Science Inquiry at Home

An Introduction to Science Inquiry at Home – Kindergarten

These exploration suggestions are designed to support parents and students explore science content at home. Each suggestion starts with a question to answer. Included here are suggested materials and activities to help answer each question and suggestions on ways to communicate the findings.

Consider creating a science journal to record observations, take notes, and reflect on you learning. The science journal may be on paper or on a computer. You could choose to use a spiral notebook or a composition book. You could have a journal for each topic, each quarter, or one for the whole year.

What is my child learning in science?	Materials to support hands-on science activities at home	Questions to ask my child as we are exploring science at home
• make and communicate observations about how pushes and pulls affect the motion of everyday objects (K.2 a, b) • predict and test how a pushes or pulls will affect the motion of an object (K.2 a, b) • compare the motion (fast/slow, close/far) of an object after pushing and pulling the same object with different strengths (K.2 c)	Science journal Toys or objects found around the house	**How can I change the motion of an object?** Find a toy that has wheels. What happens when you push the toy? What happens when you give it a harder or softer push? Can you pull a toy? How hard is it to pull? Mark the floor with tape to make a start line and a finish line. How many pushes does it take to get your toy from the start line to the finish line? How can you do it in fewer pushes? Have you ever been on a swing? Does a push on the swing help you move faster? Have you ever been on a merry-go-around? How do you move faster? Have you been on a scooter or bike? What happens when you get a push? Find a ball and a good place to kick it that is away from people and anything that might break. What is the difference if you give the ball a gentle kick or a hard kick?

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		Draw pictures of what you did and tell what you discovered about the pushing and pulling.
observe objects and describe their basic properties to include color, shape, texture, and relative size and weight (K.3 a, b, c, d) arrange a set of objects in sequence according to size (K.3 d)	Science journal Toys or objects found around the house	**How many ways can I describe something?** Find an object in the house. How many different words can you use to describe it? Play "I Spy" by looking around the room and then saying "I spy with my little eye something that is _____" and fill that blank in with a color, shape, or size and have someone else guess the object. Take turns being the "spy" and the "guesser." If you have a lot of objects, place them in order from smallest to largest or largest to smallest. Draw pictures or write about what you did in the science journal.

What is my child learning in science?	Materials to support hands-on science activities at home	Questions to ask my child as we are exploring science at home
• describe several uses of water at school and at home (K.4 a) • identify several natural sources of water (K.4 b) classify examples of water as a solid or a liquid (K.4 c)	Science journal Ice cubes and water	**How important is water to my life?** Draw pictures of all the ways that you use water during the day. Do you use water mostly as a liquid or a solid? When walking in the neighborhood, notice where you see water. Are you near a pond or a stream? Do you see water in the street? Where do you see water on TV shows or in books? Keep track of all the places where you have found water. What happens to an ice cube when it is left out of the freezer? What happens to liquid water when you put it in the freezer? Put an ice cube in a glass and leave it out for a day or more. What happened to the ice cube? Draw pictures or write about what you discovered in your science journal.
• identify and describe the five basic senses (K.5 a) • match each human body structure with its associated sense (K.5 a) • provide examples of how the five senses are used to make observations (K.5 b)	Science journal	**Why are my senses important?** Think about what your eyes, ears, nose, mouth, and hands can do. How many of your senses can you use to describe something—but remember, only put food in your mouth! Stand outside and close your eyes. What can you figure out from what you hear, smell, and feel on your skin? Think of all the ways that you use your senses during the day. Share with an adult an important way you used your sense of sight, touch, smell, hearing, and taste during the day. Draw pictures or write what you discovered in your science journal.

What is my child learning in science?	Materials to support hands-on science activities at home	Questions to ask my child as we are exploring science at home
• use observations to describe what plants and animals need to survive (K.7 a) • Recognize similarities and differences between offspring and parents (K.7 c).	Science journal Seed (from fruit or vegetable) Paper towel Sandwich plastic bag or small cup Soil Water	**What do living things need to survive?** Think of what you need to grow—food, water, air, and shelter. Look at the animals around you. What do they need to grow? Where do they get their food, water, and shelter? Do plants need the same things? If you can, grow a plant. You can use seeds that come from fruits and vegetables have not been cooked. Plant them in soil and make sure that they get some light and that you water them. You can also put some seeds on a damp paper towel in a sandwich plastic bag. Record your observations in your science journal. Have you noticed that you share certain characteristics with your parents? How are you alike and how are you different? How are baby animals like their parents and how are they different?
• make observations and conduct an investigation to determine the effect of sunlight on Earth's surface (K.8 a) • demonstrate how shadows change as the direction of the light source changes (K.8 b) • compare the relative temperature of an object in sunlight vs. the same object in a shadow (K.8 c).	Science journal Light source (lamp, flashlight, sun) Chalk Toy or object	**How do shadows change?** Go outside on a sunny day. Look at the ground. What do you see? If you can, take a piece of chalk and have someone draw the outline of your shadow and where you are standing. Go outside again later in the day, and stand in the same spot. What has happened to your shadow? Look at the chalk on the ground and describe how it is different. If you have a flashlight and a toy, try making different shadows. Put the toy on a flat surface, and then pretend that the flashlight is the sun and hold it above the toy and move it. How does the shadow change? Can you make the shadow disappear? Where is the light when the shadow is gone?

What is my child learning in science?	Materials to support hands-on science activities at home	Questions to ask my child as we are exploring science at home
		Leave a toy in the sun for a while, and then touch it. How does it feel? If you have two toys that are the same, put one in the sun and one in a shadow, after a while, touch the toys. Does one feel warmer than the other? Which one is warmer? Draw pictures or write about what you discovered in your science journal.
chart and graph daily weather conditions throughout the year to determine seasonal patterns (K.9 a)	Science journal Calendar Paper Markers/crayons	**How does the weather make a difference in what I can do?** Check the weather every day—is it sunny? Rainy? Warm? Cold? Windy? How does the weather make a difference in what you wear or what you do? What are some things that you only do in the summer? In the winter? Can you keep track of the weather? Using a calendar, draw a symbol for the weather on each day. If it is sunny, you could draw a sun. If it is cloudy, draw some clouds. You can also keep track of the temperature. What would you draw if it is hot? Cold? When the month is over, you can make a chart that shows the different types of weather during the month. Draw the chart in your science journal. See the chart below as an example.

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• use observations to describe the change of an object or living thing over time (K.10 c)	Science journal Plant (indoor or outdoor) Young pet, or something that children can observe change	**How do living things change over time?** Look at a picture of you as a baby. How have you changed since you were a baby? Do you have a plant or a pet that is changing? What are all the different ways that the plant or pet has changed? Interview someone who knew you as a baby and now. Talk to them about all the ways that you have changed since you were a baby. Draw pictures or write what your learned in your science journal.
• identify materials that can be reused (K.11 a) • give examples of objects that can be recycled (K.11 b)	Science journal Aluminum can Paper Card board Plastic bottle	**How can you reuse or recycle items in your house?** Think of all the ways that you use metal, plastic, paper, or cardboard. Can you think of ways that you can use these items again? Can you recycle them? Draw pictures or write about how you will reuse or recycle in your science journal.