

**Iowa Core Curriculum:  
Birth to Five  
Essential Concepts and Skills**  
[as adapted from the Early Learning Standards]



**Iowa Department of Education  
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*Note.* See K - 12 Iowa Core Curriculum: Essential Concepts and Skills at [www.iowa.gov/educate](http://www.iowa.gov/educate).

## Acknowledgements

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# Iowa Core Curriculum: Birth to Five Essential Concepts and Skills

[as adapted from the Early Learning Standards\*]

- Introduction** In accordance with Iowa's state-wide school district efforts to improve teaching and learning, the Early Childhood Services Bureau of the Iowa Department of Education has aligned the Iowa Early Learning Standards (IELS) with the Iowa Core Curriculum.
- Purpose** The purpose of this document is to inform school district administrators, curriculum directors, and early childhood leadership of core curriculum essential concepts and skills for children birth to kindergarten in support of a seamless Pre K - 12 education.
- Background** This document was developed based on the Iowa Early Learning Standards (2006) and aligns with the K - 12 grades Essential Concepts and Skills. Together, the documents provide a comprehensive framework to guide instructional content that is challenging and meaningful for children and students from birth to twelfth grade.
- Document availability** The Iowa Core Curriculum: Birth to Five Essential Concepts and Skills document is available for statewide distribution at the Department website: [www.iowa.gov/educate](http://www.iowa.gov/educate).
- Does not replace IELS** It should be noted, the Iowa Core Curriculum: Birth to Five Essential Concepts and Skills document does not replace the Iowa Early Learning Standards (IELS). Early Childhood educators and administrators are encouraged to further reference The Iowa Early Learning Standards (2006) for more comprehensive guidance in implementing quality early learning standards for infants, toddlers, and preschoolers.
- The Early Learning Standards are available at the Department website: [www.iowa.gov/educate](http://www.iowa.gov/educate).
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# Iowa Core Curriculum: Birth to Five Essential Concepts and Skills

[as adapted from the Early Learning Standards\*]

## Birth to Three

### Introduction

[The Iowa Early Learning Standards](#) provides early care and education providers with a guide to delivering instructional content that is challenging and meaningful to young children. The Iowa Core Curriculum identifies the knowledge, skills, motivation and attitudes that lead to later success as students and as adult citizens. In other words, both the essential concepts and the skills sets described in the Iowa Core Curriculum and the Iowa Early Learning Standards provide a framework for ensuring what is essential for all ages of children to know and to do. Each standard is tailored to specific age groups addressing the expectations for how children at each age level are developmentally wired to learn. Research supports that early experiences influence the ability and aptitude of individual children to learn any and all essential concepts and skills (Shonkoff and Phillips, 2000). Early childhood experiences create the neural networks necessary for complex and abstract thinking as well as socially appropriate behaviors. These early experiences are especially important from birth to age three, a time when 80 percent of brain development occurs (Zero To Three, 2009).

To reinforce the continuum of learning beginning at birth, the Early Childhood Services Bureau of the Iowa Department of Education has aligned the Iowa Early Learning Standards with the Iowa Core Curriculum. This alignment highlights the expectations in the Iowa Early Learning Standards that are necessary to master a rigorous, comprehensive and relevant curriculum in the Iowa Core Curriculum. The alignment also makes evident that the skills and knowledge described in the Iowa Early Learning Standards is consistent with the statewide expectations for K-12 students addressed in the Iowa Core Curriculum. However, it must be stressed that the developmental issues of infants and toddlers are mainly physical and relational in nature. The successful acquisition of all skills depends on the healthy development and attachment for infants and toddlers (Shore, 1997; Kestenbaum, Farber, & Sroufe, 1989; Cicchetti, Toth, & Hennessey, 1989; and Perry, 2002).

One way to summarize what is developmentally appropriate practice, is to review the [position statement](#) developed by the National Association for the Education of Young Children (NAEYC, 2009). The statement includes these principles that apply to infants and toddlers as well as older children.

- 1. All the domains of development and learning—physical, social and emotional, and cognitive—are important, and they are closely interrelated. Children’s development and learning in one domain influence and are influenced by what takes place in other domains.**
- 2. Many aspects of children’s learning and development follow well documented sequences, with later abilities, skills, and knowledge building on those already acquired.**

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

3. **Development and learning proceed at varying rates from child to child, as well as at uneven rates across different areas of a child's individual functioning.**
4. **Development and learning result from a dynamic and continuous interaction of biological maturation and experience.**
5. **Early experiences have profound effects, both cumulative and delayed, on a child's development and learning; and optimal periods exist for certain types of development and learning to occur.**
6. **Development proceeds toward greater complexity, self-regulation, and symbolic or representational capacities.**
7. **Children develop best when they have secure, consistent relationships with responsive adults and opportunities for positive relationships with peers.**
8. **Development and learning occur in and are influenced by multiple social and cultural contexts.**
9. **Always mentally active in seeking to understand the world around them, children learn in a variety of ways; a wide range of teaching strategies and interactions are effective in supporting all these kinds of learning.**
10. **Play is an important vehicle for developing self-regulation as well as for promoting language, cognition, and social competence.**
11. **Development and learning advance when children are challenged to achieve at a level just beyond their current mastery, and also when they have many opportunities to practice newly acquired skills.**
12. **Children's experiences shape their motivation and approaches to learning, such as persistence, initiative, and flexibility; in turn, these dispositions and behaviors affect their learning and development.**

These principles make clear that early learning and development have a number of important and unique characteristics. First, the sequential nature of development suggests the learning of young children reveals the foundations of learning. That means learning is much more connected with all the activities of the brain, not just cognitive functioning. The Early Learning Standards reflect a holistic view of children's growth and development, taking into consideration how physical, emotional and cognitive development are interrelated. This is particularly true for infants and toddlers whose brains grow based on their earliest experiences.

Second, the principles explain why the Early Learning Standards address social-emotional competence, the importance of forming close and trusting relationships and a generally inquisitive disposition. These abilities are prerequisites for the development of cognitive skills and the learning of new concepts. In comparison, the Iowa Core Curriculum focuses on mastery of specific content in academic subject areas and a variety of important skills necessary for life beyond high school such as financial and civic literacy and employability skills. It assumes that the foundations of social and emotional skills are well established. As skills like making friends and getting along with peers shape a great deal of a young child's experiences so too they affect how his or her brain develops and how he or she learns.

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

Third, the principles highlight the importance of play as a vehicle for learning. While literacy, mathematics and science are important academic areas in both the Iowa Core Curriculum and the Early Learning Standards, they emerge in early childhood as routines and play experiences. In the case of infants and toddlers, the development of knowledge is so intertwined with physical development to become virtually indistinguishable. Physical movement and other forms of sensory stimulation are recorded in the brain through the neural connections. These neural connections are important in allowing the brain to tell the body how to move. They also contribute to the development of the entire brain's capacity (Adolph & Joh, 2008). The emphasis on learning for infants and toddlers should be on opportunities to explore and manipulate objects, interactions with human beings, and being held and cuddled (Perry, 2002).

