Iowa Early Learning Standards

Science

Scientific Investigations - Infant and Toddler (birth - 3 years)

1 **Infants and toddlers observe and wonder about the environment around them.** 8.1.IT

The infant or toddler…

1 begins to notice objects and events in the indoor and outdoor environments. 8.1.IT.1

2 engages in a variety of play experiences and exploration when provided open-ended materials, such as toys or household items that can be taken apart/put together, a container of water and various objects, seeds of different sizes/textures/shapes). 8.1.IT.2

3 uses one or more senses to make observations of their environment. 8.1.IT.3

4 reacts to changes in the environment. 8.1.IT.4

5 attempts to manipulate/understand his or her environment through repetitive play. 8.1.IT.5

6 identifies and interacts with new objects placed in his or her environment. 8.1.IT.6

The toddler also…

7 asks simple questions about observations of the environment using language (may be home language), behavior, and interactions. 8.1.IT.7

Scientific Investigations - Preschool (3 - 5 years)

1 **Children gather information and conduct investigations to address their wonderings and test solutions to problems.** 8.1.PS

The child…

1 asks questions about his or her environment, and begins to identify and look for information that will help answer those questions or solve problems. 8.1.PS.1

2 plans and conducts simple investigations alone or in collaboration with other children to answer questions or to design solutions to scientific or engineering problems. 8.1.PS.2

3 begins to use appropriate scientific tools and technology to conduct investigations, including scales, tape measure, magnifying glass, tweezers, and eye dropper. 8.1.PS.3

4 observes, investigates, and describes objects, materials, and other physical science phenomena in the classroom and outdoor environments such as shadows or reflections. 8.1.PS.4

5 observes, investigates, and describes the characteristics, behavior, and habitats of living things. 8.1.PS.5

6 asks questions based on observations of weather-related phenomena and begins to notice relationships and patterns over time, such as it is warmer in the summer and colder in the winter. 8.1.PS.6

7 develops an awareness of nature through the exploration of natural environments and materials or through caring for animals or plants. 8.1.PS.7

Scientific Reasoning - Infant and Toddler (birth - 3 years)

2 **Infants and toddlers use reasoning to make sense of information in their environment.** 8.2.IT

The infant or toddler…

1 uses trusted relationships to gain understanding of the living and non-living world. 8.2.IT.1

2 explores cause and effect relationships by engaging in problem solving through trial and error. 8.2.IT.2

The toddler also…

3 shows understanding of object permanence (that people exist when they cannot be seen and objects exist even when out of sight). 8.2.IT.3

4 makes a choice to reach a desired outcome. 8.2.IT.4

Scientific Reasoning - Preschool (3 - 5 years)

2 **Children use reasoning to make sense of information and design solutions to problems in their environment.** 8.2.PS

The child…

1 begins to make comparisons and to categorize nonliving things based on characteristics she or he can observe, such as texture, color, size, shape, temperature, sound, odor, usefulness, and weight. 8.2.PS.1

2 uses information from investigations to identify similarities and differences in characteristics and behavior of living things and to make inferences about needs and how to meet needs such as caterpillars eat leaves. 8.2.PS.2

3 uses prior experiences and/or data from observations to identify patterns in how living and nonliving things stay the same or change over time and/or when conditions change such as plants grow with the proper amounts of water and light; combine substances; heat/cool an item; and baby animals generally resemble their parents. 8.2.PS.3

4 begins to identify ways humans positively and negatively impact the environment such as beginning awareness of conservation and respect for the environment, based on investigations. 8.2.PS.4

5 describes and compares the properties and motions of objects in terms of speed and direction, based on exploration, such as faster, down, and beside; and begins to notice cause and effect relationships such as a ball rolls faster on a steeper incline. 8.2.PS.5

6 begins to notice patterns such as differences in weather in different seasons, and how different types of weather influence people and the environment, based on long-term explorations of weather and observations of the earth and sky. 8.2.PS.6

Scientific Communication - Infant and Toddler (birth - 3 years)

3 **Infants and toddlers share information and understanding about experiences in their environment.** 8.3.IT

The infant or toddler…

1 produces questions using gestures and/or facial expressions. 8.3.IT.1

2 expresses vocalizations and gestures to gain attention from others. 8.3.IT.2

3 shows repetitive actions to demonstrate new learning experiences. 8.3.IT.3

The toddler also…

4 composes simple verbal questions in English or home language. 8.3.IT.4

5 responds verbally to other's questions or statements in English or home language. 8.3.IT.5

6 draws pictures to represent his or her observations of objects and/or of changes to objects or the environment. 8.3.IT.6

Scientific Communications - Preschool (3 - 5 years)

3 **Children share information and understanding about experiences in their environment.** 8.3.PS

The child…

1. shares observations and ideas about the properties and behavior of nonliving and living things through a variety of modalities such as language, drawing, modeling, gesturing, and dramatizing. 8.3.PS.1
2. obtains, evaluates, and uses age-appropriate text and online resources, with support, to gather information related to a topic of study and makes connections to observations and experiences such as when studying butterflies, children may evaluate a variety of books and begin to identify which books are most useful for learning about real butterflies. 8.3.PS.2
3. begins to ask questions of others to seek more information on a topic, and participates in generating questions to ask a visiting expert on a topic of interest. 8.3.PS.3
4. offers evidence to explain the thought process he or she used to make conclusions or claims, and listens to the claims, conclusions, and evidence of others to begin to identify areas of agreement and disagreement. 8.3.PS.4
5. participates in creating a final product such as a panel, classroom book, or newsletter that communicates what was learned during one exploration or during the study of a topic over time, and contributes through language, drawing, writing, or choosing items to include. 8.3.PS.5