It is vitally important that Arkansas's early childhood professionals focus on the social and emotional development of young children. New research has uncovered the dramatic impact that early relationships and social interactions have on a child's academic performance and mental health, as well as on the success of future relationships.[1] In fact, research has found that an individual's soft skills–those traits related to interpersonal skills and emotional intelligence–are critically important to success in the workplace.[2] A child's earliest interactions with parents, early childhood professionals, and other children shape their identity, influence how they regulate their emotions, and mold the way in which they communicate, cooperate, empathize, and navigate relationships with others. Accordingly, much in the same way that early childhood professionals foster learning in emergent literacy and mathematics, they must also work to achieve secure, nurturing relationships with children and promote their social and emotional health and growth.

Areas of social and emotional development in the standards

The *Arkansas Child Development and Early Learning Standards* focus on three areas of social and emotional development:

- **Relationships with others** focuses on a child's ability to form trusting relationships with and attachment to adults; and the ability to make friends, interact positively through play, and develop social skills.
- **Emotional expression and understanding** emphasizes a child's expression and regulation of his or her own emotions, as well as on empathy and understanding the emotions of others.
- **Self-awareness and self-concept** charts the development of a child's sense of identity and understanding of personal characteristics and preferences and a child's development of autonomy and self-confidence.

Potential warning signs of behavioral issues or developmental delay

Early childhood professionals play a key role in the early identification of social and emotional delays and behavioral issues. Although the child development and early learning standards have been developed with the understanding that children's development and learning vary widely, there are behaviors and signs to watch for that might indicate a developmental delay or behavioral issue. The Centers for Disease Control and Prevention[3] recommend talking with a medical or early childhood specialist if:

By 9 months, a child doesn't play games involving back and forth play, doesn't respond to his or her own name, or doesn't seem to recognize familiar people.

By 18 months, a child doesn't point to show things to others or doesn't notice or mind when a parent or familiar adult leaves or returns. The American Academy of Pediatrics recommends that children be screened for general development and autism at 18-months.

By 3 years old (36 months), a child doesn't understand simple instructions, doesn't play pretend or make-believe, doesn't want to play with other children or with toys, or doesn't make eye contact.

By 4 years old (48 months), a child shows no interest in interactive games or make-believe, ignores other children, or doesn't respond to people outside the family.

By 5 years old (60 months), a child doesn't show a wide range of emotions, shows extreme behavior (unusually fearful, aggressive, shy or sad), is unusually withdrawn and not active, is easily distracted, has trouble focusing on one activity for more than 5 minutes, doesn't respond to people or responds only superficially; or doesn't play a variety of games and activities.

The indicators above may not include all of the signs of a developmental delay or behavioral issue. Early childhood professionals and parents know the young children in their care best. If there is a suspicion of a developmental delay or behavioral issue, it is important to consult a medical or early childhood specialist.

[1]National Scientific Council on the Developing Child (2004). *Children's emotional development Is built into the architecture of their brains: Working paper No. 2.* Retrieved from: www.developingchild.harvard.edu.

[2]National Bureau of Economic Research. (June 2012). *Hard evidence on soft skills* (Working paper).Cambride, MA: Heckman, J. J. & Kautz, T.

[3]Centers for Disease Control. (2009) *Learn the signs: Act early*. Atlanta, GA: Centers for Disease Control. Retrieved from: http://www.cdc.gov/ncbddd/actearly/pdf/checklists/all checklists.pdf

Special considerations

Typically, children reach social and emotional indicators at different ages. However, children who lack nurturing relationships with adults and/or have adverse experiences that cause high levels of stress for prolonged periods of time (known as *toxic stress*) may exhibit significant disparities in social and emotional development or behavioral problems. Young children who live in extreme poverty, who lack stable relationships at home, or who live with drug- or alcohol-dependent caregivers are more susceptible to the effects of toxic stress. Although research indicates that children with behavioral problems receive less positive attention than other children,[4] it is precisely these children who require more intense positive interactions and learning opportunities to support their social and emotional development. Behavior is a form of communication. As such, it is important to understand the needs that children are trying to communicate through their behavior and appropriately address those needs.

In addition, children who are from culturally diverse backgrounds may have different ways of meeting the indicators. For example, in some cultures, sociability is important to peer acceptance, school achievement, and psychological well-being.[5] However, the social norms of other cultures encourage social restraint. In addition, children who are learning English may be limited in their social interactions with teachers and other children due to language barriers. Accordingly, early childhood professionals should be aware of the significant differences in how social and emotional development is expressed based on culture, and should work with families to better understand cultural differences.

Children with disabilities may also meet the indicators in different ways. Children with visual impairments may demonstrate interaction through listening and touch; and children with cognitive disabilities may initiate play at a different pace and with a different degree of proficiency.

Social and Emotional Development: Key Takeaways

- Social and emotional development is extremely important to a child's future learning and success. In the same way that early childhood professionals foster learning in emergent literacy and mathematics, they must also work to achieve secure, nurturing relationships with children and promote their social and emotional health and growth.
- For children with behavioral problems, their behavior is a form of communication. It is important to understand the needs that children are trying to express through their behavior and appropriately support those needs.
- Children from culturally diverse families and children with disabilities may meet the indicators in different ways and at different times.

[4]See, for example, U.S. Department of Health and Human Services and U.S. Department of Education, *Policy Statement on Expulsions and Suspension Policies in Early Childhood Settings.* Retrieved from: https://www2.ed.gov/policy/gen/guid/school-discipline/policy-statement-ece-expulsions-suspensions.pdf

[5]Chen, X. (2009). Culture and early socio-emotional development. In *Encyclopedia on Early Childhood Development.*

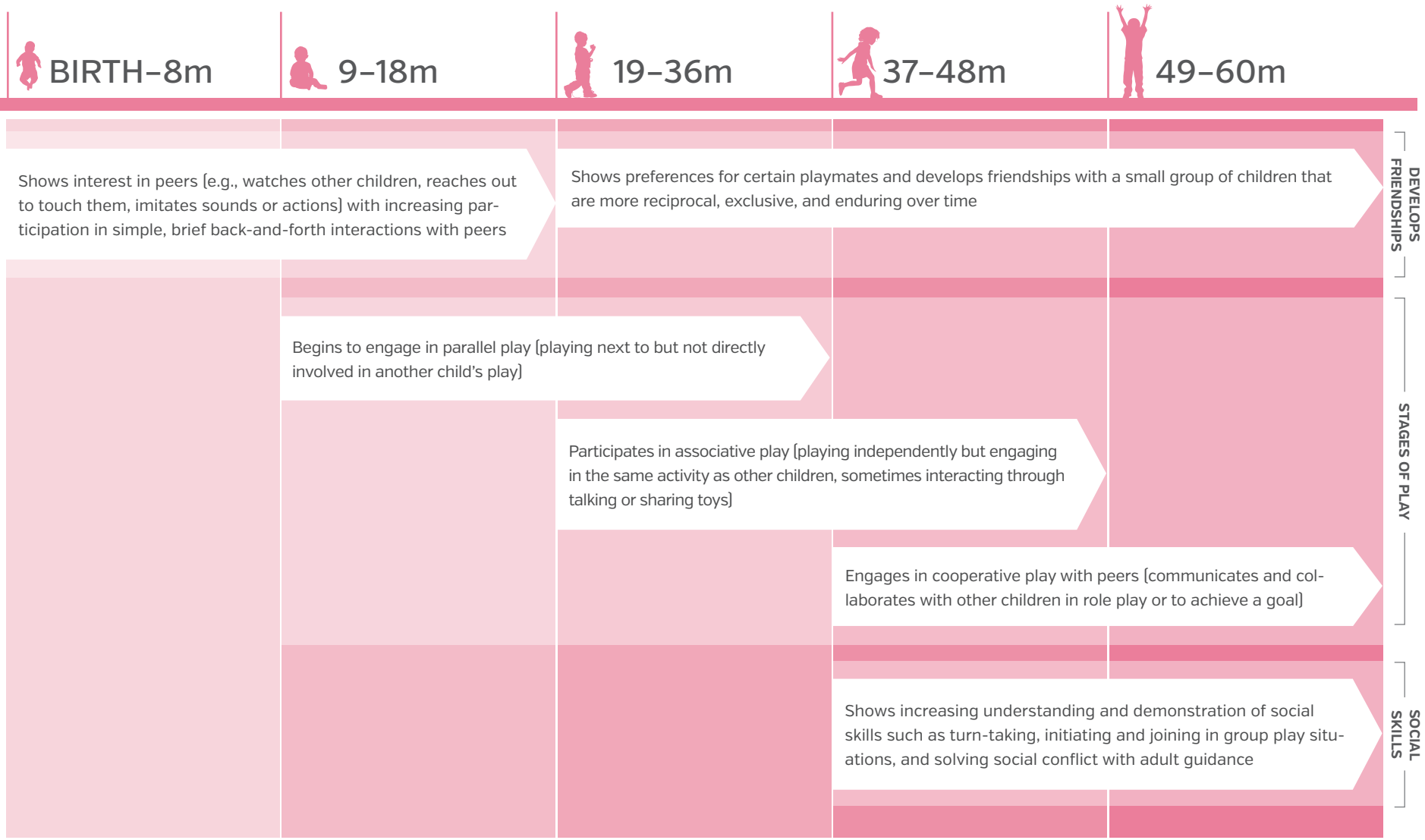
SE1. RELATIONSHIPS WITH OTHERS

SE1.1 Forms trusting relationships with nurturing adults

* Children's ability to separate from caregivers may depend upon their previous experiences and personal characteristics. Children who have not experienced significant time away from their primary caregivers (e.g., in an early care and education setting) or who are generally more cautious may need additional time to adjust to being away from their primary caregivers and form secure relationships with other adults.

