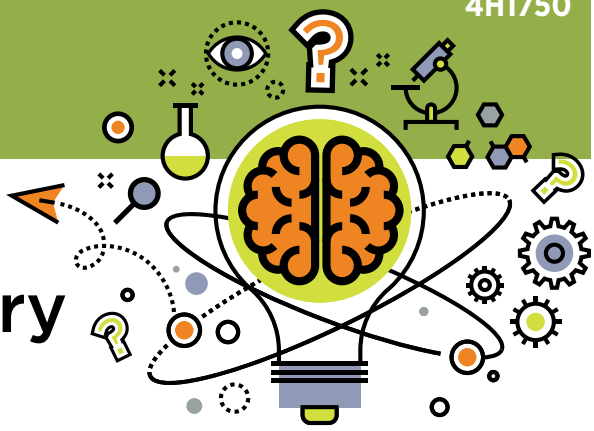
4H1750

TEACHING SCIENCE
...when you don't know diddly-squat



4-H Cloverbud Science: Exploration and Discovery With Young Children

It's all about the questions! When youth ask questions you cannot answer, you win!

The goal of teaching inquiry-based science is to make the youth smarter than you. When they ask questions you cannot answer, it's a win! Their investigation skills and natural curiosity are activated, one of the main goals of science. Finding the answer is a learning experience both adult and child explore together.

Photo © istock.com/kirin_photo

Note: Although this information sheet is geared to leaders of 4-H Cloverbud clubs, it also applies to parents and their own young children. In Michigan, Cloverbuds are 4-H members who are 5 to 7 years old.

What about science?

When should you begin teaching children science? What science should you teach? How do you teach children science? Every day, parents help their young children prepare for school. They count with their children or sing the ABC song, intentionally helping them better succeed in school in areas such as reading and math. But what about science? Unlike math and reading, science engagement is often coincidental rather than intentional.

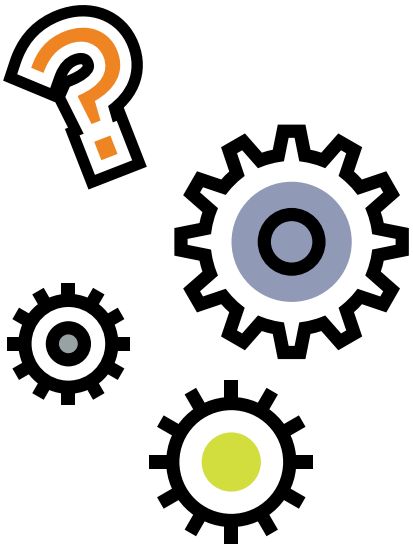
The essence of science is asking questions and discovering answers. Every day, children's curious nature generates hundreds if not thousands of questions, which they can either explore or ignore. Some questions you can use to help young children discover the answers include:

- *What does this feel like?*
- *What does this smell like?*
- *What does this sound like?*
- *What does this look like?*
- *What does this taste like?*

As children develop greater language skills, advance to questions that allow for explanations, such as:

- *Why do you think that happened?*
- *What do you think would happen if . . . ?*

You do not need all the answers to teach science. You simply need an inquisitive mind and to be willing to carry out an investigation.



Using the lessons

The *Teaching Science When You Don't Know Diddly-Squat* lessons make intentionally engaging children in science easier by including fun, hands-on exploration and a variety of questions designed to engage youth. The lessons will help you and the children learn more about physics, biology, animal science, chemistry and more.

Things to consider when choosing the *Teaching Science When You Don't Know Diddly-Squat* lessons for 4-H Cloverbud clubs:

- It's all about the questions! Teaching science with Cloverbuds is **not** about accomplishing the task; it's about exploring new ideas, having fun and discovering answers.
- Encourage the natural curiosity of the Cloverbuds. It's okay to deviate from the lessons and let them explore something they are interested in.
- Keep the groups small. Remember, science is often loud, sometimes messy and always fun.
- Cloverbuds are not always patient so when doing an activity that requires waiting for the results, plan another activity, play a game or take a walk while waiting.
- Cloverbuds may not have well-developed motor skills, but encourage them to try. Remember it's the journey – not completing the task – that is important.
- Cloverbuds are generally not abstract thinkers, so help them understand ideas by including the hands-on explorations.

Science & Engineering Practices:

These eight Science and Engineering Practices come from *A Framework for K–12 Science Education* (National Research Council, 2012, p. 42). These research-based best practices for engaging youth in science are connected to in-school science standards that all children must meet.

- Asking questions and defining problems
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations and designing solutions
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

Reference

National Research Council. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. Washington, DC: National Academies Press.