While these age differences are important, obviously older children are also affected by these dynamics. It is not surprising that these principles may be as relevant for older children as they are for young children. After all, nearly all learning is sequential and can be viewed from a developmental perspective. The NAEYC statement was designed to be applicable to children through age 8. While the differences in how and what children learn as infants and toddlers compared with how and what they learn as older children is significant, the purpose of this document is to highlight the connections that exist and to underscore the important role early learning plays in laying the foundation for later success in elementary, middle and high school.

All experience designed to support learning in preschoolers must be rooted in a solid understanding of what they know and are able to do. There is danger both in holding young children to unreasonable expectations and in viewing them as incapable of thinking and reasoning. Preschool children continue to amaze adults with what they are capable of learning. At the same time, developmentally inappropriate expectations can make children frustrated and lose self-confidence leaving them feeling they cannot accomplish things that they are capable of accomplishing.

Both the Iowa Core Curriculum and the Iowa Early Learning Standards are based on best-practices research. Together they contribute to a comprehensive understanding of what all children, at the appropriate age and ability, can know and be able to do.

### **Document Organization**

The document is organized by the content areas from the Iowa Core Curriculum. Each area begins with a brief explanation of how young children learn skills and knowledge in that area from the perspective of early childhood educators. Then for each item all the relevant early learning skills and knowledge are listed with a "rationale" to explain how a particular learning expectation for early childhood is related to the content area of the Iowa Core Curriculum.

The Iowa Department of Education will continue to provide guidance and assistance to Iowa's early care and education providers incorporating these skills and concepts into their research-based curricula. The Iowa Early Learning Standards align with the Iowa Core Curriculum and demonstrate that early childhood experiences influence future mastery of the essential concepts and skills of the Iowa Core Curriculum.

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

## **LITERACY (Communication, Language, and Literacy)**

Infants and toddlers understand and use communication and language for a variety of purposes. Infants respond to caregiver vocalizations from birth. Through interaction with caring and nurturing caregivers, infants and toddlers acquire both listening and speaking vocabulary. Young infants typically make sounds and take turns in “conversations” with caregivers (Lock, 2004). Older infants use gestures, such as pointing or reaching up, as part of communication (Camaioni, 2004). Infants typically develop some listening vocabulary before their first birthday. Most infants move from one-word to two-word to three-word phrases; however, some toddlers begin talking in sentence-length phrases (Camaioni, 2004). Language use influences and is influenced by cognitive development (Shonkoff and Phillips, 2000). When caregivers speak more during routine activities such as diaper changing, dressing, or feeding, infants and toddlers develop larger vocabularies (Hoff-Ginsberg, 1991).

Children engage in early reading and early writing activities. Infants and toddlers develop literacy skills through their verbal interactions and shared book experiences with caregivers who have been warm and responsive to them (Bus, Belsky, van Ijendoorn, & Crnic, 1995). Infants and toddlers’ writing skills reflect their development in cognition, such as using symbols to stand for objects, communication, and their fine motor development (Dyson, 2001). Infants and toddlers develop skills in using writing instruments as they use a variety of tools, such as spoons, hairbrushes, and toy hammers (McCarty, Clifton, and Pollard, 2001). Caregivers who share discussions involving books with toddlers help build toddlers’ language skills, which influence their later reading skills (Whitehurst and Lonigan, 1998). Toddlers use writing in a pictographic way where writing conveys meaning through pictures. Scribble-like markings that they label as writing usually have meaning only to themselves (Whitehurst and Lonigan, 2001).

### **Infant/Toddler Standards**

#### Reading

- Infants and toddlers engage in early reading activities (IELS: 4.2).

Rationale: Infants and toddlers can and should have books read to them. Shared reading experiences, especially when associated with additional adult verbalization and close proximity (e.g., sitting in a lap), are related to language development and book knowledge (Bus, A., & van Ijendoorn, M. H., 1997).

#### Writing

- Infants and toddlers develop fine motor skills (IELS: 1.4).
- Infants and toddlers engage in early writing activities (IELS: 4.3).

Rationale: Writing for infants and toddlers is a matter of scribble-like markings which are a form of communication and a natural precursor to later writing (Whitehurst and Lonigan, 1998). The availability of crayons and markers and large paper to develop fine motor skills is also important (IRA/NAEYC, 1997).

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

## Speaking

- Infants and toddlers understand and use communication and language for a variety of purposes (IELS: 4.1).

Rationale: The primary literacy skill development work for infants and toddlers is the development of oral language, speaking and listening.

## Listening

- Infants and toddlers understand and use communication and language for a variety of purposes (IELS: 4.1).

Rationale: See above.

## Viewing

- No standards.

Rationale: Television and computers are not appropriate for infants and toddlers (AAP, 2001).

## **MATHEMATICS**

Infants and toddlers demonstrate strategies for reasoning and problem solving. Infants show the beginning of problem solving when they use a series of actions to reach a goal—for example, pulling a string to reach an attached toy (Piaget, 1952). Toddlers deliberately vary their actions, observing the effects of each change in trial and error. Following active experimentation with materials, infants and toddlers will think through trial-and-error solutions with similar materials (Uzgiris and Hunt, 1975).

Related to specific mathematics-based skills, comparisons provide the basis for the development of measurement concepts and skills in older infants and toddlers. Working with both two- and three-dimensional shapes provides the basis for geometry (National Council of Teachers of Mathematics, 2000). Infants and toddlers learn to sort or group three-dimensional shapes based on their uses (Rosch, Mervis, Gray, Johnson, and Boyes-Braem, 1976).

Infants and toddlers understand patterns, shapes and spatial relationships. They recall and anticipate familiar sequences of events and use these memories to predict events and respond accordingly. Infants learn the patterns of daily routines, eating, or diaper changing. Recognizing, predicting, and repeating patterns is a basic standard in mathematics education, as infants and toddlers recognize, extend, and create a wide variety of patterns (NCTM, 2000).

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

## Numbers and Operations

- Infants and toddlers show increasing understanding of comparisons and amount, including use of numbers and counting (IELS: 5.1)

Rationale: Young infants show awareness of small quantity differences (Starkey, Spelke, and Gelman, 1983). Infants and toddlers build their understanding of numbers as they manipulate sets of five and fewer objects (Mix, Huttenlocher, and Levine, 2002). Young children learn number skills as they work with small groups of objects in meaningful, routine tasks. Through counting rhymes, they learn that numerals have a constant sequence. In counting activities, they practice tagging numerals to objects in one-to-one correspondence. Through repeated experiences counting small groups of objects, they learn that the last number in the counting sequence represents the total quantity rather than the name of the last object (Gelman and Gallistel, 1978).

## Algebra

- Infants and toddlers understand patterns (IELS: 5.2).
- Infants and toddlers show increasing understanding of spatial relationships (IELS: 5.3).