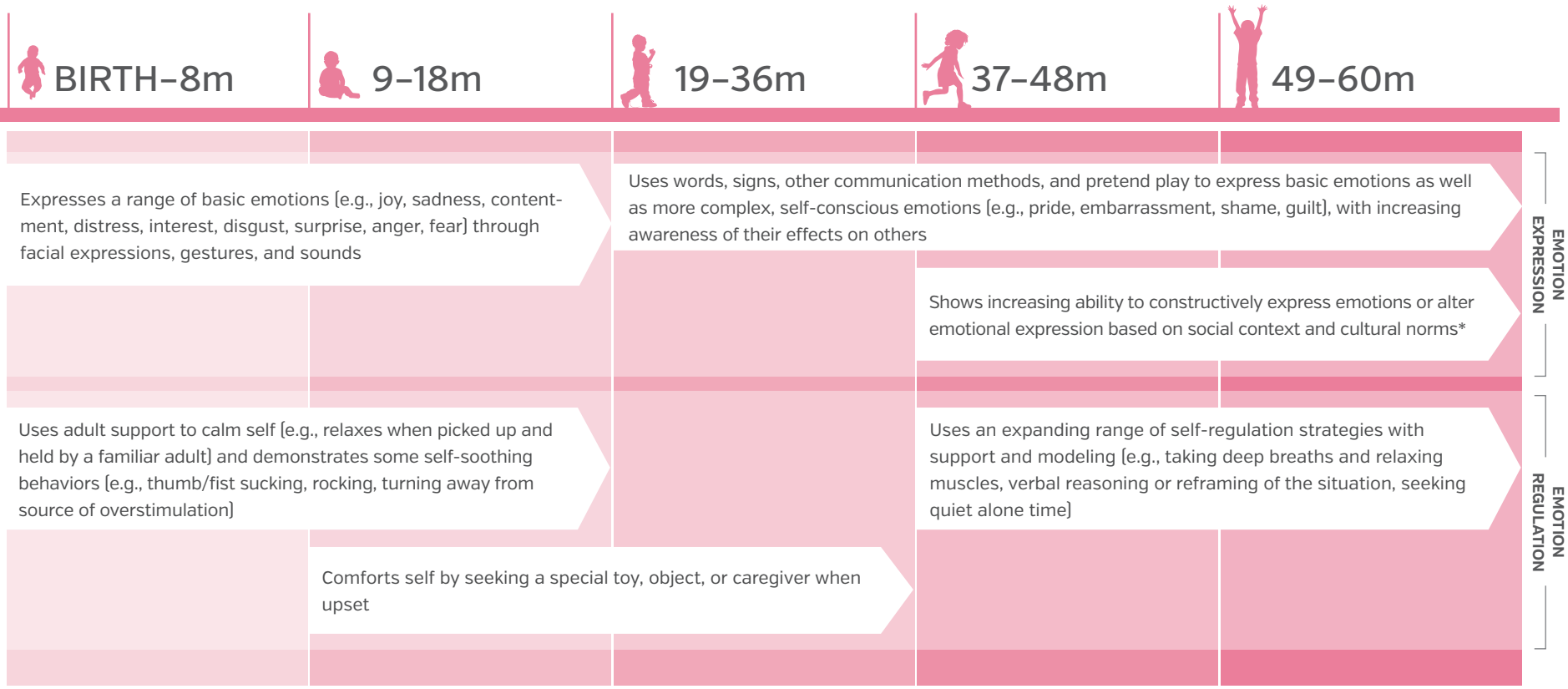
SE1. RELATIONSHIPS WITH OTHERS

SE1.2 Interacts with peers



SE2. EMOTIONAL EXPRESSION AND UNDERSTANDING

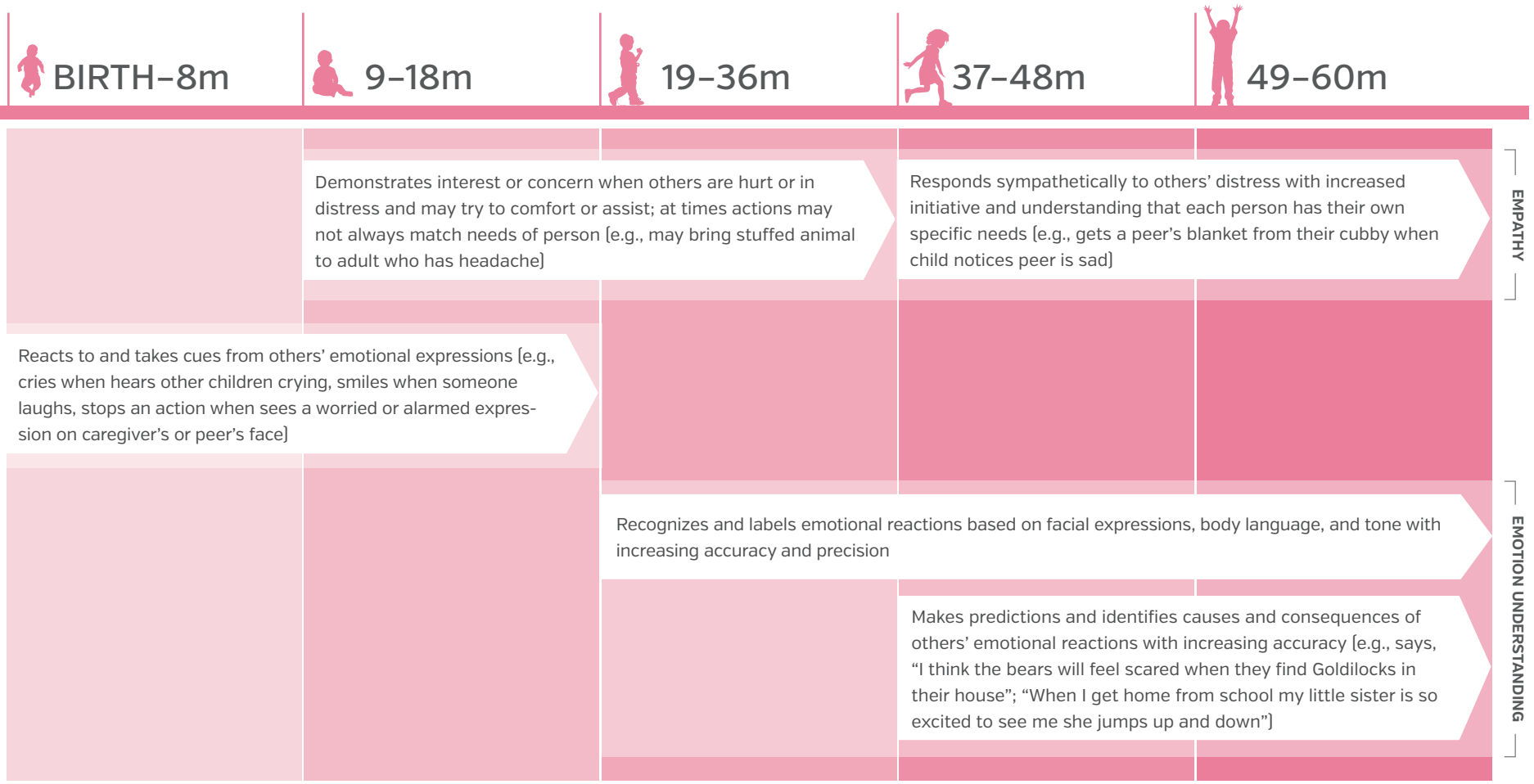
SE2.1 Experiences, expresses, and regulates a range of emotions



*Children's expressive behavior will depend in part on their culture's emotion display rules (the social norms that specify when, where, and how it is appropriate to express emotion). For example, some cultures and families emphasize maximizing positive emotions, whereas some other cultures place greater value on appearing calm rather than happy or excited. Some cultures and families also tend to encourage minimizing negative emotions, although others emphasize experiencing a balance between positive and negative emotions.

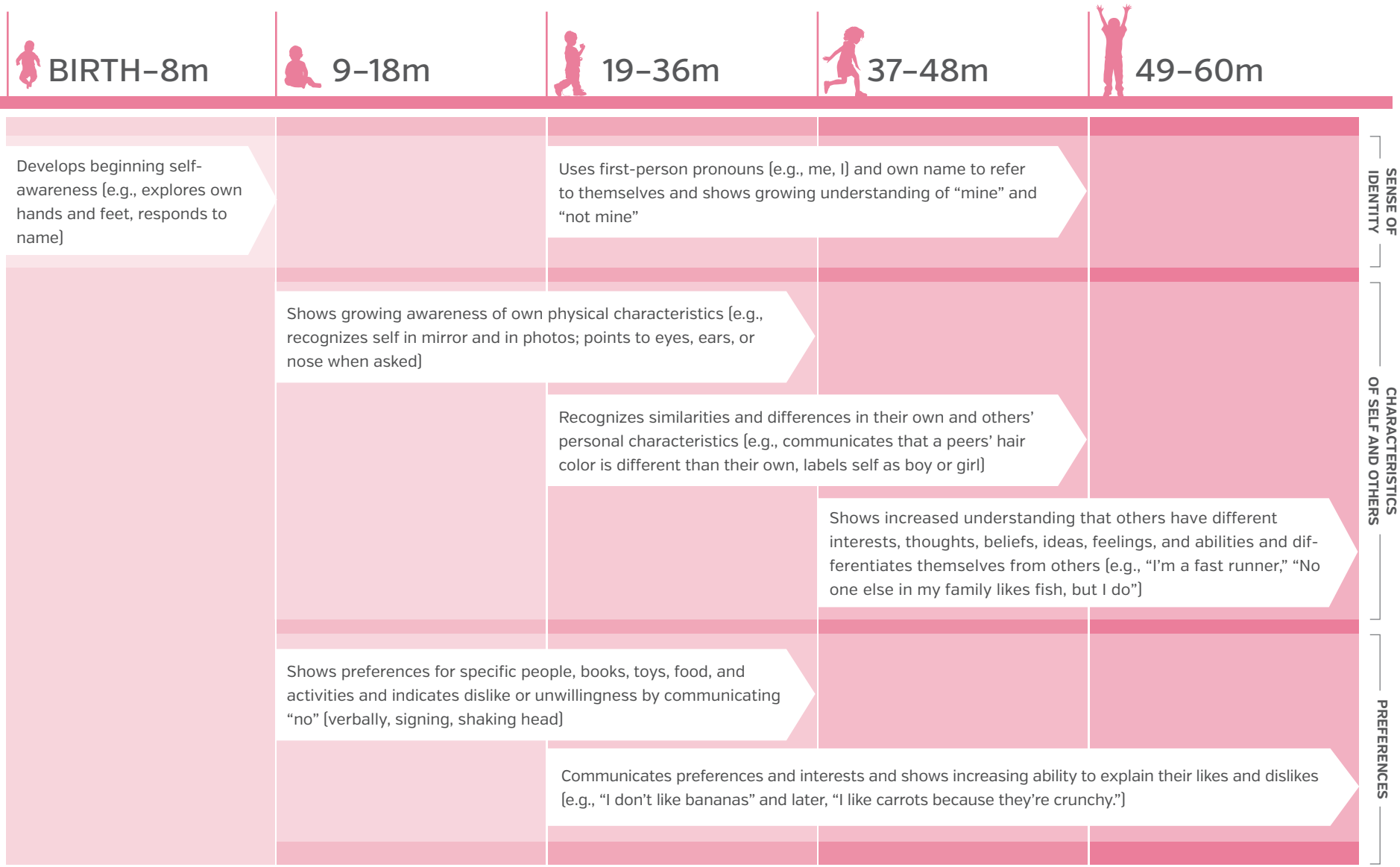
SE2. EMOTIONAL EXPRESSION AND UNDERSTANDING

