



Inquiring Minds Want to Know

Science Activities for Young Minds

Why Science?

The purpose of “Inquiring Minds Want to Know: Science for Young Minds” is to provide ideas for facilitating science with young children so they gain important life skills and experience the excitement of science exploration.

“The capacity of young children to reason in sophisticated ways is much greater than has long been assumed. Even before they start school, children develop their own ideas about the physical, biological, and social worlds and how they work” (National Research Council, 2011).

Science engages their curiosity.

Science provides kids the opportunity to know that they can help solve the world’s big problems.

Science provides practical tools for understanding everyday life.

A science facilitator’s role is to encourage important life skills:

- ▶ **Critical thinking** – Ask open-ended and thought-provoking questions.
- ▶ **Problem solving** – Provide opportunities for children to develop their problem-solving skills through open-ended challenges.
- ▶ **Decision making** – Through the exploration of science, children experience the wonder of wrong answers that lead to more exploration and discovery.
- ▶ **Learning to learn** – Children self-direct their own learning because of their curiosity. They desire to understand the world they live in.
- ▶ **Creative thinking** – Encourage children to carry out their off-the-wall ideas and discover what happens. Even if the experiments fail, the process of trying something new encourages creativity

- ▶ **Communication** – Provide opportunities for children to share their discoveries through language by discussing them with peers and educators.
- ▶ **Teamwork** – Provide opportunities for children to discuss, argue and compromise as a team while they engage in science exploration.
- ▶ **Perseverance** – Failure is critical to science. When experiments do not work out as predicted, encourage children to try again and think about why it didn’t work.

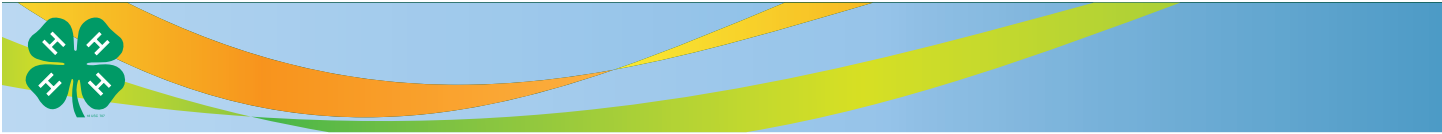
The scientific process for children involves observation, prediction, experimentation and interpreting the results.

Through the exploration of the world around them, children make **observations**, using their senses to discover how things interact and impact their world. They learn through these observations and begin to **predict** what might happen before they begin **experimenting** and playing with their world. Children use their observations, predictions and experiments to **interpret** how and why things happen and learn about the world.

Children learn and retain more when teaching involves actions. You can help children recognize that they are learning when they are doing by posing simple questions while they are doing science. Combining activities with questions helps children learn.

Science is:

- ▶ **Inclusive:** it is part of our daily lives – all day, every day, everywhere we go.
- ▶ **Across subjects:** it’s not isolated from everything else in our lives – it crosses into all subjects. It can be found in history, geography, philosophy, dance, music, shooting sports, art and beyond.



- ▶ **Developing literacy skills:** literacy skills are integral to science – reading, writing and speaking are all essential to comprehending and communicating issues and ideas.
- ▶ **Developing math skills:** math is integral to science – sorting and classifying, estimating, counting, measuring, graphing, collecting data and analyzing.

Science is not...

- ▶ **Knowing the answers** – Science is about discovery, not about what you already know. Science is not a set of facts that have already been discovered by others. It is a process – a way of thinking and understanding the world. When you are working with young children, they may not get the correct answer, and that is fine. It is more important to encourage children to ask how and why.
- ▶ **A recipe** – Science isn't just about following a set of instructions to get the same results each time. When experiments do not work out as predicted, help children to try again and think about why they didn't work. It is tempting when working with young

children to have them follow the directions and achieve the predicted results, but that is not what science is about.

- ▶ **Magic** – Science is about trying to understand why things happen. Science does create cool things that mystify your classroom. However, if you don't try to discover the science behind the magic, you are not doing science.

Science: Asking Questions, Discovering Answers

“Somewhere, something incredible is waiting to be known” (Carl Sagan). And somewhere there are children who are ready and excited to discover those incredible things.

“The whole of science is nothing more than a refinement of everyday thinking” (Albert Einstein).

It's more important to ask the questions than to give the answer!

Science is all around us. Explore it!

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