Rationale: Algebra and geometry are, in part, a study of numerical patterns and relationships. Precursors to understanding patterns and spatial relationships occur as early as infants and toddlers play and manipulate objects. They recall and anticipate familiar sequences of events and use these memories to predict events and respond accordingly. Infants learn the patterns of daily routines, eating, or diaper changing.

## Geometry

- Infants and toddlers understand patterns (IELS: 5.2).
- Infants and toddlers show increasing understanding of spatial relationships (IELS: 5.3).

Rationale: See above.

## Measurement

- Infants and toddlers show increasing understanding of comparisons and amount, including use of numbers and counting (IELS: 5.1).
- Infants and toddlers observe, describe, and predict the world around them (IELS: 5.4).

Rationale: Infants and toddlers continually compare objects, mentally grouping objects that are similar in shape, quantity, size and texture (Thompson, 2001). Comparisons provide the basis for the development of measurement concepts and skills in older infants and toddlers.

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

## Data Analysis

- Infants and toddlers express curiosity and initiative in exploring the environment and learning new skills (ELS: 2.1).
- Infants and toddlers demonstrate strategies for reasoning and problem solving (IELS: 2.3).
- Infants and toddlers observe, describe, and predict the world around them (IELS: 5.4).

Rationale: Infants show the beginning of problem solving when they use a series of actions to reach a goal—for example, pulling a string to reach an attached toy (Piaget, 1952). Infants will imitate the problem-solving behaviors shown by others if the behaviors are within their abilities (Meltzoff, 1988). Toddlers deliberately vary their actions, observing the effects of each change in trial and error. Following active experimentation with materials, infants and toddlers will think through trial-and-error solutions with similar materials (Uzgiris and Hunt, 1975).

## SCIENCE

Science exploration begins as infants and toddlers interact with the world beyond themselves. Infants and toddlers engage in play to learn. Piaget (1971) argued that play allows infants and toddlers to build their understanding of how things work, including their own bodies, and test their understandings.

Infants and toddlers develop large and fine motor skills which affect the development of self, cognitive, and social skills (Smitsman, 2004). With the development of large motor skills, infants gain mobility and increase their interaction with their environment. With fine motor skills, after learning to reach, grasp, and pick up an object, the infant can use an object to learn about its properties, such as whether it is hard, soft, sweet, or cold.

When infants and toddlers express curiosity and initiative in exploring the environment, they are demonstrating inquiry, reasoning and problem solving skills, and taking concrete action to solve problems.

As infants and toddlers learn that they can make things happen and begin to initiate activities, they increase their knowledge of their own bodies, including its capacity and relationship to their environment. Infants typically observe the results of their actions and sometimes repeat them, showing surprise if the results are not replicated. Toddlers deliberately vary their actions, and observe the subsequent results (Piaget, 1971).

### Science as Inquiry

- Infants and toddlers engage in play to learn (IELS: 1.2).
- Infants and toddlers express curiosity and initiative in exploring the environment and learning new skills (IELS: 2.1).
- Infants and toddlers demonstrate strategies for reasoning and problem solving (IELS: 2.3).
- Infants and toddlers observe, describe, and predict the world around them (IELS: 5.4).

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

Rationale: The basis for scientific inquiry is observation, description and prediction. Infants show interest in exploring their environment, often choosing new toys over familiar toys (Thompson, 2001). As part of their exploring, infants typically put anything into their mouths. After repeated exposure to the same toys, infants and toddlers typically explore new ways of using these materials (Piaget, 1952). Toddlers may explore objects vigorously, occasionally breaking objects. The infant gains interest in exploring objects through activities that are different from those that lead to exploring people (Wachs and Combs, 1995). As noted above, infants and toddlers are capable of simple reasoning, problem solving and testing of understanding.

#### Earth and Space Science

- Infants and toddlers engage in play to learn (IELS: 1.2).
- Infants and toddlers observe, describe, and predict the world around them (IELS: 5.4).

Rationale: The assumption here is that play can involve many skills that lead to awareness and understanding about a child's environment. Infants and toddlers also display the capacity to engage in cognitive processing about what they encounter in the world. Broadly considered, this is a precursor behavior to learning specific content about earth and space science.

#### Life Science

- Infants and toddlers engage in play to learn (IELS: 1.2).
- Infants and toddlers display a positive sense of self (IELS: 3.1).
- Infants and toddlers show increasing understanding of spatial relationships (IELS: 5.3).
- Infants and toddlers observe, describe, and predict the world around them (IELS: 5.4).

Rationale: The same explanation for earth and space science follows here. Play leads to exploration and engagement in the world, which in turn leads to observations, description and predictions about the surrounding world. A positive sense of self is included here because self-efficacy leads to the risk-taking necessary for more venturesome exploration that could include crawling out and picking up unusual objects. This is life science learning in its most pure and original form.

#### Physical Science

- Infants and toddlers engage in play to learn (IELS: 1.2).
- Infants and toddlers develop large motor skills (IELS: 1.3).
- Infants and toddlers develop fine motor skills (IELS: 1.4).
- Infants and toddlers show increasing understanding of spatial relationships (IELS: 5.3).
- Infants and toddlers observe, describe, and predict the world around them (IELS: 5.4).

Rationale: These skills follow the same logic as above, but with the addition of large and fine motor skill development. These skills underscore how infants and toddlers learn "kinetically," literally wiring their brain as they move around and creating an intuitive understanding of the movement of objects through space.

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

## SOCIAL STUDIES

The earliest learning about social studies for infants and toddlers begins with awareness about self and self in relationship to others. Mastery of skills in self-regulation, expression of emotions and the development of positive relationships with caregivers and other children are how infants and toddlers prepare for success in a social world. These basic expectations common to the typical development of infants and toddlers is the foundation for all areas of social studies.

All the social sciences are rooted in human behavior: studying it from inside (behavioral science), studying its effect on resource distribution (economics) or in relationship to land and country (geography), studying its effect on the past (history), or its effect on power and social relationships (political science). Infants and toddlers begin to understand behavior, their own and others, as they develop their emotional and social selves. For infants and toddlers, social and emotional development means the capacity to experience, regulate and express emotions; form close and secure interpersonal relationships; and explore the environment and learn. Skills related to that development are important in children's formation as individuals as well as a critical foundation for learning all the social sciences.

### Behavioral Sciences

- Infants and toddlers display a positive sense of self (IELS: 3.1).
- Infants and toddlers show increasing awareness of and ability to express emotions in socially and culturally appropriate ways (IELS: 3.2).
- Infants and toddlers develop and maintain positive relationships with significant caregivers (ELS: 3.3).
- Infants and toddlers respond to and initiate interactions with other children (ELS: 3.4).
- Infants and toddlers demonstrate a sense of comfort within their family, program, community, and culture (ELS: 3.5).