SE2.2 Interprets and responds to the feelings of others



SE3. SELF-AWARENESS AND SELF-CONCEPT

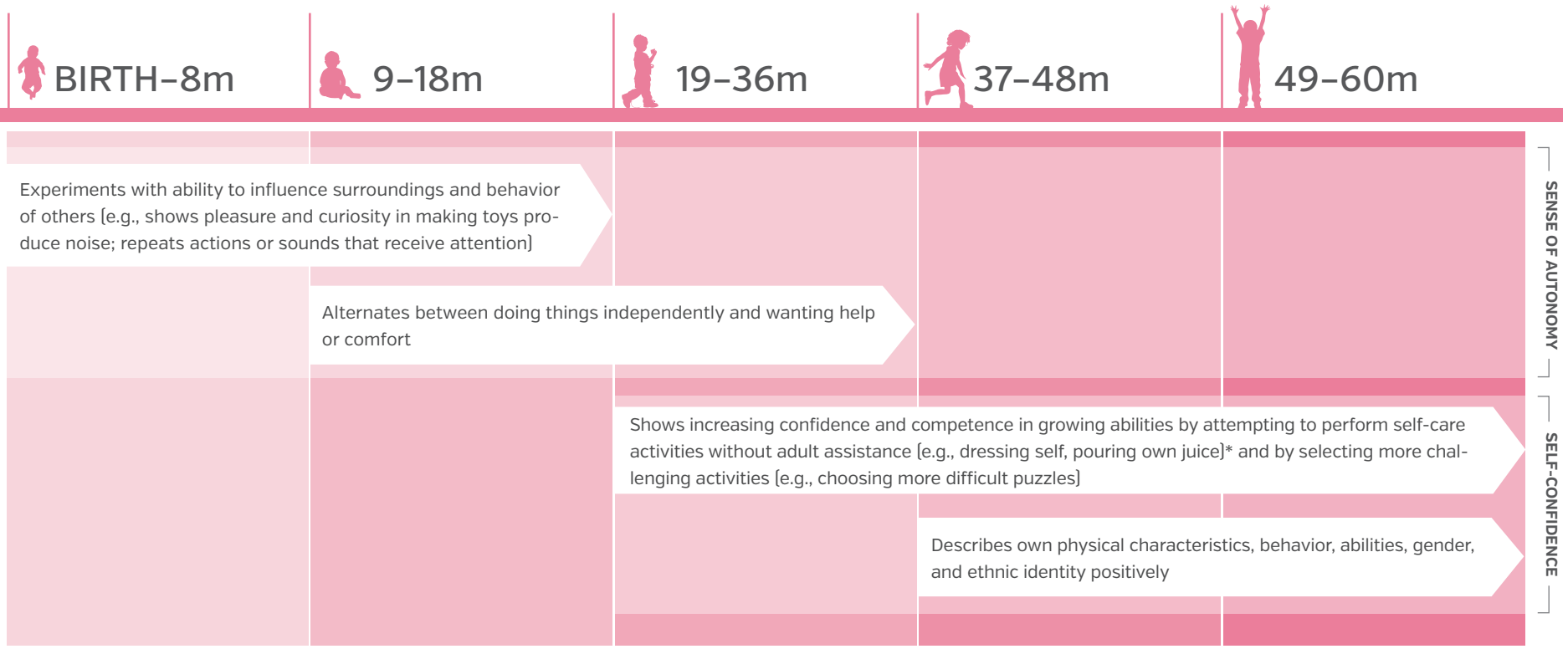
SE3.1 Shows awareness of self as unique individual



*Children may show variation in these skills based on whether independence or interdependence is valued in their family and culture.

SE3. SELF-AWARENESS AND SELF-CONCEPT

SE3.2 Demonstrates competence and confidence



*Children may show variation in these skills based on whether early self-help skills are expected and taught and whether independence or interdependence is valued in their family and culture

A child's brain has been called "the most powerful learning machine in the universe."[1] Cognitive development refers to the way in which a child takes in, stores, processes, and uses information. Early childhood researchers have made major advances in this area in recent years, and now better understand both what supports and hinders successful cognitive development. This area is particularly important to other areas of development and learning because of what researchers call executive function–the way the brain helps children to plan, focus attention, remember instructions, and juggle multiple tasks successfully.[2] These skills are vital to a child's future success because learning requires that a child focus on specific tasks to take in information, connect different pieces of information, and use information to solve problems or build new knowledge. Equally important, cognitive development is critical to social and emotional development in that it helps children understand and appropriately respond to the feelings and behaviors of others as well as adjust their behavior depending on the context of social situations. Positive relationships with adults, secure environments, and developmentally appropriate learning opportunities foster cognitive development. Arkansas's early childhood professionals must understand and support all of the different dimensions of cognitive development to promote school readiness and later success.

Areas of cognitive development in the standards

The *Arkansas Child Development and Early Learning Standards* focus on three areas of cognitive development:

- **Approaches to learning** outlines the developmental phases of a child's determination, curiosity, ability to complete a task, and acceptance of challenges.
- **Executive function** focuses on a child's attention and ability to ignore distractions; engagement in learning opportunities; flexible thinking; ability to adjust behavior in different contexts; impulse control; delay of gratification; and ability to hold and manipulate information in his or her memory.
- **Logic and reasoning** outlines the development of child's ability to solve problems; plan; engage in pretend play; understand symbolic representation; and the ability to think abstractly.

Potential warning signs of behavioral issues or developmental delay

Early childhood professionals play a key role in the early identification of cognitive delays. Although the early learning standards have been developed with the understanding that children's cognitive development will vary widely, there are signs that might indicate a developmental delay. The Centers for Disease Control and Prevention[3] recommend talking with a medical or early childhood specialist if:

By 9 months, a child doesn't play any games involving back-and-forth play, doesn't respond to his or her own name, doesn't recognize familiar people, or doesn't look where you point.

By 18 months, a child doesn't point to show things to others, doesn't know what familiar things are, doesn't have at least 6 words or doesn't gain new words, or loses skills that he or she once had.

By 3 years old (36 months), a child drools or has unclear speech, can't work simple toys like peg boards or simple puzzles, doesn't understand simple instructions, or loses skills he or she once had.

By 4 years old (48 months), a child has trouble scribbling, shows no interest in interactive games or make believe, doesn't follow three-part directions, can't retell a favorite story, or loses the skills that he or she once had.

By 5 years old (60 months), a child is easily distracted or has trouble focusing on one activity for more than 5 minutes; can't tell what is real and what is make believe, can't give his or her first and last name, doesn't draw pictures, or loses skills he or she once had.

[1]Gopnik, A., Meltzoff, A., & Kuhl, P.K. (1999). The scientist in the crib: Minds, brains, and how children learn. New York: William Morrow.

[2]Center on the Developing Child. (2012). *Executive function* (InBrief). Retrieved from www.developingchild.harvard.edu.

[3]Centers for Disease Control. (2009) *Learn the signs: Act early.* Atlanta, GA: Centers for Disease Control. Retrieved from: http://www.cdc.gov/ncbddd/actearly/pdf/checklists/all checklists.pdf

The indicators above may not include all of the signs of a cognitive delay. Early childhood professionals and parents know the young children in their care best. If there is a suspicion of a developmental delay, it is important to consult a medical or early childhood specialist.

Special considerations

Typically developing children will reach the cognitive development indicators at different ages. However, children who lack nurturing relationships with adults and/or have adverse experiences that cause high levels of stress for prolonged periods of time (known as *toxic stress*) may have impaired executive functioning or other cognitive delays.[4] Children who live in extreme poverty, who lack stable relationships at home, or who live with drug or alcohol-dependent caregivers are more susceptible to toxic stress.[5] It is important to note that children labeled with behavioral problems often are exhibiting behaviors that are the result of poor executive functioning skills that can be caused by adverse childhood experiences. The negative effects of these adverse experiences on cognitive development can be overcome by nurturing caregivers and supportive environments.[6]

Cognitive development can also be impacted by differences in culture. Children take in information based on what they experience and how they problem-solve issues in their daily lives. These experiences can be very different based on a child's cultural and linguistic background. Early childhood professionals should understand these cultural differences and how they may impact cognitive development. At the same time, emerging research indicates that children who are learning two languages at the same time have stronger executive functioning skills because they must switch between two languages, building their capacity for cognitive flexibility.[7] This research represents another reason to support the development of a child's home language.

Finally, children with disabilities may demonstrate alternate ways of meeting the indicators of cognitive development. In particular, children with a cognitive impairment may reach many of the indicators, but at a different pace, and potentially in a different order than typically developing children. However, the goals for all children are the same, even though the path and the pace toward acheiving the goals may be different.

Cognitive Development: Key Takeaways

- Research on cognitive development highlights the importance of e*xecutive function*– the way the brain helps children to plan, focus attention, remember instructions, and juggle multiple tasks successfully. These skills are vital to a child's future success because learning requires that a child focus on specific tasks to take in information, connect different pieces of information, and use information to solve problems or build new knowledge.
- Children labeled with behavioral problems often are exhibiting behaviors that are the result of poor executive functioning skills that can be caused by adverse childhood experiences.
- The negative effects of these adverse experiences on cognitive development can be overcome by nurturing caregivers and supportive environments.

[4]Blair, C. (2010). Stress and the development of self-regulation in context. *Child Development Perspectives, 4*, 181-188.

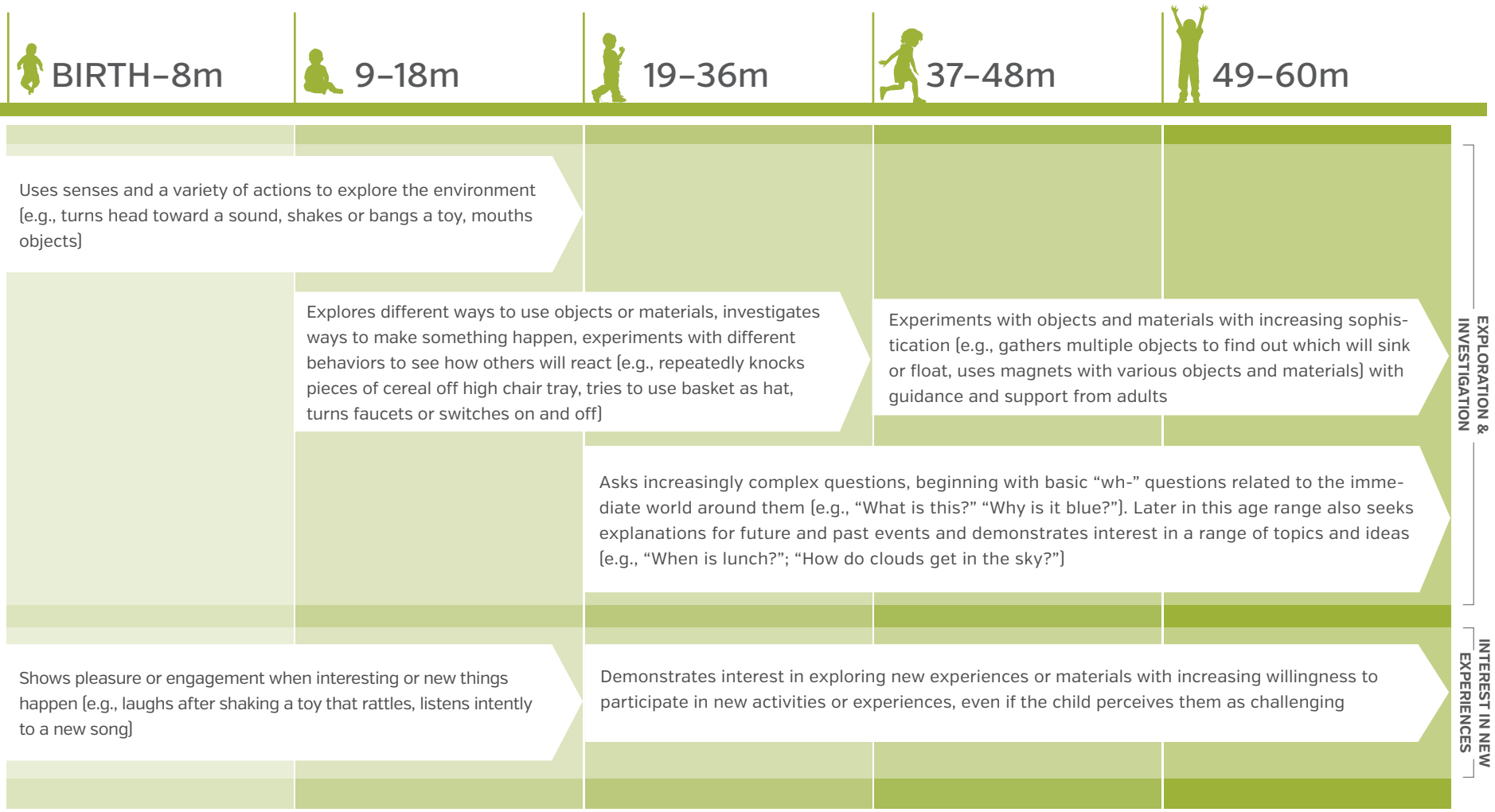
[5]Shonkoff, J. P., Garner, A. S., The Committee on Psychosocial Aspects of Child and Family Health, The Committee on Early Childhood, Adoption, and Dependent Care, & The Section on Developmental and Behavioral Pediatrics. (2011). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129, 232-246. doi: 10.1542/peds.2011-2663.

