

# BACK TO BASICS

## Cognitive development

All children need environments and interactions that help expand their intellects and mental abilities. Cognitive development is a continuous process of discovering, sorting, classifying, evaluating, visualizing, understanding, and using information to solve problems and anticipate possibilities and consequences. Help children develop cognitive skills by keeping in mind the following typical behaviors.

### Infants

- Can hear and respond to different sounds.
- See and follow slowly moving objects like mobiles and hand-held toys.
- Respond to different smells from birth, and turn away from unpleasant odors.
- Learn about objects by mouthing them.
- Imitate actions and behaviors like smiles, simple pat-a-cake games, and another baby's crying.

### Toddlers

- Seek and find hidden objects.
- Know the location of significant people and note their absence.
- Use play and imagination to explore social and emotional interactions.
- Understand that some objects go together and can be used in sequence. For example, they can put a doll in a bed, cover it with a blanket, and indicate "Shush" with a finger to the lips.
- Begin to use experiences and observations to try many ways to solve a problem or achieve a goal.
- Begin to assert independence and develop preferences based on experience.
- Enjoy singing, dancing, and looking at picture books with adults.
- Rely on routines and rituals for constructing order in the environment and with other people.
- Can name everyday objects with a vocabulary of up to 300 words for people, animals, foods, and events.

### Preschoolers

- Follow the sequence and story line of age-appropriate books and stories.
- Base their judgments on how something seems to be in the moment.
- Have difficulty distinguishing fantasy from reality.
- Draw circles, squares, and some letter forms.
- Understand basic shapes and can point them out in the environment.
- Count objects out loud—sometimes with accuracy.
- Sort objects by characteristics such as color, shape, and size.
- Are adept with picture puzzles of 10 to 40 pieces.
- Enjoy words, nonsense language, riddles, and rhymes.
- Have a vocabulary of up to 2,000 words and use sentences averaging 6 words.

### School-agers

- Begin to understand symbols like clocks, written words, and quantity.
- Can follow multi-part directions and instructions.
- Can use toys and action figures to act out their hostile or aggressive feelings.
- Begin to recognize that the views and interests of others may not be the same as their own.
- Need written words and rich conversation for vocabulary and language exploration.
- Incorporate cause and effect and logical consequences in making behavioral choices.
- Enjoy trial-and-error experiments and projects. Only repeated failures result in frustration and negative behaviors.



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This is the seventh of several pages of development information. Look for each one, printed on card-stock for durability, in our upcoming newsletters; we encourage you to collect each one for your files.

## Activities to Promote Cognitive Development

What a child learns from an activity depends a lot on what stage he/she is in. Children can do an activity over and over and get new learning each time, in fact, without the repetition they would not learn as much. Intellectual abilities increase with age and experience. Here are examples of how you can do the same kind of activity with different ages of children and adapt it to meet and enhance the intellectual development of the different age groups you may be working with.

### Sink and Float

Concepts children can learn about sinking and floating.



- 1- Sink means to fall to the bottom of water, float means to stay on top.
- 2- Some things float on top of water, some things stay submerged partway down, and some things sink.
- 3- Some things sink very fast and some things sink very slowly.
- 4- Children typically think that heavy objects sink and lighter ones don't, but grapes sink and grapefruits don't! Whether an object sinks or floats has to do with the relationship between its density and the density of water.
- 5- An object's shape can affect its ability to float, but some materials float no matter what their shape—such as Styrofoam and balsa wood.
- 7- Some things float at first, but then sink as they absorb water or take water on through holes.
- 8- A boat sinks when it takes on a load that is greater than the pressure of the water. If the boat pushes down with more force than the water is pushing up, the boat will sink.
- 9- The weight of a boat seems to be centered on one point—the center of gravity. A boat that is too tall for its length and width or one that carries too much weight too high (a high center of gravity) will be unsteady and will likely overturn. This is why a person standing in the hull of a small boat will capsize it easily because the center of gravity is too high.

### Experiences with Sinking and Floating

(Remember that children should never be allowed to do water activities unsupervised.  
Young children can drown in even small amounts of water.)

#### Infants - Sponge and Water Fun

Put some sponges and cups into a small container of water. Show the baby how to squeeze water out of the sponges into the cups to make them sink. Say the words sink and float with baby.

#### Toddlers - Sink or Float?

Gather items that can be put in water that will sink and float but are large enough to not be choking hazards, like sponges, rocks, floating toys, or blocks. Let the toddler put them into a small container of water one at a time. Use the words "sink" and "float" with the toddler to describe what happens.

#### Preschoolers - What Makes Me Sink?

Gather items that will float at first but then absorb water and sink such as different pieces of cloth, different kinds of containers with holes punched in the bottom, or plasticine clay that will can be flatten out to float or rolled into a ball to sink. Let them try and make the items sink.

#### School-agers - Sink the Boat/Don't Rock the Boat

Let the children make a simple boat from cardboard, milk cartons, polystyrene, sponges, etc. Then let them experiment with the center of gravity by carrying cargo (blocks, rocks, pennies, or washers, etc.) in different positions, flat in the hull, then turned on the side, then standing with the longest dimension vertical. Have them predict how much cargo they can load without making it sink. Then let them try.