Rationale: Learning about behavior begins with awareness and knowledge of one's own behavior and its effect on others. Such awareness and knowledge comes from the experience of being in relationship with others. The standards listed here look at awareness and understanding of emotions, experiencing positive relationships, a healthy curiosity about others and sense of comfort in social contexts.

### Economics

- Infants and toddlers develop and maintain positive relationships with significant caregivers (ELS: 3.3).
- Infants and toddlers respond to and initiate interactions with other children (IELS: 3.4).
- Infants and toddlers demonstrate a sense of comfort within their family, program, community, and culture (IELS: 3.5).
- Infants and toddlers show increasing understanding of comparisons and amount, including use of numbers and counting (IELS: 5.1).

Rationale: Since economics deals with both social relationships and mathematics concepts, the standards here include both. The purpose of including social relationship standards is similar to those for behavioral sciences. Mathematics concepts include both use of numbers as well as comparisons of relative amounts.

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

## Geography

- Infants and toddlers show increasing understanding of spatial relationships (IELS: 5.3).
- Infants and toddlers observe, describe, and predict the world around them (IELS: 5.4).

Rationale: Geography is the study of people in relationship to the land. As discussed in the Mathematics section, spatial relationships involved ideas about position, direction and distance. Only a good understanding of spatial relationships will help children later learn the cardinal directions (north, east, south and west) and how to read maps. Knowledge about one's own location and connection to the land is a matter of observation, description and prediction.

## History

- Infants and toddlers display a positive sense of self (IELS: 3.1).
- Infants and toddlers show increasing awareness of and ability to express emotions in socially and culturally appropriate ways (IELS: 3.2).
- Infants and toddlers demonstrate a sense of comfort within their family, program, community, and culture (IELS: 3.5).

Rationale: Learning history begins with learning about one's own history and developing answers to questions like who is my family and where did I come from. For infants and toddlers, a growing sense of self and the emergence of individual identity form the core of one's unique psychology. One's self in space and time is the first understanding about one's own history. Such development requires the ability to form social relationships and a comfort with the social situation in which one finds oneself.

## Political Science/Civic Literacy

- Infants and toddlers display a positive sense of self (IELS: 3.1).
- Infants and toddlers show increasing awareness of and ability to express emotions in socially and culturally appropriate ways (IELS: 3.2).
- Infants and toddlers develop and maintain positive relationships with significant caregivers (IELS: 3.3).
- Infants and toddlers respond to and initiate interactions with other children (IELS: 3.4).
- Infants and toddlers demonstrate a sense of comfort within their family, program, community, and culture (IELS: 3.5).
- Infants and toddlers engage in dramatic play experiences (IELS: 6.3).

Rationale: Understanding politics and civic responsibility begins with human relationships and an awareness of one's own relationship to others. As noted above, learning of others begins with learning about oneself, understanding and regulating emotions, developing close and secure relationships and the courage and persistence to explore one's environment. This is the emergence of the social being. Politics and civics is a particular lens on which to observe social existence. While such a view adds considerable complexity to the understanding of the social relations of human beings and how it is regulated, it still must begin with notions about the single individual. The start of that understanding occurs in infancy.

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

## 21<sup>ST</sup> CENTURY SKILLS

Early childhood development is the stage on which the scaffolding of later development is based. Key factors in successfully engaging in the adult world of work are the ability to be self-motivated and to understand and respond to subtle social cues and expectations. Anything that helps infants and toddlers to develop awareness and increase their tendency to be engaged in activities will later evolve into the kinds of skills that are important for productive workplace functioning. This includes all the skills and awareness associated with healthy social and emotional development in infants and toddlers.

### Financial Literacy

- Infants and toddlers display a positive sense of self (IELS: 3.1).
- Infants and toddlers show increasing understanding of comparisons and amount, including use of numbers and counting (IELS: 5.1).

Rationale: Financial literacy includes an awareness of needs and wants. This is not a distinction infants and toddlers understand, but they are acutely aware of what they want and need, and express these things clearly. That awareness is the beginning experience that will lead to understanding how demand drives financial behavior. Financial literacy includes knowledge of mathematics so the first awareness of such ideas is also included here. Such skills are far away from real financial literacy, but provide an important and necessary foundation for understanding.

### Health Literacy

- Infants and toddlers participate in healthy and safe living practices (IELS 1:1).
- Rationale: All development—physical, mental, emotional and cognitive—is based on physical well-being. Attentive care precedes attentive self-care. First, good care involves adequate nutrition, a safe environment and proper hygiene. Second, receiving good care leads infants and then toddlers to assume a role in providing these things for themselves.

### Technology Literacy

- N/A

Rationale: Television and computers are not appropriate for infants and toddlers (AAP, 2001).

### Employability Skills

- Infants and toddlers engage in play to learn (IELS: 1.2).
- Infants and toddlers purposefully choose, engage, and persist in experiences and activities (IELS: 2.2).
- Infants and toddlers show increasing awareness of and ability to express emotions in socially and culturally appropriate ways (IELS: 3.2).
- Infants and toddlers respond to and initiate interactions with other children (IELS: 3.4).
- Infants and toddlers demonstrate a sense of comfort within their family, program, community, and culture (IELS: 3.5).

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

Rationale: Employability skills include the ability to communicate and work with others, to recognize different roles and responsibilities, to be open to change, to demonstrate leadership skills and ethical behavior and to be accountable for ones actions. Since the purpose of these skills is to empower students to be productive, caring, and competent citizens, some of the most basic learning standards were selected because of their relationship to growing into healthy and successful adults. Productive, caring and competent citizens most likely begin as infants or toddlers who have been encouraged to be all these things and have had the opportunity to practice being that way during play. That means selecting and persisting in productive activities, regulating behavior, expressing emotions appropriately, developing respectful and positive relationships with peers and an awareness of operating in a social environment. Perhaps no single skill or ability brings all this together more thoroughly than engaging in play experiences (Belsky, Garduque & Hrncir, 1984). Such experiences profoundly shape children's abilities to grow and develop in all these important ways and set the trajectory to be responsible and productive employees and citizens.

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# Iowa Core Curriculum: Birth to Five Essential Concepts and Skills

[as adapted from the Early Learning Standards\*]

## Three to Five

### Introduction

[The Iowa Early Learning Standards](#) provide early care and education providers with a guide to delivering instructional content that is challenging and meaningful to children. The Iowa Core Curriculum identifies the knowledge, skills, motivation and attitudes that lead to later success as students and as adult citizens. In other words, both the essential concepts and the skills sets described in the Iowa Core Curriculum and the Iowa Early Learning Standards provide a framework for ensuring what is essential for all ages of children to know and to do. Each standard is tailored to specific age groups addressing the expectations for how children at each age level are developmentally wired to learn. Research supports that early experiences influence the ability and aptitude of individual children to learn any and all essential concepts and skills (Shonkoff and Phillips, 2000). Early childhood experiences create the neural networks necessary for complex and abstract thinking as well as socially appropriate behaviors. These early experiences also form the foundation on which future success in mastering the Iowa Core Curriculum depends.

