

SCIENCE FOR INFANTS AND TODDLERS

Use this information to support your assessment process.
Visit the PA Promise for Children website (www.papromiseforchildren.com) for additional activities that align with the PA Early Learning Standards.

For very young infants, science may be as simple as naming objects or showing an infant something outside a window. Science begins early on in a child's learning, and it is up to the care giver to provide opportunities to learn more.

Science encompasses many different branches including oceanography, biology, chemistry, physics, psychology, hydrology, geology, environmental science, zoology, botany, and many more.



Children learn by using their five senses. The following activities for infants, use the senses to help them navigate their world. Always keep in mind safety precautions when working with very young children.



Children can hear different sounds. While playing with various toys, label the sounds they make for the infants. Does it rattle? Whistle? Honk? Squeak? If your classroom has sound activities, share those as well.



Children also learn by smell and taste. Lunch times lend themselves to many different smells, but so can other items such as flowers or freshly washed blankets. Very young children often put things in their mouths to discover what it is.



Children can see many different things. Share classroom pets and plants by showing them to the infants and explaining what they are. Infants can look outside windows to see trees and different types of weather.



Children learn a lot by touch. What items in your class can you use to teach children by touch? Soft toys versus vinyl toys, soft and smooth. Hard plastic rattles and bumpy balls. Children can also be touched by items such as rocks, leaves and twigs, using safety procedures. A young child who is mouthing items should not be allowed to hold the items, but the teacher can touch the child's hand with the items and describe them. Infants taken outside can feel the grass and the sun.



SCIENCE FOR PRESCHOOL AGE CHILDREN

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Many children are fascinated by the natural world around them and use their senses: touch, smell, taste, sight, and hearing, to understand their surroundings. Children need many safe hands-on activities to explore the natural world.

Books must be factual and have realistic photos or drawings to count as a science material. Games and toys must also reflect nature in a realistic way. A blue plastic elephant would not count as a science material, and neither would a book using cartoon animals.



Developmentally appropriate nature/science experiences include exploring indoors and outdoors, learning words for natural items, and understanding natural processes. For preschoolers there are four types of materials: collections of natural items, living things, nature/science books, games and toys, and nature/science activities.



Nature/science activities require materials that encourage children to experiment with scientific concepts or observe scientific processes unfold. Activities to consider are sink and float activities, magnifying glasses with things to look at, racing cars down slopes of different length and inclines, planting seeds and watching them grow, completing a weather chart after observing the weather, magnets, making a bird feeder and keeping track of the birds who use it, and many others.



Collections of natural items can include seashells, rocks, leaves, pinecones, different types of wood, and bird's nests. These items should be stored with like items and have enough items for children to make comparisons. Plastic animals are considered toys and not natural items.



Living things include class pets, plants, growing seeds, garden, aquarium, butterfly hatching kit, eggs that hatch, and an ant farm. These items must be in the children's immediate environment and children must be able to observe or take care of these living things.



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Asking scientific questions during every day events help children learn the many wonders of nature/science. Examples include:

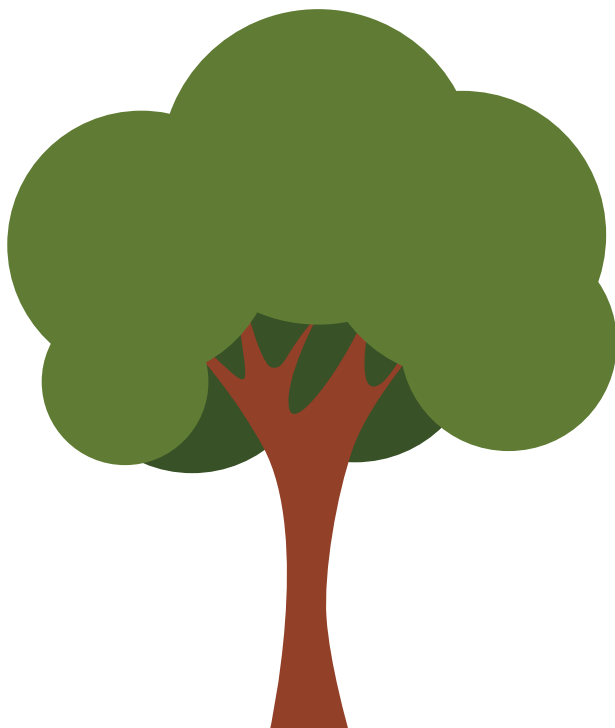
- Why does the moon appear during the day?
- How do plants change with the seasons?
- What new birds arrive in spring, and which stay all winter long?
- Why did the class plant dry out?
- What happens when you feed the class guinea pig?

Sand and water play can be considered nature/science materials. Toys for sand/water play allow children to pour, dig, scoop, fill, and experiment with the material.

Different activities give children broad experiences from which to learn and develop skills. Adding bubbles or color to water is an example of different activities. Adding sink and float toys as an experiment is another way to add to science.

Shells, sea creatures, water droppers, turkey basters, plastic boats and sponges give the children additional experiences.

Sand can be replaced with wet sand, bird seed or sterilized potting soil. Beans, rice, and pasta are not considered a safety concern with preschool children.



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Science equipment includes aquarium, terrarium, measuring tools, magnifying glasses, microscope, magnets, and scales. Science materials include natural objects, living things, realistic books, posters, pictures, and games about science/nature.



Extended activities mean looking for activities that go beyond materials in the classroom for free play. Activities that take more than one day to complete such as hatching chicken eggs or watching a chrysalis turn into a butterfly some long-term projects. Activities could also be more in-depth, such as experiments of adding food color to water and adding a white flower to see if the flower gains color.



Connecting science to any activity can be used to include differentiated instruction. Making connections to everyday life can help children understand cause and effect, such as recycling and conserving energy. Discussions about the weather are easy, but also talk about endangered species, how we can make a difference, composting, and anything for which children might be curious.



Are children involved with caring for pets or plants or living things? Be aware of plants and pets that have health or safety risks. Having children plant a garden indoors or outdoors has many science-based applications. Teaching children about what different types of plants need to thrive is one example.

Pets can include fish, shrimp, hermit crabs, frogs, turtles, guinea pigs, mice, gerbils, hamsters and even cats and dogs. The department of health services has some requirements for pet ownership in child care. Please contact your representative if you have any questions relating to the safety of having pets.



Field trips are another way to include science in your program. Zoos and aquariums are obvious choices. Science museums, sanctuaries, parks, and places where you can make your own food are also used for science. Thinking outside the box, visits to grocery stores, farms, electric companies, bakeries, and even some historical sites can include learning about science.