

DOMAIN 4: GENERAL KNOWLEDGE**SUB-DOMAIN: SCIENCE****SCIENTIFIC INQUIRY—THINKING, ASKING, ACTING, AND SOLVING PROBLEMS**

GOAL 43: CHILDREN ENGAGE IN EXPLORING AND MAKING SENSE OF THE NATURAL WORLD BY ASKING QUESTIONS AND MAKING PREDICTIONS ABOUT CAUSE AND EFFECT RELATIONS THAT CAN LEAD TO GENERALIZATIONS.

| Age Range | Developmental Growth | Child Indicators | Caregiver Strategies |
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| <p>60 Months through Kindergarten</p> | <p>Plan and conduct intentional investigations to explore questions or problems.</p> | <ul style="list-style-type: none"> ▪ Combines sensory exploration with intentional, specific strategies to solve problems and make predictions that lead to generalizations about phenomenon and objects. ▪ Uses investigative tools (magnifiers, magnets, pulleys, and string) to gather information and extend understanding. ▪ Uses books and electronic information to gather information about a favorite topic (e.g. spiders, cranes, recipes). ▪ Makes inferences, predictions, and generalizations based on observations and experiences. ▪ Makes drawings with some labels and dictates words for adult to write about events and observations. ▪ Makes observations and notes over several days of an experiment (beans sprouting). ▪ Increasingly tries an experiment more than once or twice. ▪ Compares predictions with actual observations. ▪ Asks questions about objects, organisms, and events in the environment. ▪ Makes predictions about the environment and generalizes outcomes to the natural world. ▪ Displays curiosity and interest to organize and | <ul style="list-style-type: none"> ▪ Create an environment that inspires child to have ideas and figure out how to do something. ▪ Encourage child to try out ideas, make mistakes, and develop contradictions. ▪ Provide child with an assortment of investigative tools and devices to explore and make predictions and generalizations about observations (magnifiers, binoculars, telescopes, and microscopes; weights and balancing scales; tubes and funnels; bicycle chain and gear sprockets; animal guide books). ▪ Offer sensory table play with increasingly complex tools and measuring options (e.g. things with holes that float and sink, tubes and pipes, containers with marked measure, or variety of sizes and styles of squirt bottles). ▪ Offer recipes in word and picture formats and help children alter or vary the recipe ingredients, based on predictions about what they might like to combine, or add to a recipe (e.g. raisins to a bread recipe, or items to include for making a pizza or taco). ▪ Encourage child to act on their own observations of patterns, make predictions, draw pictures, and write stories or recipes that reflect outcomes (how to make thicker pancakes; how to make thinner pancakes). ▪ Provide opportunities and resources for getting more information (e.g. books and computer resources). |

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| | | <p>plan observations, explorations, and experiments with living and nonliving things and events in the environment.</p> <ul style="list-style-type: none"> ▪ Takes responsibility for living things in keeping with expectations of the culture. ▪ Uses gathered information (data) to construct and communicate reasonable explanations. | <ul style="list-style-type: none"> ▪ Ask questions for further explorations, “What will happen to the cars if you make the block ramp higher or longer?” Provide child with an assortment of investigative tools to draw and write about their observations, predictions, and generalizations (“Which items are magnetic and which items are not?”). ▪ Support persistence and trying an experiment over and over to get same or different results. Ask real questions and listen to children’s answers. Record their ideas and post these near the experiment. ▪ Take digital pictures and videos and help children put the pictures in sequence and suggest narration for the sequences. Display the results. ▪ Listen to and discuss stories that illustrate everyday changes from the environment (e.g. seasons, growing plants, animals, food) and then make material available for children to illustrate their thoughts and dictate their stories. Help children think about what specific things they saw and discussed and then help them make generalizations about general situations that are similar. |
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