To reinforce the continuum of learning beginning at birth, the Early Childhood Services Bureau of the Iowa Department of Education has aligned the Iowa Early Learning Standards with the Iowa Core Curriculum. This alignment highlights the expectations in the Iowa Early Learning Standards that are necessary to master a rigorous, comprehensive and relevant curriculum in the Iowa Core Curriculum. The alignment also makes evident that the skills and knowledge described in the Iowa Early Learning Standards is consistent with the school-age Iowa Core Curriculum, though they are addressing this content at an earlier level of development.

It must be stressed that any application of this alignment should be based on sound research and practice in early childhood education. To summarize what is developmentally appropriate practice, the National Association for the Education of Young Children developed a [position statement](#) that stresses twelve principles of early development and learning (NAEYC, 2009):

- 1. All the domains of development and learning—physical, social and emotional, and cognitive—are important, and they are closely interrelated. Children’s development and learning in one domain influence and are influenced by what takes place in other domains.**
- 2. Many aspects of children’s learning and development follow well documented sequences, with later abilities, skills, and knowledge building on those already acquired.**
- 3. Development and learning proceed at varying rates from child to child, as well as at uneven rates across different areas of a child’s individual functioning.**

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

4. **Development and learning result from a dynamic and continuous interaction of biological maturation and experience.**
5. **Early experiences have profound effects, both cumulative and delayed, on a child's development and learning; and optimal periods exist for certain types of development and learning to occur.**
6. **Development proceeds toward greater complexity, self-regulation, and symbolic or representational capacities.**
7. **Children develop best when they have secure, consistent relationships with responsive adults and opportunities for positive relationships with peers.**
8. **Development and learning occur in and are influenced by multiple social and cultural contexts.**
9. **Always mentally active in seeking to understand the world around them, children learn in a variety of ways; a wide range of teaching strategies and interactions are effective in supporting all these kinds of learning.**
10. **Play is an important vehicle for developing self-regulation as well as for promoting language, cognition, and social competence.**
11. **Development and learning advance when children are challenged to achieve at a level just beyond their current mastery, and also when they have many opportunities to practice newly acquired skills.**
12. **Children's experiences shape their motivation and approaches to learning, such as persistence, initiative, and flexibility; in turn, these dispositions and behaviors affect their learning and development.**

These principles make clear that early learning and development have a number of important and unique characteristics. Learning is much more connected with all the activities of the brain, not just cognitive functioning. The Early Learning Standards reflect a holistic view of children's growth and development, taking into consideration how physical, emotional and cognitive development are interrelated.

These principles also explain why the Early Learning Standards address social-emotional competence, the importance of forming close and trusting relationships and a generally inquisitive disposition. These abilities are prerequisites for the development of cognitive skills and the learning of new concepts. In comparison, the Iowa Core Curriculum focuses on mastery of specific content in academic subject areas and a variety of important skills necessary for life beyond high school such as financial and civic literacy and employability skills. It assumes that the foundations of social and emotional skills are well established. Because skills like making friends and getting along with peers shape a great deal of a young child's experiences so too they affect how his or her brain develops and how he or she learns.

Finally, the principles highlight the importance of play as a vehicle for learning. While literacy, mathematics and science are important academic areas in both the Iowa Core Curriculum and the Iowa Early Learning Standards, they emerge in early childhood as routines and play experiences. Such experiences provide opportunities for awareness and exploration of ideas and objects with an emphasis on exposure rather than mastery. For example, setting the table for lunch in a preschool program provides opportunities to practice oral communication and pattern recognition.

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While these age differences are important, obviously older children are also affected by these dynamics. It is not surprising that these principles may be as relevant for older children as they are for young children. After all, nearly all learning is sequential and can be viewed from a developmental perspective. The NAEYC statement was designed to be applicable to children through age 8. While the differences in how and what children learn as preschoolers compared with how and what they learn as older children is significant, the purpose of this document is to highlight the connections that exist and to underscore the important role early learning plays in laying the foundation for later success in elementary, middle and high school.

All experience designed to support learning in preschoolers must be rooted in a solid understanding of what they know and are able to do. There is danger both in holding young children to unreasonable expectations and in viewing them as incapable of thinking and reasoning. Preschool children continue to amaze adults with what they are capable of learning. At the same time, developmentally inappropriate expectations can make children frustrated and lose self-confidence leaving them feeling they cannot accomplish things that they are capable of accomplishing.

Both the Iowa Core Curriculum and the Iowa Early Learning Standards are based on best-practices research. Together they contribute to a comprehensive understanding of what all children, at the appropriate age and ability, can know and be able to do.

### **Document Organization**

The document is organized by the content areas from the Iowa Core Curriculum. For each item all the relevant early learning skills and knowledge are listed with a “rationale” to explain how a particular learning expectation for early childhood is related to the content area of the Iowa Core Curriculum.

The Iowa Department of Education will continue to provide guidance and assistance to Iowa’s early care and education providers incorporating these skills and concepts into their research-based curricula. The Iowa Early Learning Standards align with the Iowa Core Curriculum and demonstrate that early childhood experiences influence future mastery of the essential concepts and skills of the Iowa Core Curriculum.

\* Note. Early Childhood Educators should reference the Iowa Early Learning Standards document for comprehensive content.

## **LITERACY (Language and Literacy)**

Communication occurs through verbal and nonverbal means. Although most children move from non-verbal to verbal communication, some children need non-verbal communication aids, such as signing, picture cues and writing boards. Vocabulary growth is rapid during the preschool years but varies widely among children of different cultural and economic backgrounds (Hart and Risley, 1995). At the same time, children increase their use and understanding of sentences with greater length and complexity. They also become increasingly able to use language appropriately and effectively in a variety of social contexts (Snow, Griffins, and Burns, 1998). During this development, adults help children learn to use language to discuss past events and absent objects. This skill, known as decontextualized language, is linked to the development of reading skills (Neuman and Dickinson, 2001). Conversations that analyze the story (back-and-forth exchanges between caregivers and children during book reading) help children increase their vocabulary (Dickinson and Sprague, 2001). Dialogic storytelling, when the child is coached to become the story teller and to link the story to the child's life, also appears to increase the child's vocabulary. Additional predictors of early reading include alphabet knowledge, phonological awareness, and emergent writing (Whitehurst and Lonigan, 2001). Phonological awareness includes recognizing and producing rhymes, segmenting words into syllables, and identifying words with the same beginning, middle, or ending sounds.

### **Early writing**

Young children attempt to write through scribbling, drawing, and through pictographs that may only have meaning to the child. The use of invented spellings, in which the child may use unusual representations, is strongly related to reading and spelling skills in the early grades (Whitehurst and Lonigan, 2001). Research has shown a positive correlation between developing handwriting ability and skills and fine motor accuracy (Cornhill & Case-Smith, 1996; Tseng & Murray, 1994; Dankert, Davies & Gavin, 2003; and Weil & Amundson, 1994). The skill to copy forms (e.g., horizontal lines, vertical lines, right and left diagonal lines, circle, cross, square, triangle and "X") appears to be a strong indicator of writing readiness.

