

What your child will learn in Grade 9 Science

Biological Diversity

Your child will explore what makes living things different from one another and how those differences help species survive. This includes learning about variation within a single species, for example, why some people have brown eyes and others have blue eyes, and how closely related species can live side by side by filling different roles in an ecosystem. You can ask your child to describe two animals they've observed and explain how each one is suited to its environment. [See the curriculum.](#)

Your child will study how living things pass on their characteristics to the next generation through sexual and asexual reproduction. Sexual reproduction happens when two parents contribute genetic material, while asexual reproduction produces offspring that are genetic copies of a single parent. You might ask your child to explain the difference between a plant growing from a seed and a plant growing from a cutting. [See the curriculum.](#)

Your child will learn that some characteristics are inherited from parents while others are shaped by the environment. For instance, eye colour is inherited, but a scar is not; height is influenced by both genetics and diet. At home, you can talk about which family traits your child sees in themselves and where those traits come. [See the curriculum.](#)

Your child will examine how human activity affects the survival of species and the variety of life on Earth. This includes learning about extinction, habitat loss, and strategies to protect endangered animals and plants, such as zoos that breed endangered species or protected areas that keep habitats safe. You can discuss with your child what happens to wildlife when forests are cleared or rivers are polluted. [See the curriculum.](#)

Your child will investigate how genes, chromosomes and DNA work together to pass information from parents to offspring. At this level, the focus is on understanding these as containers of genetic information rather than memorizing detailed structures. You can ask your child what DNA is and why it matters that we inherit it from both parents. [See the curriculum.](#)

How to help at home

Observe variation in your neighbourhood. Take a walk and look for two similar plants or animals, perhaps different types of birds at a feeder or different trees on your street. Ask your child to describe what makes them different and why those differences might help each one survive in that spot. [See the curriculum.](#)

Discuss inherited versus environmental traits. Look at family photos or talk about traits in your own family. Ask your child which characteristics seem to run in the family (like hair colour or height) and which ones are shaped by choices or experience (like a skill or a scar). [See the curriculum.](#)

Explore reproduction in your home or garden. If you have houseplants, show your child how some plants can grow from cuttings or runners without seeds. Compare this to plants that grow from seed and discuss why one method might be faster or easier. [See the curriculum.](#)

Research a species at risk. Pick an animal or plant your child is curious about and look up what is threatening it and what people are doing to help. Talk about whether those strategies seem likely to work. [See the curriculum.](#)

Ask questions about inheritance. When your child notices a family resemblance, ask where that trait comes from and whether both parents passed it on or just one. This builds understanding of how characteristics move through families. [See the curriculum.](#)

Materials and Chemical Change

Your child will learn to describe materials by their properties, such as how easily they melt, how well they dissolve in water, or whether they conduct electricity. Your child will also learn to sort materials into groups based on what they are made of, such as pure substances, mixtures, metals and nonmetals. You can ask your child to describe the properties of salt, sugar or cooking oil and explain how those properties make each one useful. [See the curriculum.](#)

Your child will observe chemical reactions and learn to recognize when one substance has changed into a completely different substance. This includes reactions with oxygen, such as burning and rusting, as well as reactions between household materials. You might ask your child what evidence shows that a chemical change has happened, for example, a colour change, heat, or a new smell. [See the curriculum.](#)

Your child will investigate how temperature, concentration and surface area affect how fast a chemical reaction happens. For instance, sugar dissolves faster in hot water than cold water, and a crushed tablet dissolves faster than a whole one. At home, you can experiment with dissolving salt or sugar in water at different temperatures and talk about what your child observes. [See the curriculum.](#)

Your child will learn that matter is not created or destroyed in a chemical reaction, the mass of what you start with equals the mass of what you end up with, even though the substances have changed. You can discuss this idea by talking about what happens when something burns: the material seems to disappear, but the atoms have combined with oxygen in the air to form new substances. [See the curriculum.](#)

Your child will be introduced to the periodic table and learn that it organizes elements by their properties and structure. Your child will learn to read basic information from the periodic table, such as how many protons an atom has. You can show your child a periodic table and point out familiar elements like oxygen, carbon and sodium. [See the curriculum.](#)

Your child will learn to name simple compounds and write their chemical formulas. For example, table salt is sodium chloride (NaCl), and water is H₂O. You can help your child identify the chemical names of everyday household items like baking soda (sodium bicarbonate) or vinegar (acetic acid). [See the curriculum.](#)

How to help at home

Investigate properties of materials. Gather a few household items, salt, sugar, oil, water, and ask your child to describe their properties: Are they solid or liquid? Do they dissolve in water? Can you see through them? This builds vocabulary for describing matter. [See the curriculum.](#)

Observe chemical reactions in cooking. When you bake or cook, point out signs of chemical change: a cake rising in the oven, milk curdling, or an apple browning when cut. Ask your child what evidence shows that something new has been made. [See the curriculum.](#)

Test how temperature affects dissolving. Put salt or sugar in cold water and hot water and watch how fast it dissolves. Talk about why hot water works faster and connect this to the idea that heat speeds up reactions. [See the curriculum.](#)

Read labels for chemical names. Look at ingredient lists on food packages or cleaning supplies. Point out chemical names like sodium chloride, calcium carbonate or citric acid. Ask your child what everyday name we use for each one. [See the curriculum.](#)

Explore the periodic table together. Show your child the periodic table and find elements they know, oxygen, carbon, gold, iron. Talk about where each one appears and what that location might tell us about its properties. [See the curriculum.](#)

Note: 51 learning outcome blocks were left out to fit the 6000-token curriculum budget for this kind of material. Use "Split into parts" to generate one document per organizing idea.