect of a high-quality early education program. By "mathematizing" real life situations, you can help children improve their language, numeracy, and also their critical thinking skills.

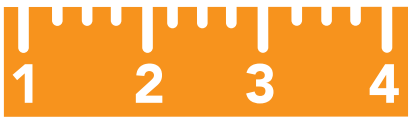
Common materials

- Patterns
- Thermometers
- Shapes
- Calendars

Develop children's math skills using the following exercises:

Identify numbers

"Can you point to the number 4?"

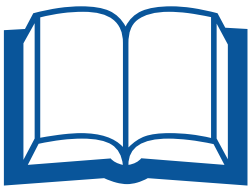


Compare quantities

"You have 5 apples and I have 3. Who has more?"

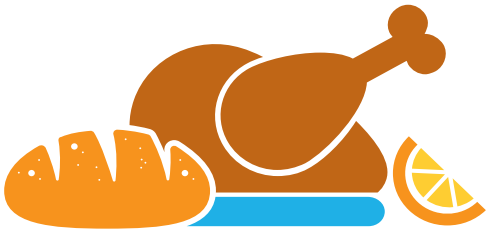
Count and state how many numbers are in a set

"I see you're reading a book. Let's count the pages!"



Sort and classify objects

"Let's sort our food by color, texture, heat, and / or size."



Sequence numbers

"Can you put these numbers in order from smallest to biggest?"

5 3 6 4 1 2

Compare numbers

"Which number is bigger?"

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Because every child deserves a good start.

For more information on teaching STEAM to your students or children, please visit

steamcorner.wordpress.com