[6]Shonkoff, J. P., Garner, A. S., The Committee on Psychosocial Aspects of Child and Family Health, The Committee on Early Childhood, Adoption, and Dependent Care, & The Section on Developmental and Behavioral Pediatrics. (2011). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129, 232-246. doi: 10.1542/peds.2011-2663.

[7]Bialystok, E., Barac, R., Blaye, A., & Poulin-Dubois, D. (2010). Word mapping and executive functioning in young monolingual and bilingual children. *Journal of Cognition and Development, 11*, 485-508. doi: 10.1080/15248372.2010.516420

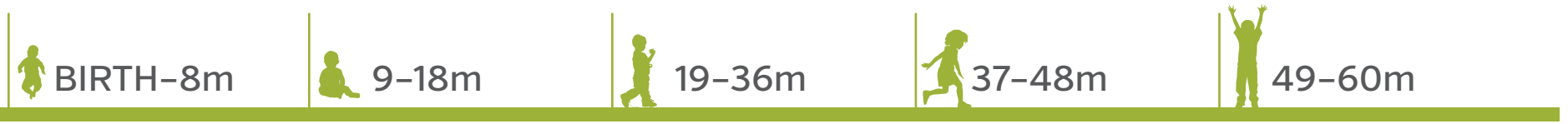
CD1. APPROACHES TO LEARNING

CD1.1 Shows curiosity and a willingness to try new things



CD1. APPROACHES TO LEARNING

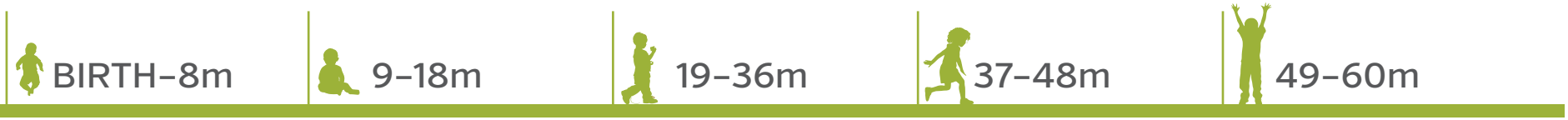
CD1.2 Shows persistence in approaching tasks



BIRTH–8m	9–18m	19–36m	37–48m	49–60m	
Repeats actions to produce similar results (e.g., repeatedly shakes toy to produce noise; puts objects in a container and dumps them out over and over again)		Practices an activity many times with increasing independence to learn new skills and build mastery (e.g., chooses the same puzzle every day until they are able to assemble each piece quickly and easily)			DETERMINATION
Demonstrates increasing ability to continue interactions with others (e.g., attends to game of peek-a-boo for longer period of time, makes back-and-forth vocalizations with adult) and stays engaged with toys for more than just a brief time		Persists in activities for longer periods of time and shows increasing tendency to engage in tasks from start-to-finish (e.g., insists on finishing a drawing before going outside, wants to continue building structure until all blocks are used) and later in this age range seeks to return to an activity after having been away from it in order to complete the task			TASK COMPLETION
	Shows increasing willingness to repeat attempts at communication if not understood or repeat actions when encountering difficulties, with increasing ability to try different strategies until successful (e.g., repeatedly tries to force same shape into shape sorter; later in age range, tries a different shape after unsuccessful attempt)		Persists with adult encouragement and support even when presented with challenges (e.g., continues trying to build tall block tower even when some pieces fall; tries again to write name after running out of space on paper or recognizing a mistake)		ACCEPTANCE OF CHALLENGES

CD2. EXECUTIVE FUNCTION

CD2.1 Focuses and sustains attention



Orients to and focuses on sounds, activities, people, and objects in the environment (e.g., attends to sounds, lights, etc.; turns head to follow caregiver with his or her gaze)

Shows increasing ability to attend to people and objects and join others in a common focus (e.g., attends to a short, familiar story-book, though may not want to follow book page by page)

Maintains focus and attention for longer periods of time with increasing independence and ability to ignore distractions and resume task after interruptions*

ATTENTION & ENGAGEMENT

Focuses on something specific while ignoring irrelevant information (selective attention) with increasing skill (e.g., counts only yellow bears in a group that includes bears of other colors; carries on a conversation despite loud background noise on the playground)

Shifts focus among various aspects of an object, activity, or story (e.g., recognizes two objects are alike because they are the same color, then recognizes that one of them is like another object because it is the same shape; talks about specific aspects of a story)

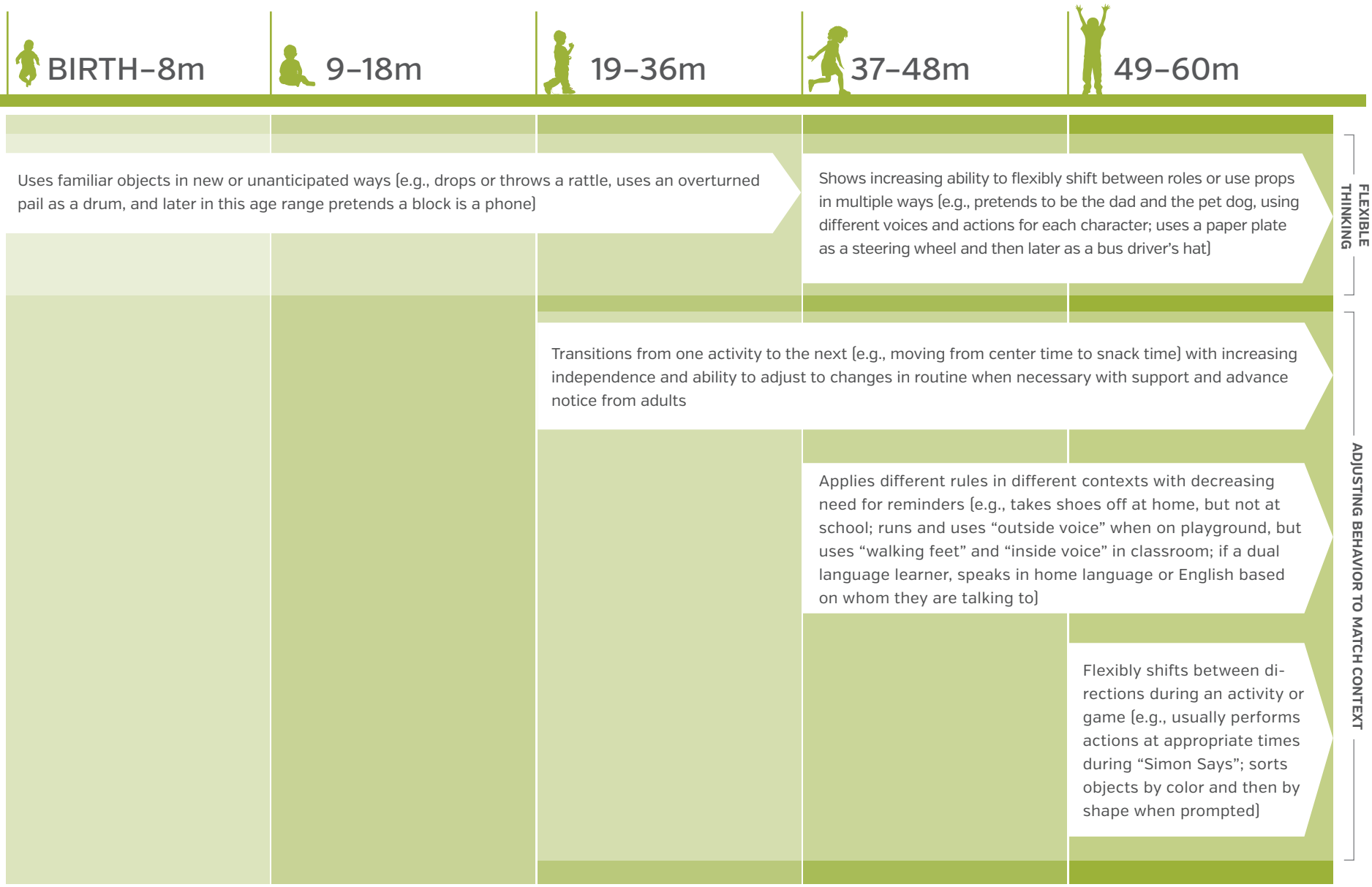
Shows increasing ability to shift attention away from a desired object, activity, person, etc. with adult support and coaching (e.g., engages in a different activity when preferred activity is unavailable; with support focuses on a book after a difficult separation from caregiver)

SELECTIVE ATTENTION

*Children's engagement and attention span will vary from activity to activity, depending in large part on their level of interest in the experience or topic. Children will need more support maintaining focus during non-preferred activities, but over time develop greater capacity and motivation to cooperate and attend during less desirable tasks.