### **Preschool**

#### **Reading**

- Children engage in early reading experiences (IELS: 10.2).

Rationale: Shared reading interventions as well as the rich experiences of early childhood programs lead to the development of print knowledge, oral language, reading readiness, and increased vocabulary, essential precursors to later reading (NELP, 2009).

#### **Writing**

- Children engage in early writing experiences (IELS: 10.3).

Rationale: The ability to write letters in isolation on request or to write one's own name is a strong to moderate predictor of later reading success (NELP, 2009).

#### **Speaking**

- Children develop the ability to interact with peers respectfully and to form positive peer relationships (IELS: 9.4).
- Children understand and use communication and language for a variety of purposes (IELS: 10.1).

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Rationale: While the development of oral language is essential for effective oral communication, it is also the basis for other literacy skills. Any opportunities children have to communicate with peers or otherwise understand and use language for communication builds these skills.

### Listening

- Children develop the ability to interact with peers respectfully and to form positive peer relationships (IELS: 9.4).
- Children understand and use communication and language for a variety of purposes (IELS: 10.1).

Rationale: These same early learning standards serve for both speaking and listening. Oral communication is by its nature a give and take of talking and listening. Experiences using language and communicating with peers help develop listening skills and oral language comprehension.

### Viewing

- Children explore art through a variety of media (IELS: 12.1).

Rationale: Visual or media literacy begins when children are exposed to a variety of media and then are encouraged to reflect on their experiences. Often that is through a growing awareness about art and its many expressive venues. Use of television, computers or video in early childhood settings is controversial, especially when it is used as a reward, as a time-filler, without a clear learning purpose and not supported by adult and child interactions to discuss content. However, with appropriate guidance as to limits and use, it can be a useful part of early childhood education (Anderson and Collins, 1988; NAEYC, 1994; and Harms, et al., 1998).

## **MATHEMATICS**

### **Problem solving**

Problem solving is natural for young children, for whom so much of the world is new. Problem solving is learned through daily living experiences involving issues important to the child, including those involving science and math (NCTM, 2000). Problem solving is finding a way to solve a problem that is not immediately evident or reachable. Problem solving is a basic characteristic of mathematical and scientific thinking as well as a major way to develop both mathematical and scientific knowledge (NCTM, 2000). Children need time to think about problems; they need permission to make mistakes, and they need encouragement to try a variety of strategies (Charlesworth and Lind, 1999). At the same time, children who repeatedly experience failures and criticism are less likely to attempt new problems (Smiley and Dweck, 1994).

### **Patterns**

Mathematics is the language and science of patterns (Copley, 1999). Patterns involve part-whole relationships, including the relationships among parts. Children learn patterns involving numbers, shapes, measuring, and data analysis (Copley, 2000). Recognizing patterns helps children organize their world and facilitate problem solving.

### **Numbers and counting**

According to the National Mathematics Advisory Panel, “Most children acquire considerable knowledge of numbers and other aspects of mathematics before they enter kindergarten. This is important, because the mathematical knowledge that kindergartners bring to school is related to their mathematics learning for years thereafter—in elementary school, middle school, and even high school” (National

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Mathematics Advisory Panel 2008). During the preschool years, children construct basic understandings of numbers and amount or “how many.” Children initially build their understanding of amount through their hands-on actions with concrete objects. Children learn to count with understanding when they match the counting sequence, one-to-one, with a group of objects (National Council of Teachers of Mathematics, NCTM, 2000). After repeated experiences with small quantities of objects, they construct an understanding of discrete numbers.

### **Spatial relationships**

Spatial relationships involve ideas related to position (on, under, next to), direction, and distance (near, far, next to, close to) of objects in space. Recognizing shapes is the beginning of geometric understanding. Children construct their understanding of space from actively manipulating their own spatial environment (Clements and Battista, 1992). The understanding of shapes requires children to actively manipulate shapes and to explore the characteristics and parts of shapes, rather than simply seeing and naming them (Clements, 2003). Children’s concepts of shape may differ from mathematical concepts (children may limit triangles to only equilateral triangles, or not classify squares as rectangles).

### **Sorting and classifying**

Children organize their experiences through sorting and classifying. Making comparisons and noting similarities and differences provides a basis for making patterns and generalizations. Exploring graphs provides a basis for later understanding of data analysis and probability. Measurement, which provides a basis for comparison, provides one of the most widely used applications of mathematics (NCTM, 2000). Children begin to understand measurement by comparing the size of objects. Young children explore measurement concepts but do not master accurate measurement skills with standard units or comparative (transitive) measurement judgments. Children need direct, hands-on experiences with objects while they use language to describe relationships involving size.

## **Preschool**

### **Numbers and Operations**

- Children understand amount, including use of numbers and counting (IELS: 11.1).

Rationale: There is a direct connection of this standard to the Iowa Core Curriculum essential concepts and skills addressing mastery of numbers and operations. This often begins with counting objects. Counting implies an understanding of the meaning of both numbers and numerals, the core foundation of whole number knowledge (National Mathematics Advisory Panel 2008). Even in preschool, children can grow with increasing complexity to rudimentary operations of addition and subtractions through the manipulation of objects. Clements et al (2004) stresses the importance of connecting informal experience with explicit mathematics knowledge to build mathematics vocabulary.

### **Algebra**

- Children understand patterns (IELS: 11.2).
- Children understand shapes and spatial relationships (IELS: 11.3).
- Children understand comparisons and measurements (IELS: 11.6).
- Children understand amount, including use of numbers and counting (IELS: 11.1).

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Rationale: Obviously young children are not learning algebra, but they are learning concepts that will later be drawn on to master algebra, such as patterns, shapes, comparisons and measurements. Algebra is, in part, a study of numerical patterns and relationships. The construction of mathematic knowledge follows predictable sequences. In the area of numbers and operation, one early knowledge element of primary importance is the concept of “amount.” This is a necessary prerequisite to understanding numbers and how their combinations create sums, differences, products and dividends.

### Geometry

- Children understand patterns (IELS: 11.2).
- Children understand shapes and spatial relationships (IELS: 11.3).
- Children understand comparisons and measurements (IELS: 11.6).

Rationale: Young children can learn very elementary concepts of geometry and typically learn to identify circles, squares and triangles. Since geometry also includes the manipulation of those shapes and the study of their components (e.g., angles, radii, tangents, secants) all such knowledge is based on an understanding of patterns, shapes and relationships as well as comparisons among shapes and their measurement.

### Measurement

- Children understand comparisons and measurements (IELS: 11.6).

Rationale: Measurement is an important part of preschool and aligns directly with the Iowa Core Curriculum. Young children begin with simply comparisons of size. They will not master accurate measurement skills such as inches or pints, but they can acquire an understanding of concepts like larger, smaller, same, more, less, short, long through direct, hands-on experiences with objects while they use language to describe relationships involving size.

