

Learning about the world: Science experiences for young children

by Megan Shaw

Incorporating science experiences into a service's program can be daunting for some educators. This may be because when we think of the term 'science' some of us automatically think of science experiments. However, the area of science covers a range of topics, including physics, chemistry and biology. These concepts can be introduced to children from an early age and through a range of experiences.

What is science?

The word 'science' is derived from the Latin word *scientia*, which means 'knowledge' (Elliott and Young, 2003, p.9). Therefore, any experience that encourages children to question how or why things happen is a science experience. Children are naturally inquisitive and want to know about the world around them, so providing them with experiences to challenge their thinking will almost certainly engage them.

Science experiences in children's services

Science experiences can be implemented from as early as infancy. Placing a baby in front of a window or mirror can initiate a science experience, as they begin to watch their reflection and watch the light as it bounces off the glass. Activities such as water play and



This article relates to:

FDCQA Principles: 2.2, 3.1, 3.2 and 3.6

OSHCQA Principles: 4.2 and 4.3

QIAS Principles: 3.3 and 4.4

bubble blowing can introduce children to concepts such as sinking and floating, while cooking experiences teach children a range of concepts, including measurement and chemical reactions.

By middle childhood, most children will have developed a grasp of basic concepts such as height, weight, length and heat. These concepts can be further investigated through experiences such as construction activities, for example, building using hammers, wood off-cuts and nails, and simple (and safe) physical and chemical science experiments.

Encouraging science with children

Every day in a children's service can provide opportunities to extend children's curiosity and knowledge of scientific concepts. For example, finding a caterpillar in the playground can start a project on the life-cycle of butterflies, or lead to a discussion about the relationship between plants and animals. Drawing pictures in the dew on a window can lead to a discussion and a series of experiments about condensation and the weather.

Developing children's language through science

Science experiences offer ideal opportunities to promote other aspects of children's learning and development, including language, literacy and social skills. As children are naturally curious, science experiences will often keep them engaged for long periods of time and they offer natural opportunities for children to ask questions and have conversations in which they share ideas and solve problems. The key is for educators to ensure they are attuned to what the children in the service are doing and what they are interested in. It is important to avoid 'leading' children's play and explorations, and to instead

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facilitate experiences, guide the children and ask questions to provoke their thought processes. Use open-ended questions such as "What do you think would happen if...?", or "Why do you think...?" to help extend children's thinking and to encourage them to explore their interests further.

Modelling appropriate language during children's experiences will also help to introduce science concepts to the children, while also extending their language skills. Depending on children's ages and skills, words such as 'evaporate', 'magnify' and 'chemical' can be used and explained to children to help them to develop their understanding of scientific concepts.

Using correct terminology when participating in science experiences will also further enhance the children's language development.

Implementing science experiences in children's services

You do not need to buy expensive resources to implement science experiences into your service's program. Simple household items can make great resources. For example, recycled drinks containers and plastic tubes make great pipes and funnels for water experiences.

Some examples of simple and effective science activities are:

- Raising caterpillars and silkworms – by keeping live caterpillars or silkworms, children are able to witness first-hand the life cycle of a butterfly. This is a great biology experience
- Experimenting with padlocks, keys, cogs, nuts and bolts – encourages children to think about mechanics and how things work
- Gardening – encourages children to recognise the relationship between living things
- Water play – water can be used in a wide range of science experiences, as children can witness water in its many forms. For example, they can watch ice as it melts back into water. Water play can also be used to demonstrate how various materials either dissolve in water or repel water

Quick and simple science activity ideas for child care settings

- Put out sheets of different coloured cellophane for children to explore light and colour mixing
 - Conduct a 'nature hunt' with children within the service grounds or in a nearby park
 - Provide magnets and iron and non-iron objects for children to experiment with
 - Grow easy and quick to germinate seeds such as alfalfa or chia sprouts using damp cotton wool
 - Buy a rain gauge and use it to prompt discussion about the weather – older children can keep a record of rainfall
 - Make and fly kites/frisbees/paper aeroplanes
 - Conduct taste, smell and touch guessing games with different items and foods
 - Provide children with magnifying glasses to use to explore the environment.
- Construction activities, either using commercial construction sets such as Lego® or recycled materials such as building or plumbing off cuts, can promote children's problem solving skills and spatial awareness.

Conclusion

Implementing science into the service program does not need to be difficult or daunting. Allowing children to explore the natural environment can lead to many spontaneous science discussions and lead to more in-depth project work ■

This article relates to EYLF Learning:

- Outcome 4: Children are confident and involved learners

References and further reading:

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