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## BACK TO BASICS

# Science and discovery

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The wonder of exploration and discovery drives every scientist—and young child. Provide activities that satisfy children’s curiosity, and help them answer questions about the world and the things in it with a well-equipped science or discovery center. You’ll be supporting cognitive, social, language, and physical skills as children step into the worlds of biology, physics, mechanics, and climate.

### Guidelines for science activities

- Develop and model a curious and enthusiastic attitude toward science activities. Children will find it hard to explore the habits of insects—and the life cycle of a butterfly—if you are squeamish, distant, and disinterested.
- Position the science center in good light, near an electrical outlet, and in a quiet corner of the classroom. Make sure children feel able to sit, stare, experiment, and make notations. This means you’ll need to make accessible a table, chair, paper, and markers.

- Include a collection of science and nature magazines and books in the library center, and encourage their use in the science center too. Invite parents to borrow reading materials to share with their children at home.

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### OFFER EVERYDAY MATERIALS TO EXPLORE.

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- Offer an outdoor discovery area and equip it with weatherproof tools like plastic magnifiers, collection bowls, measuring tools, and a balance scale.
- Use a water table as an extension of the science center if you want to contain messy experiments or simply invite an investigation of water.



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- Offer everyday materials to explore, and include objects children can take apart safely. Encourage investigations of the inner workings of an analog clock (with gears and dial), a disconnected electric switch (with colored wires, screws, and toggles), or a baseball (with layers of unique coverings), for example.
  - Introduce and use scientific vocabulary appropriate to the ages and developmental levels of the children. Even 3-year-olds will thrill to share names of an insect's anatomy, including *antenna*, *thorax*, *abdomen*, *compound eye*, and *flight wings*, for example.
  - Help children use their senses to gain information. Encourage children's vocabulary expansion as they describe first what they see, then what they smell, then what they feel.
  - Resist teaching facts and principles. Instead, involve children in observing, manipulating, exploring, predicting, analyzing, and understanding. Active sensory participation with materials makes learning meaningful.
  - Ask open-ended questions to learn what children understand about their observations. Plan subsequent activities to build curiosity and scaffold learning.
  - Avoid making science magic. It's not! Instead, help children explore the natural properties and functions of real things in the environment.
  - Don't be afraid to say, "I don't know." Help children find answers in books, through experiments, or by asking an expert. Introduce the concept of science as a career. Explain that scientists conduct experiments to find answers to hard questions.
- feathers
  - leaves and twigs
  - plants and soil
  - shells and rocks
  - live insects
  - horseshoe and bar magnets
  - measuring utensils
  - spray bottle
  - bulb baster
  - pulleys, levers, and ramps
  - sifters
  - string
  - scissors
  - tape
  - rulers and tape measures
  - digital camera and printer
  - safety goggles
  - clipboard and pencil ■

## Science center basics

Gather these materials to use in the science center. Provide duplicates of equipment to encourage collaboration and cooperation. Rotate materials and modify experiments to keep curiosity and creativity levels high.

- balance scale
- thermometer
- rain gauge
- magnifiers
- aquarium
- flashlight
- classroom pets
- prism