### Data Analysis

- Children express curiosity, interest, and initiative in exploring the environment, engaging in experiences, and learning new skills (IELS: 8.1).
- Children demonstrate strategies for reasoning and problem solving (IELS: 8.3).
- Children observe, describe, and predict the world around them (IELS: 11.4).
- Children apply and adapt strategies to solve problems (IELS: 11.5).

Rationale: Young children are introduced to problem solving and data analysis by solving specific problems in their play and life routines. Therefore an essential prerequisite for data analysis is the development of certain tendencies (curiosity, interest, initiative) that encourage engagement in the world. Engagement gives rise to curiosity and problems that need to be solved, and, in turn, encourages the problem solving and reasoning and develops these skills, especially through interactions with peers or adults. From their play and life routines children make observations, describe experiences and objects and make predictions. All these experiences are made possible because of skills that involve reflecting on experiences and making sense or knowledge from them. These skills will become the basis for future analysis in the form of numerical data.

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## SCIENCE

Preschoolers learn about science by exploring their world and asking questions about it. Adults must ensure that children have new experiences, regularly engage in play and express interest and initiative as they explore their environment. It is essential that activities include both gross and fine motor experiences. Learning science is an active, inquiry-based process (National Research Council, 1996). As preschoolers, young children acquire the tools of science rather than scientific knowledge. Children observe, compare, classify, measure, and communicate their observations of events and objects (Charlesworth and Lind, 1999). They explore earth science, physical science, and life science as they observe and manipulate concrete objects. They infer, drawing deeper meaning than what is visible, and predict future events. They describe those events and compare their predictions with their observations (Piaget, 1980).

### Preschool

#### Science as Inquiry

- Children understand healthy and safe living practices (IELS: 7.1).
- Children engage in play to learn (IELS: 7.2).
- Children express curiosity, interest, and initiative in exploring the environment, engaging in experiences, and learning new skills (IELS: 8.1).
- Children demonstrate strategies for reasoning and problem solving (IELS: 8.3).
- Children observe, describe, and predict the world around them (IELS: 11.4).
- Children apply and adapt strategies to solve problems (IELS: 11.5).

Rationale: Science inquiry often occurs in a variety of problem-solving functions. The basis for that inquiry is observation, description and prediction. The standards under the physical well-being and motor development area, such as healthy and safe living and engaging in play, are foundational for all learning including science. As well, physical movement in itself is important to learning because it leads to the creation of new nerve-cell networks (Hannaford 1995).

#### Earth and Space Science

- Children engage in play to learn (IELS: 7.2).
- Children observe, describe, and predict the world around them (IELS: 11.4).
- Children apply and adapt strategies to solve problems (IELS: 11.5).

Rationale: In early childhood, specific content area is less important than generalized skills of observation and prediction as well as problem solving. As that content becomes more specific in elementary grades (such as in earth and space science), these same skills will be used and refined, and will make it possible to learn the specific content of these subject areas.

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## Life Science

- Children engage in play to learn (IELS: 7.2).
- Children express a positive awareness of self in terms of specific abilities, characteristics, and preferences (IELS: 9.1).
- Children understand shapes and spatial relationships (IELS: 11.3).
- Children observe, describe, and predict the world around them (IELS: 11.4).
- Children apply and adapt strategies to solve problems (IELS: 11.5).

Rationale: Here specific content is not mastered directly in early childhood but general skills and play with natural materials that help them to learn about any part of science. Many programs emphasize the use of natural materials (e.g, sand, plants, corn, water) as part of planned sensory activities so knowledge from these experiences leads to knowledge about the real world. As well, an awareness of one's body and what one can do with it provide useful background knowledge prior to a study of human biology.

## Physical Science

- Children engage in play to learn (IELS: 7.2).
- Children develop large motor skills (IELS: 7.3).
- Children develop fine motor skills (IELS: 7.4).
- Children understand shapes and spatial relationships (IELS: 11.3).
- Children observe, describe, and predict the world around them (IELS: 11.4).
- Children apply and adapt strategies to solve problems (IELS: 11.5).
- Children understand comparisons and measurements (IELS: 11.6).

Rationale: The emphasis on selected standards is related to general skills that involve large and small body movements. Mastery in specific content is not mastered typically during early childhood. Physical science also can include some mathematics skills, so skills involving comparisons and measurements are included.

## **SOCIAL STUDIES**

For young children the foundation for future study of social sciences and humanities begins with social and relational skills based on awareness and knowledge of self and others. Young children learn to regulate their behavior under the guidance of caregivers (Shonkoff and Phillips, 2000). The expression of emotion in young children is linked to what they like and want, as well as to what they do not like and do not want (Wellman and Wooley, 1990). With the help of caregivers, they learn to express their emotions in words and actions that are socially appropriate. Culture influences how emotions develop and how they are displayed in boys and girls (Kitayama and Markus, 1994). All children live in some group or community. In order to function as a member of a community, children must learn to communicate, participate, and interact with other members of the group. This socialization process begins with the family and continues as the child moves in and out of social groups throughout life. Becoming a member of the group involves a series of changes, as the child negotiates his/her role in the group and resolves conflicts with other members of the group (Bugental and Goodnow, 1998). An important skill is being able to engage in sociodramatic play. In sociodramatic play, children assume different roles from their experiences and use their understandings to act out a variety of emotions and social relationships. Sociodramatic play helps children learn to communicate, control and compromise, and explore intimacy and trust (Howes, 1992). Children who engage in dramatic play typically show more advanced skills in seeing the perspectives of others and in getting along with peers (Garvey, 1990).

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The ability to observe and describe their world is also important. Through geometric modeling and spatial reasoning, children learn to describe their physical environment and to build problem-solving skills (NCTM, 2000). Other requisite skills include problem solving, scientific inquiry and the ability to engage in sociodramatic play. Children observe, compare, classify, measure, and communicate their observations of events and objects (Charlesworth and Lind, 1999).

All the social sciences are rooted in human behavior and involve studying it from several perspectives: inside (behavioral science); its effect on resource distribution (economics) or in relationship to land and country (geography); its effect on the past (history); or its effect on power and social relationships (political science). Children begin to understand behavior, their own and others, as they develop their emotional and social selves. Skills related to that development are important in their formation as individuals but also as a critical foundation for learning all the social sciences.

## Preschool

### Behavioral Sciences

- Children show increasing ability to regulate their behavior and express their emotions in appropriate ways (IELS: 9.2).
- Children relate positively to caregivers who work with them (IELS: 9.3).
- Children develop the ability to interact with peers respectfully and to form positive peer relationships (IELS: 9.4).
- Children have an increasing awareness of belonging to a family, community, culture, and program (IELS: 9.5).
- Children observe, describe, and predict the world around them (IELS: 11.4).