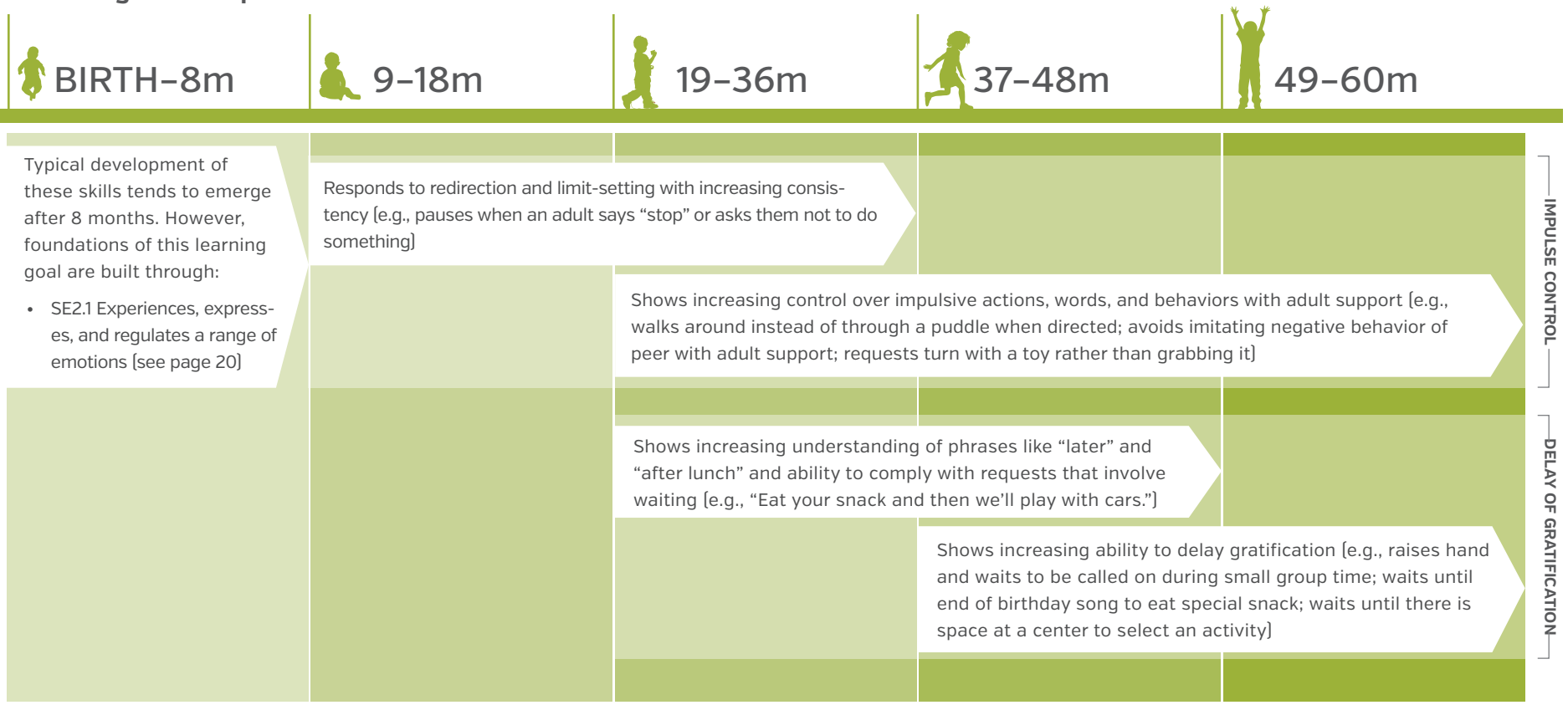
CD2. EXECUTIVE FUNCTION

CD2.2 Shows flexibility in adjusting thinking and behavior to different contexts



CD2. EXECUTIVE FUNCTION

CD2.3 Regulates impulses and behaviors



CD2. EXECUTIVE FUNCTION

CD2.4 Holds and manipulates information in memory

SHORT-TERM & WORKING MEMORY*

- Shows awareness that people and objects still exist when they are out of sight and sound range (object permanence; e.g., reaches under a blanket to retrieve a stuffed animal that an adult has hidden while child watches; when older, watches at the window after a family member leaves)
- Searches for hidden or missing objects and notices when people are missing from a familiar group (e.g., when a peer is absent)
- Shows increasing skill in memory games (e.g., recalls an increasing number of items removed from view in games like "What's Missing"; plays simple memory matching card games)
- Remembers and communicates about recent events (e.g., what happened earlier in the day; what has just happened in a story being read)
- Remembers and follows two-step directions (e.g., "Put all the crayons in the basket, then put the basket on the shelf"; "Touch your nose, then touch your ear") with decreasing need for adult support
- Remembers and follows multi-step directions (e.g., "Push in your chair, throw away your trash, and then join us for circle time"; follows a sequence of actions for a song such as jumping, then clapping, then turning around) with decreasing need for adult support
- Remembers and processes multiple pieces of information before responding (e.g., considers two or more options before making a choice; remembers response to teacher's question long enough to respond after waiting for peers to share their comments)

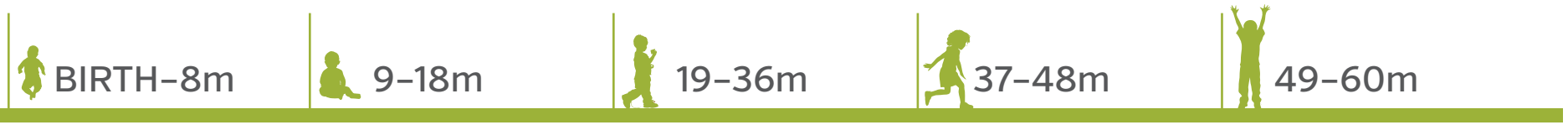
LONG-TERM MEMORY

- Anticipates familiar actions or routines (e.g., raises legs when diaper is changed; later in this age range, goes to table when it is time to eat)
- Learns and recalls motor routines, songs, and rhymes over time with increasing accuracy (e.g., sings along with familiar song and performs accompanying actions)
- Responds to familiar people and objects (e.g., shows excitement about a toy that was played with days earlier; later in this age range looks for or points to familiar people or objects when they are named)
- Imitates actions or behaviors that were observed at an earlier time (e.g., uses traffic hand signals on trike track after seeing them demonstrated by a crossing guard; divides markers into "fair share" groups after observing teacher do this the day before)
- Tells some details about stories or personal experiences with adult support and modeling
- Remembers past experiences or familiar stories with increasing ability to independently and accurately recall details and retell events in sequence

*__working memory__ = the capacity to hold and manipulate information in our heads over short periods of time

CD3. LOGIC AND REASONING

CD3.1 Uses reasoning and planning ahead to solve problems and reach goals



Uses own movements and actions to solve simple problems or reach goals (e.g., rolls to the side to reach an interesting object; pulls on an adult's leg when wants to be picked up)

Uses a variety of strategies to solve problems, such as trial-and-error, applying knowledge from previous experience, asking for help, or using objects as tools (e.g., using an object to reach something under a shelf)

Generates new approaches or changes plans if a better alternative is thought of or suggested (e.g., decides to build block structure on hard surface after it keeps falling down on the thick rug; accepts suggestion to use tape instead of glue to affix small leaves to a piece of paper)

PROBLEM SOLVING

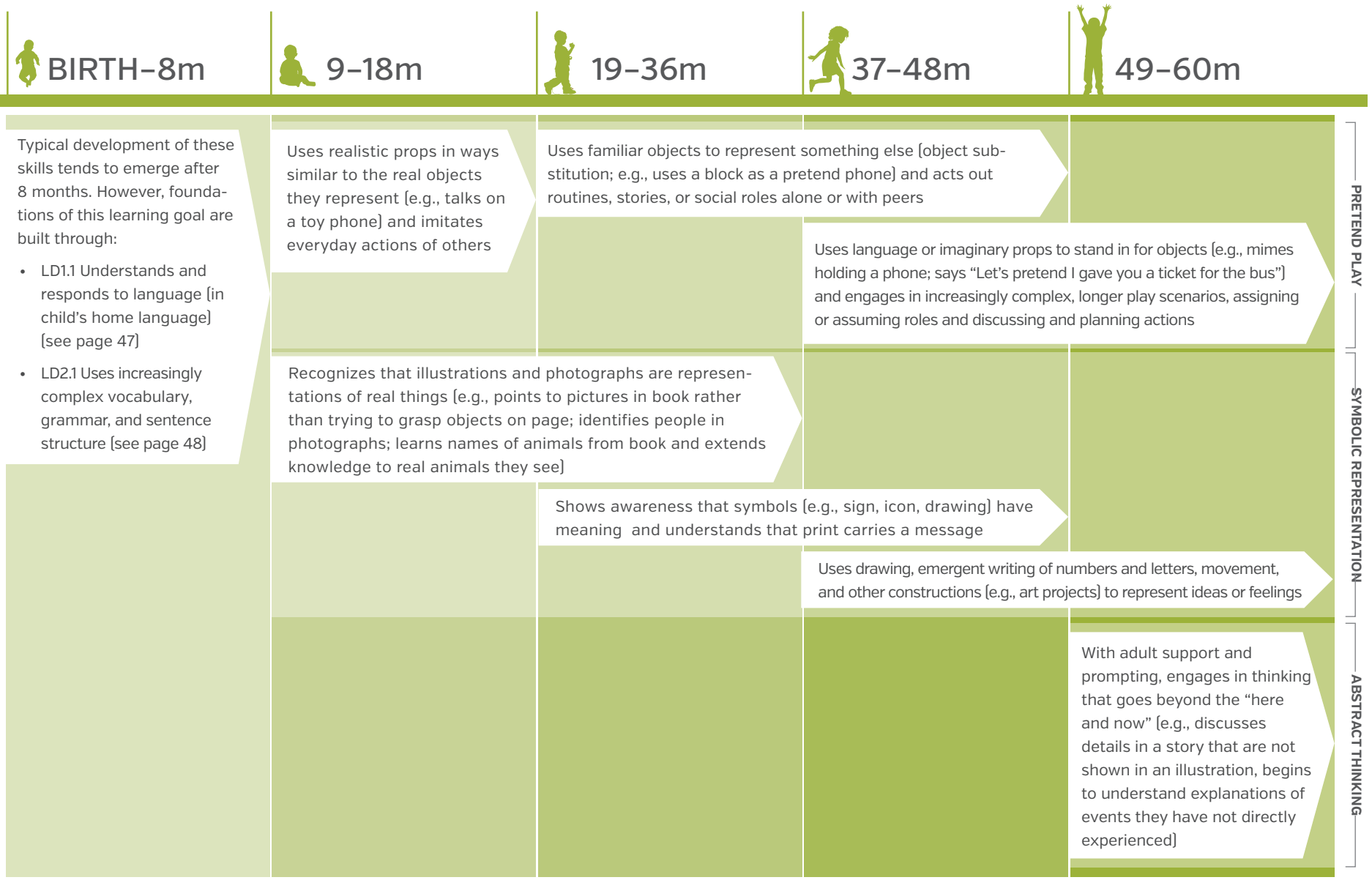
Talks out loud to self (self-talk) during play (e.g., says "I need all the red pieces. Here's another one…doesn't fit…turn it this way" while putting together a puzzle; "I'm the mommy, so I'm going to feed the baby then go to work" while playing alone in the dramatic play area)

Shows increasing ability to independently and collaboratively make choices, plan for play scenarios or activities, and anticipate problems (e.g., assigns roles in dramatic play; gathers materials to complete an art project; says "Tell me when you're finished at the computer so I can have a turn.")

