

APPROACHING SCIENCE AGE BY AGE

Although children from birth to age 6 are natural born scientists, here is a look at how their ability to grasp basic science concepts develops:

0–12 months: Children may use all their senses to learn about the world. They recognize routines and patterns, and may experiment with cause and effect by dropping a bottle repeatedly to elicit an adult's response.

12–24 months: Children may continue to use all their senses but rely increasingly on previous experiences and language. They may share understanding of their local culture (dogs are scary, streets are dangerous, swimming is fun), and interpret natural phenomena

according to their culture, experience, and level of language. They may categorize information readily, depending on experience and language (some might believe, for example, that all large four-legged creatures are cows).

2–3 years: Children may continue to use all their senses but rely increasingly on experience and their burgeoning language ability. They have a strong but often inaccurate grasp of cause and effect and may be more like social scientists than physical scientists, even though they show competence in their own physical realm (they show good balance, can manage stairs, throw a ball). They're good observers of objects and events, can match objects, and count a bit.

3–4 years: Children may continue to use all their senses, augmenting them with language and previous experience. What's new is imagination, which transforms actual phenomena readily and often firmly, as in "I'm the mommy, you're the dog." While this seems to deny facts, it contributes to increased understanding of the real world. In playing dog, the child shows knowledge of dogs and expands the possibilities for using that knowledge.

4–5 years: Children may be open to experiences provided by adults and be willing to consider an adult's perspective. Imagination is still powerful and useful in perceiving and talking about the world. Children show large

funds of knowledge about such subjects as dinosaurs or cars or space, and wonder if things are "true." They acquire much information from listening, books, and television.

5–6 years: Children may argue about cause and effect, and judge whether things are true or made up. They're open to studying natural phenomena, such as weather or water, and might have their own collections of rocks or beautiful leaves. They categorize readily and have a large vocabulary for describing the world around them.