Rationale: Learning about behavior begins with awareness and knowledge of one's own behavior and its effect on others. Standards referenced here relate to emotional intelligence as well as early awareness and practice in relationship development. The social standards include an awareness of belonging to a community which also provides a direct experience of behavior. The benefits of observation, description and prediction are important social science learning as they are for science learning.

### Economics

- Children relate positively to caregivers who work with them (IELS: 9.3).
- Children develop the ability to interact with peers respectfully and to form positive peer relationships (IELS: 9.4).
- Children have an increasing awareness of belonging to a family, community, culture, and program (IELS: 9.5).
- Children understand amount, including use of numbers and counting (IELS: 11.1).
- Children understand comparisons and measurements (IELS: 11.6).

Rationale: Since economics deals with both social relationships and mathematics concepts, the standards here include both. The purpose of including social relationship standards is similar to those for behavioral sciences. In the area of social relations, understanding needs and wants is an important prerequisite for economics and common for preschoolers. Social relations also include appreciation for reciprocity such as sharing toys or taking turns. Mathematics concepts include both use of numbers as well as comparisons of relative amounts.

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## Geography

- Children understand shapes and spatial relationships (IELS: 11.3).
  - Children observe, describe, and predict the world around them (IELS: 11.4).
- Rationale: Geography is the study of people in relationship to the land. As discussed in the Mathematics section, spatial relationships involve ideas in relation to position, direction and distance. Only a good understanding of spatial relationships will help children later learn the cardinal directions (north, east, south and west) and how to read maps. Knowledge about one's own location and connection to the land is a matter of observation, description and prediction. Children learn about their own location and family, which leads in elementary school and beyond to curiosity of others and their place in the world whether in different neighborhoods, cities or even countries.

## History

- Children show increasing ability to regulate their behavior and express their emotions in appropriate ways (IELS: 9.2).
  - Children have an increasing awareness of belonging to a family, community, culture, and program (IELS: 9.5).
  - Children observe, describe, and predict the world around them (IELS: 11.4).
- Rationale: Learning history begins with learning about one's own history and developing answers to questions like who is my family and where did I come from. Learning about political science and civics begins with learning about one's own history and developing answers to questions like who is my family and where is my family from. Since all human history is based on human behavior, fundamental appreciation of one's own behavior through social and emotional development is an important precursor to historical understanding. Being aware of one's family, community and culture and the history of each is also the first learning about history, why history is important and how the past shapes the present and future. History is also about cause and effect. Cause and effect is a common idea for preschoolers and is part of the standard that children can observe, describe and predict phenomenon (which is included above). While this is not an understanding over a longer or "historical" period of time, it is the beginning of seeing how change occurs.

## Political Science/Civic Literacy

- Children show increasing ability to regulate their behavior and express their emotions in appropriate ways (IELS: 9.2).
- Children relate positively to caregivers who work with them (IELS: 9.3).
- Children develop the ability to interact with peers respectfully and to form positive peer relationships (IELS: 9.4).
- Children have an increasing awareness of belonging to a family, community, culture, and program (IELS: 9.5).
- Children engage in dramatic play experiences (IELS: 12.3).

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Rationale: Understanding politics and civic responsibility begins with human relationships and an awareness of one's own relationship to others. Skills related to positive relationship development are included here in addition to skills related to awareness of the wider world of human relationships. There are numerous related skills that are also relevant such as influencing others, understanding and developing one's role in a group and having common goals with others. These skills include collective decision-making as well as understanding and following rules and other behavioral expectations. Appropriate knowledge about culture can include knowing who the president or governor or other important leaders are. Sociodramatic play is one of the most important ways children learn about relationships with others and can experiment with their understanding of how people interact (Rosen, 1974; Connolly & Doyle, 1984).

## 21<sup>ST</sup> CENTURY SKILLS

Iowa's Core Curriculum stresses necessary skills to be productive and useful in today's society. These skills include Employability Skills, Financial Literacy, Health Literacy and Technology Literacy. In each of these areas, mastery depends on early introduction and competence in basic skills. Such skills begin with positive approaches to learning including the ability to persist and engage in purposeful activities and the ability to get along with others. Children who believe that success depends on their efforts, and that they are capable of being successful, are more likely to persist (Bandura, 1997). Play provides an appropriate setting for learning about engagement, persistence, and risk-taking.

### Preschool

#### Financial Literacy

- Children understand amount, including use of numbers and counting (IELS: 11.1).
- Children understand comparisons and measurements (IELS: 11.6).

Rationale: Financial literacy is not specifically articulated in the Iowa Early Learning Standards; however, basic math concepts and other prerequisite skills are included. For examples, exposure to coins and currency and their use and function is common in early childhood classrooms.

#### Health Literacy

- Children understand healthy and safe living practices (IELS: 7.1).

Rationale: Children's physical well-being provides the foundation for their ability to learn. Young children are beginning to establish life-long eating habits that can help prevent disease, obesity, and other health problems (U. S. Department of Health and Human Services, 1996). Accidents are the chief cause of death in young children (Maternal and Child Health Bureau, 2003). Appropriate levels of risk, with adult support and oversight, encourage exploration without undermining children's safety. Even very young children can begin to learn about personal safety.

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## Technology Literacy

- Children engage in dramatic play experiences (IELS: 12.3).

Rationale: When referencing technology, the Iowa Core Curriculum is primarily discussing computers. While moderate exposure to computers and other technology can provide useful early experiences that prepare children to use a variety of learning technologies in the future, their use should be monitored and directed by specific learning objectives. When used under clear guidance in an appropriate way, technology can benefit children by teaching them about a topic as well as exposing them to a particular technology (Anderson and Collins 1988; NAEYC 1994, Harms, et al. 1998).

## Employability Skills

- Children purposefully choose and persist in experiences and activities (IELS: 8.2).
- Children show increasing ability to regulate their behavior and express their emotions in appropriate ways (IELS: 9.2).
- Children develop the ability to interact with peers respectfully and to form positive peer relationships (IELS: 9.4).
- Children have an increasing awareness of belonging to a family, community, culture, and program (IELS: 9.5).
- Children engage in dramatic play experiences (IELS: 12.3).

Rationale: Employability skills include the ability to communicate and work with others, to recognize different roles and responsibilities, to be open to change, to demonstrate leadership skills and ethical behavior and to be accountable for ones actions. Some of the most basic learning standards were selected since the purpose of these skills is to empower students to be productive, caring, and competent citizens and that is important for employment in our society. Productive, caring and competent citizens most likely begin as productive, caring and competent preschools within their environments. This means selecting and persisting in productive activities, regulating behavior, expressing emotions appropriately, developing respectful and positive relationships with peers and an awareness of operating in a social environment. Perhaps no single skill or ability brings all this together more thoroughly than engaging in dramatic play experiences. Such experiences profoundly shape children's abilities to grow and develop in all these important ways and set the trajectory to be responsible and productive employees and citizens (Moyles, 2005).

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