PLANNING

CD3. LOGIC AND REASONING

CD3.2 Engages in symbolic and abstract thinking



A child's mind and body develop together in an interrelated way.[1] From the time they are born, children use their bodies to learn, making physical development and health vitally important to all areas of child development and learning. Children begin exploring the world by using their hands and mouths immediately after birth. As they grow older, the ability to crawl and walk provides new possibilities for exploration and discovery. Although physical development will largely happen on its own, there are ways in which early childhood professionals can encourage physical growth and coordination to help children play confidently, engage in fun physical activities, and develop a strong foundation for a healthy, active lifestyle that carries into adulthood.

Today, there are a number of challenges to supporting a child's physical development and health. Children have easy access to screens (e.g., televisions, cell phones, tablets) and "fast foods" with limited nutritional value, and many low-income communities simply lack healthy food options (known as *food deserts*). Given this context, it is easy for children to eat unhealthy meals and be limited in their physical activity. This makes it even more important for early childhood professionals to support physical development and health by motivating children to stay active, challenging them to improve, and providing guidance in physical skills, nutrition, and how to stay healthy and safe. Physical activities, for example dancing, can be easy and fun (see Creativity and Aesthetics domain). Arkansas's early childhood professionals do not have to be athletic or a trained physical education teacher to encourage and teach physical development and health–they just need to be knowledgeable about how to promote development in this important area.

Areas of physical development and health

The *Arkansas Child Development and Early Learning Standards* focus on three areas of physical development and health:

- **Gross motor** captures a child's growing ability to move, walk, run, and climb, as well as a child's stability and balance and the ability to catch, throw, strike, and kick.
- **Fine motor skills** focus on the development of hand-eye coordination, the child's ability to manipulate objects with his or her hands and fingers, and the ability to use different tools (utensils, writing implements, etc.).
- **Health and well-being** outlines how a child communicates needs, demonstrates healthy eating habits and food choices, engages in safe behavior, participates in physical activity and exercise, and takes appropriate actions to meet needs.

Potential warning signs of physical developmental delay

Early childhood professionals play a key role in the early identification of physical development delays and health concerns. Although the standards have been developed with the understanding that children's physical development and health will vary, there are signs that might indicate a developmental delay or health issue. The Centers for Disease Control and Prevention[2] recommend talking with a medical or early childhood specialist if:

By 9 months, a child doesn't bear weight on legs with support, doesn't sit with help or doesn't transfer toys from one hand to the other.

By 18 months, a child can't walk or doesn't point to show things to others.

By 3 years old (36 months), a child falls down a lot or has trouble with stairs, drools or has very unclear speech, or loses skills he or she once had.

By 4 years old (48 months), a child can't jump in place; has trouble scribbling; resists dressing, sleeping, and using the toilet; or loses skills he or she once had.

By 5 years old (60 months), a child doesn't draw pictures, can't brush teeth, wash and dry hands, or get undressed without help, or loses skills he or she once had.

The indicators above may not include all of the signs of a delay in physical development or a potential health condition. Early childhood professionals and parents know the young children in their care best. If there is a suspicion of a physical development delay or health issue, it is important to consult a medical or early childhood specialist.

[1]Sanders, S. & Courson, D. (2004). *Helping young children become physically active for life.* Little Rock: Arkansas Department of Human Services Division of Child Care and Early Childhood Education Little Rock, Arkansas.

[2]Centers for Disease Control. (2009) *Learn the signs: Act early*. Atlanta, GA: Centers for Disease Control. Retrieved from: http://www.cdc.gov/ncbddd/actearly/pdf/checklists/all checklists.pdf

Special considerations

Children will reach the physical development indicators at different ages. Young children who live in poverty, lack stable relationships at home, live with drug- or alcohol-dependent caregivers, or who are exposed to other adverse conditions may face more challenges in engaging in physical activity and supporting their own nutrition and health. These children may require more intense positive interactions and learning opportunities to support their physical development and health.

In addition, children's cultural background may play a role in how they develop and meet physical development and health milestones. Children's development in certain areas is dependent on the exposure they have to certain activities and opportunities to practice certain skills. For example, girls in some cultures may not be exposed to riding a bike or other physical activities. Similarly, a child's demonstration of fine motor skills using utensils may depend on whether early self-help skills such as feeding oneself are expected and taught in their family and culture, and use of utensils may vary across cultures.

Children with physical disabilities should be included in physical activities, but may require alternate ways of meeting gross and fine motor indicators. These children may pedal an adaptive tricycle, navigate a wheelchair, or feed themselves with a specialized spoon. Children with cognitive disabilities may also meet the physical development and health goals in a different way, often at a different pace, with a different degree of accomplishment, and in a different order than typically developing children. When observing how children demonstrate what they know and can do, early childhood professionals must consider appropriate adaptations and modifications, as necessary.

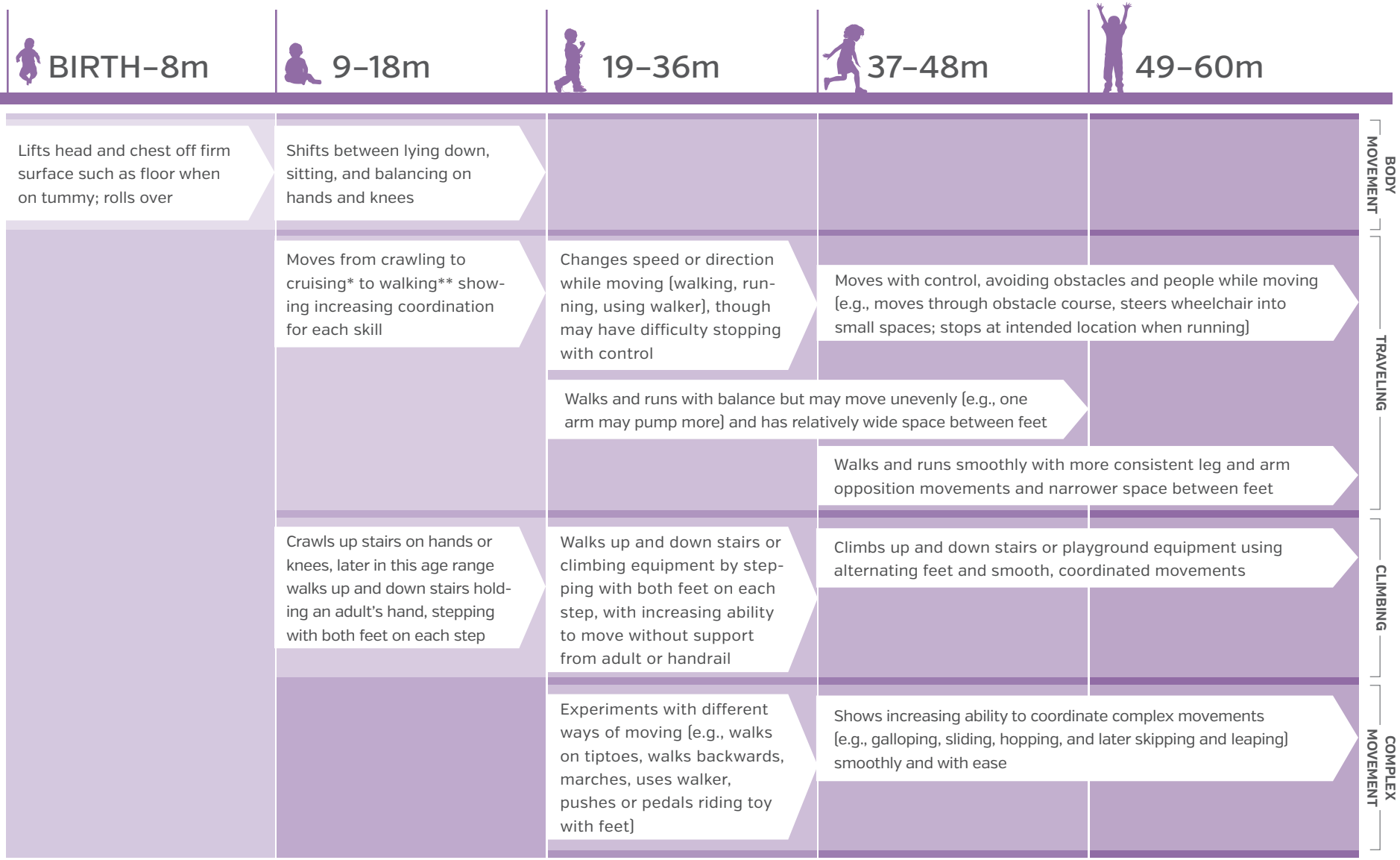
A key consideration in promoting physical development is the **safety** of the children involved in physical activities. Wearing the appropriate safety equipment during a physical activity, not swinging an object when others are close, and providing adequate space to allow children the ability to move without bumping into others are key elements of safety when engaging in physical activity. Early childhood professional should consult Arkansas's minimum licensing requirements or the Head Start program performance standards for the appropriate health and safety regulations. In addition, children should participate in getting out and putting away equipment to build a sense of community around the participation in physical activities.

Physical Development and Health: Key Takeaways

- Although physical development will largely happen on its own, there are ways in which early childhood professionals can encourage physical growth and coordination to help children play confidently, engage in fun physical activities, and develop a strong foundation for a healthy, active lifestyle that carries into adulthood.
- Early childhood professionals do not have to be athletic or trained in physical education to encourage and teach physical development and health–they just need to be knowledgeable about how to promote development in this important area.
- A key consideration in promoting physical development is the safety of the children involved in physical activities. Wearing the appropriate safety equipment during a physical activity, not swinging an object when others are close, or providing adequate space to allow children the ability to move without bumping into others are key safety elements when engaging in physical activity.

