

# Beyond Centers & Circle Time

## Curriculum Theme Series

### Scientific Thinking and the Pre-School Child

Young children are born scientists. At birth they are interested in their environments and respond quickly to positive experiences. Adults often inadvertently stifle this natural interest in the world by embedding unfounded fears of animals and objects in an effort to keep them safe. When young children leave quality early childhood programs and enter schools that redefine their scientific interests to fit a narrow curriculum focus of science, their knowledge and interest in science diminishes (US Department of Education, 2007). For young children science is not just facts in a content area, but a way of thinking and feeling about the world. The young child's eagerness to understand the world around him provides knowledgeable adults with a window of opportunity for creating a strong love of science and a curiosity and enthusiasm that will support his desire to learn for the rest of his life.

Piaget (1962), Dewey (1930), Elkind (2004) as well as the National Association for The Education of Young Children have clearly outlined the importance of play and discovery experiences in the acquisition of scientific thinking. Play should be the vehicle that allows children to explore and discover knowledge.

Curriculums used to support the acquisition of science knowledge should be play based (NAEYC, 2008).

*Play allows children to develop inquiry reasoning. Scientific inquiry refers to the diverse ways in which scientists study the natural world and propose explanations based on evidence derived from their work. It also refers to the activities of children in which they develop knowledge and understanding of scientific ideas and understanding of how scientists study the natural world. (NAS, 1996).*

David Elkind has further explained this position in his book *Miseducation: Preschoolers at Risk* (1987), stating that the young child is a permeable learner. The young child does not learn through categorized content focused activities, but through playful experiences that they find exciting and interesting. The brain research and the position taken by The National Association for The Education of Young Children (2008) in discussing how young children best learn literacy, science and math concepts, continues to support playful learning as the medium through which young children develop an enthusiasm and eagerness for learning and an inquisitive approach to new experiences.



The Beyond Centers and Circle Time Curriculum Theme Series has been written to help teachers provide rich developmentally appropriate experiences that will inspire children's creativity and scientific inquiry. Play with unit blocks, mud, and other construction play materials both inside and outside the classroom allow children to experiment and draw conclusions about their experiences. Play opportunities that provide children with information about the natural world expand their cognitive knowledge, enhance their curiosity, and increases their reflective and expressive vocabularies. Cooking experiences also offer rich multi-sensory opportunities to discover science concepts and the theme series provides weekly cooking lessons.

All of the nine themes provide experiences that encourage children to compare and contrast events and objects, to classify, and explore, as well as create. The teachers are provided information that will help them to extend the children's questions and interests. Teacher's must be involved with the children and support their thirst for knowledge and development of inquiry reasoning skills.

Young children love to know interesting facts about animals, plants, and objects. The theme series provides these facts for the teachers. An example can be found in “Insects and Spiders” where teachers using the BCCT Theme Series will find information about ladybugs, bees, ants, and spiders.



Many adults give wrong information to children telling them that spiders are insects or that all ladybugs are red and black. The themes are written to provide both the adults and children with correct information about insects and spiders and to expand everyone’s appreciation for the importance of these animals in our world.

The Florida Learning and Development Standards for three and four year olds (2010) have a sub-domain under Cognitive Development and General Knowledge called Scientific Thinking and the Florida Voluntary Pre-Kindergarten Standards (2008) have domain called Mathematical and Scientific Thinking. The indicators in this area are as follows:

1. Uses senses to observe and explore classroom materials and natural phenomena
2. Begins to use simple tools and equipment for investigation
3. Makes comparisons among objects

In these same standards the other main domain that supports the development of scientific knowledge is Approaches to Learning and the sub-domains are Eagerness and Curiosity, Persistence, Creativity/Inventiveness, and Planning and Reflection. The indicators in this area are as follows:

1. Shows eagerness and curiosity as a learner
2. Attends to tasks and seeks help when encountering a problem

3. Approaches task with flexibility and inventiveness
4. Shows some planning and reflection



A rich well planned and scaffolded play environment can easily embed these standards providing young children with ample opportunities to develop into curious, eager, and competent learners. The Beyond Centers and Circle Time Theme Series is written to provide young children with exciting learning experiences that is guaranteed to enrich and expand their science thinking and knowledge. The Beyond Centers and Circle Time Curriculum Theme Series have such experiences described in detail throughout the nine themes. The following five have a very strong natural science focus:

- Animals in the Jungle
- Birds in My Neighborhood
- Oceans and Ocean Life
- Amphibians and Reptiles
- The Farm and The City