PH1. GROSS MOTOR

PH1.1 Demonstrates locomotor skills

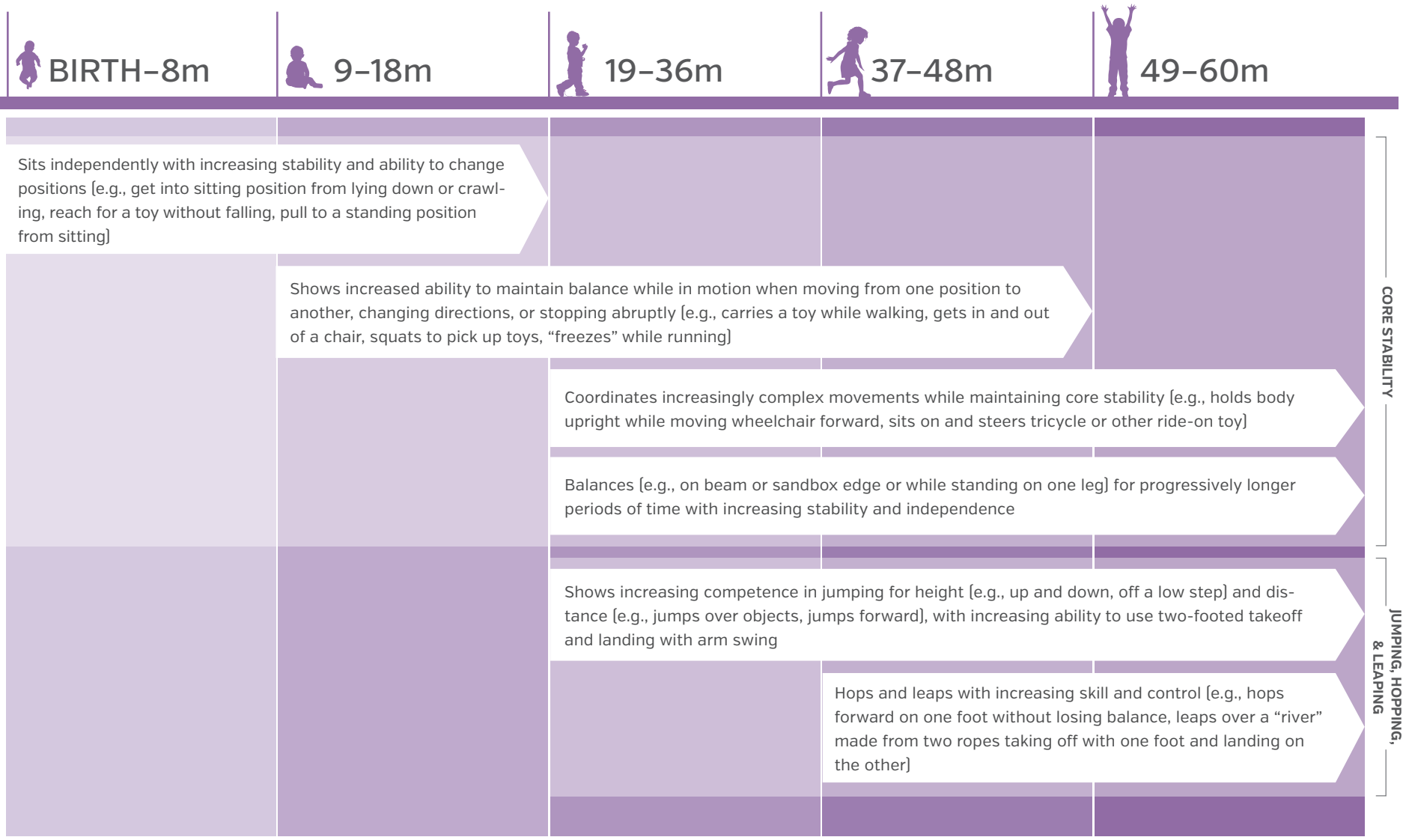


***cruising** = taking sliding steps while holding onto something for support. Some children progress from sideways cruising (e.g., taking sideways steps while holding on to furniture) to frontward cruising (e.g., taking steps forward with hands held by an adult or with one hand on furniture) whereas other children may move from sideways cruising directly to independent walking.

****There is large variability in meeting these milestones and some children may skip some milestones, revert to earlier ones, or display multiple milestones simultaneously. For example some children may never crawl and go straight to cruising or learn to crawl and cruise simultaneously.

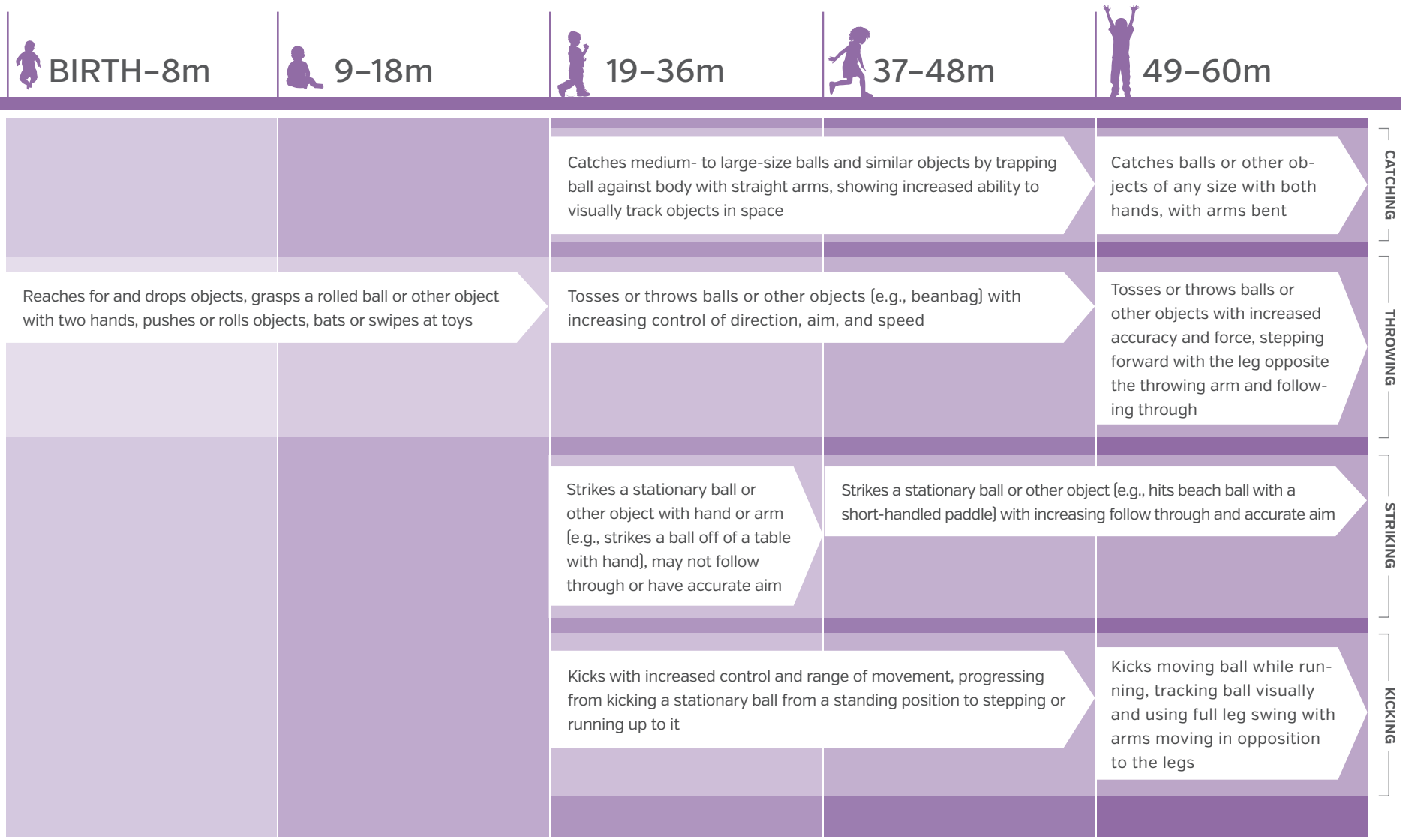
PH1. GROSS MOTOR

PH1.2 Shows stability and balance



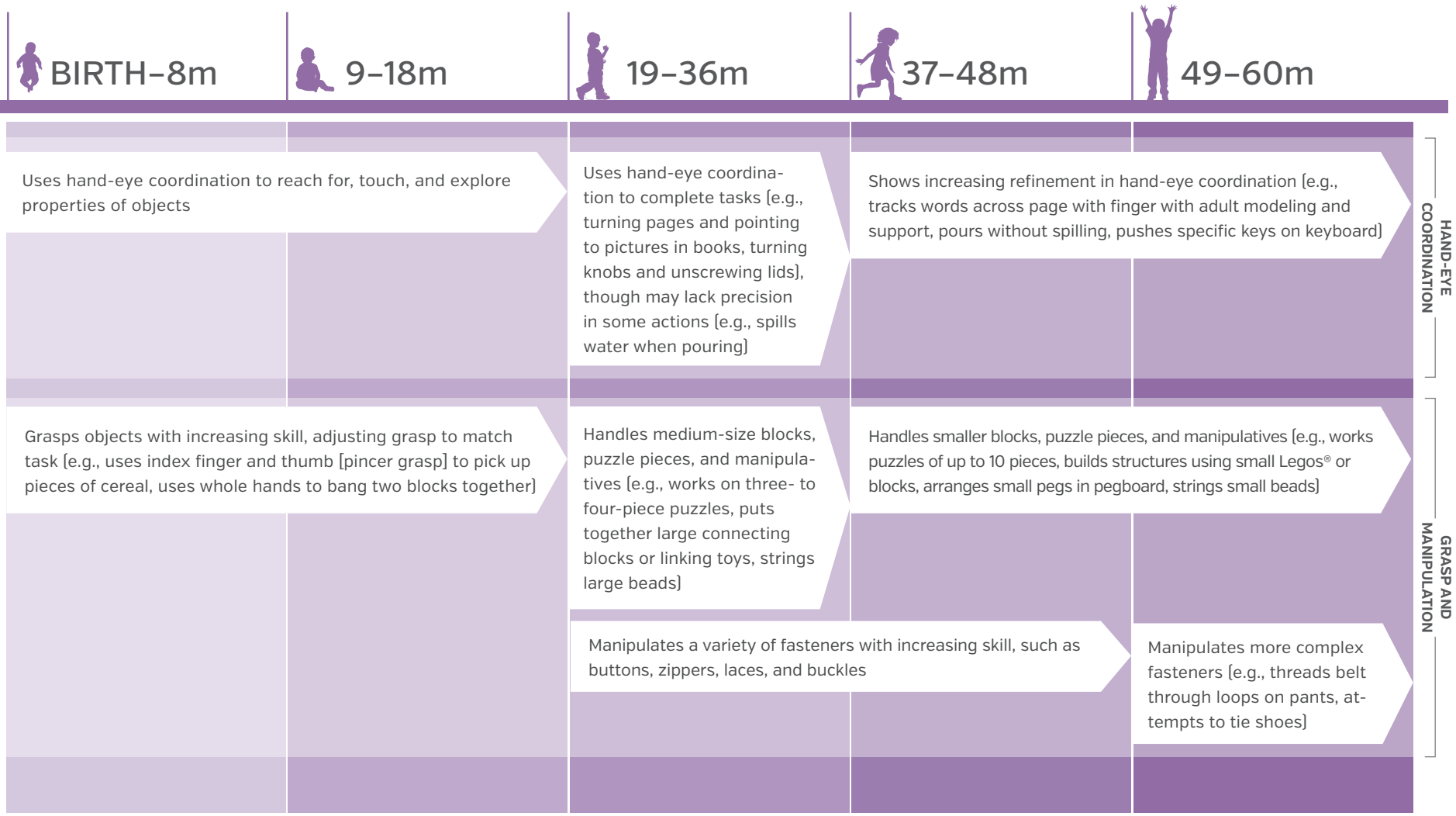
PH1. GROSS MOTOR

PH1.3 Demonstrates gross-motor manipulative skills



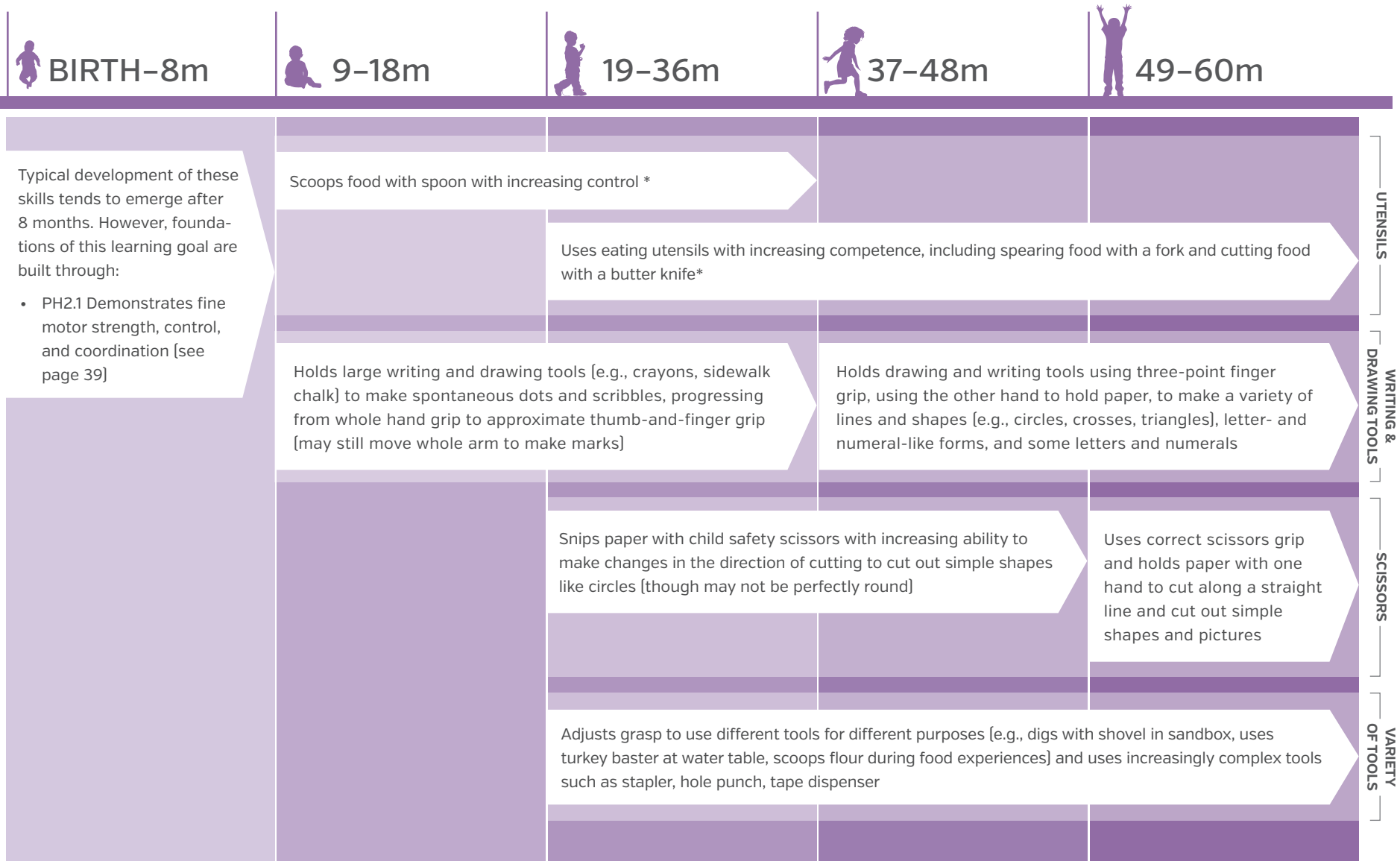
PH2. FINE MOTOR

PH2.1 Demonstrates fine-motor strength, control, and coordination



PH2. FINE MOTOR

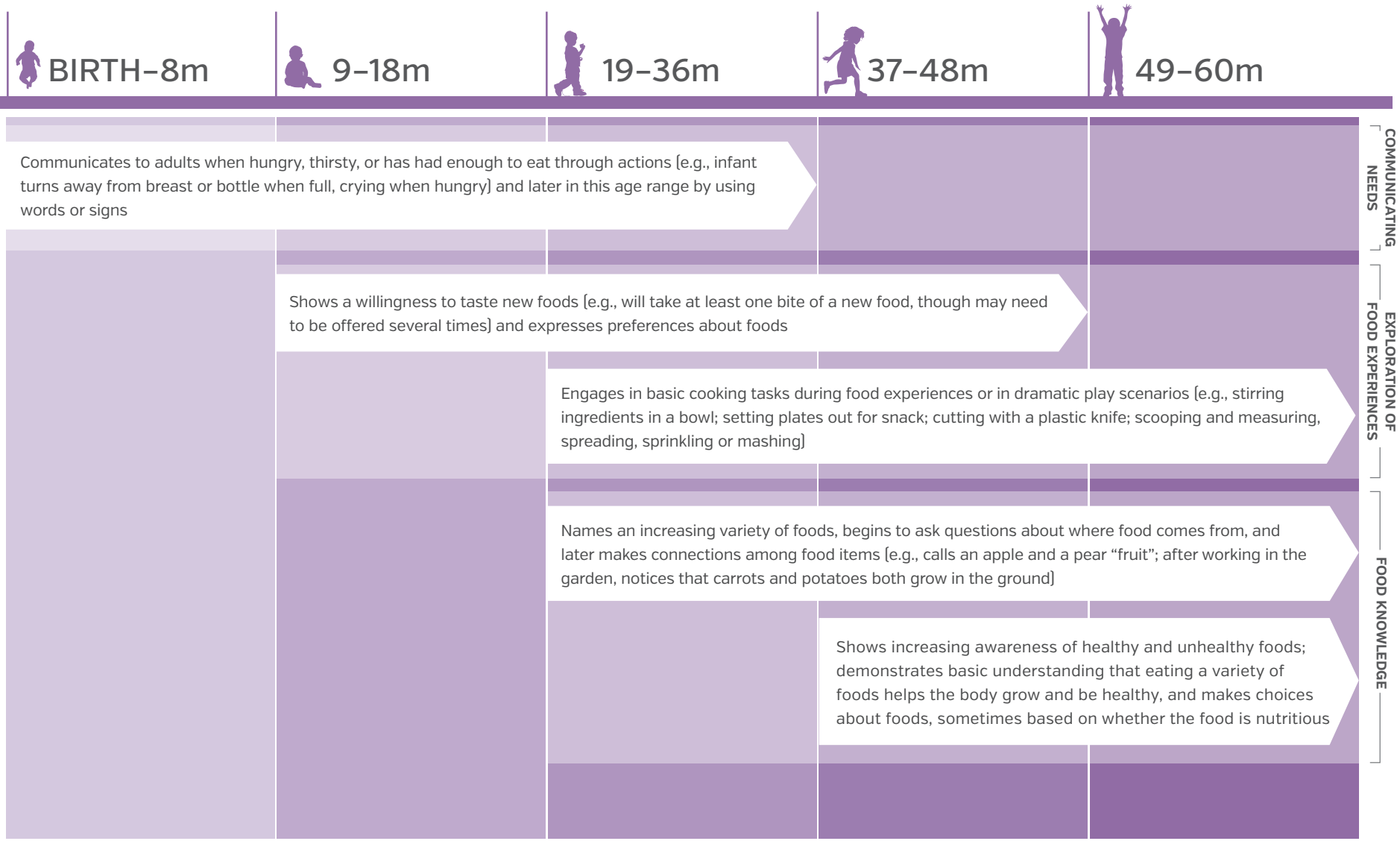
PH2.2 Adjusts grasp and coordinates movements to use tools



*Children may show variation in these skills based on whether early self-help skills are expected and taught in their family and culture and use of utensils may vary across cultures

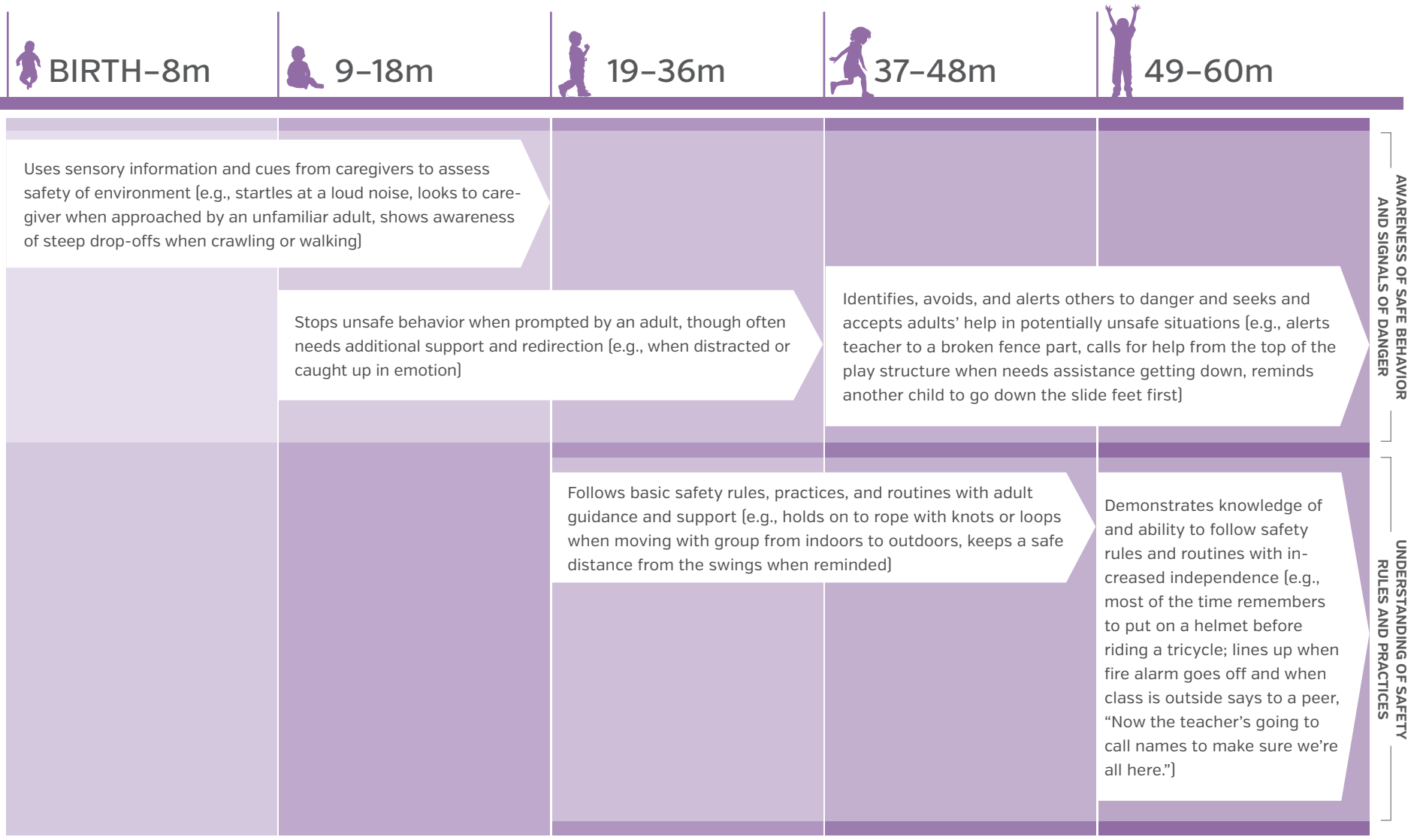
PH3. HEALTH AND WELL-BEING

PH3.1 Demonstrates interest in engaging in healthy eating habits and making nutritious food choices



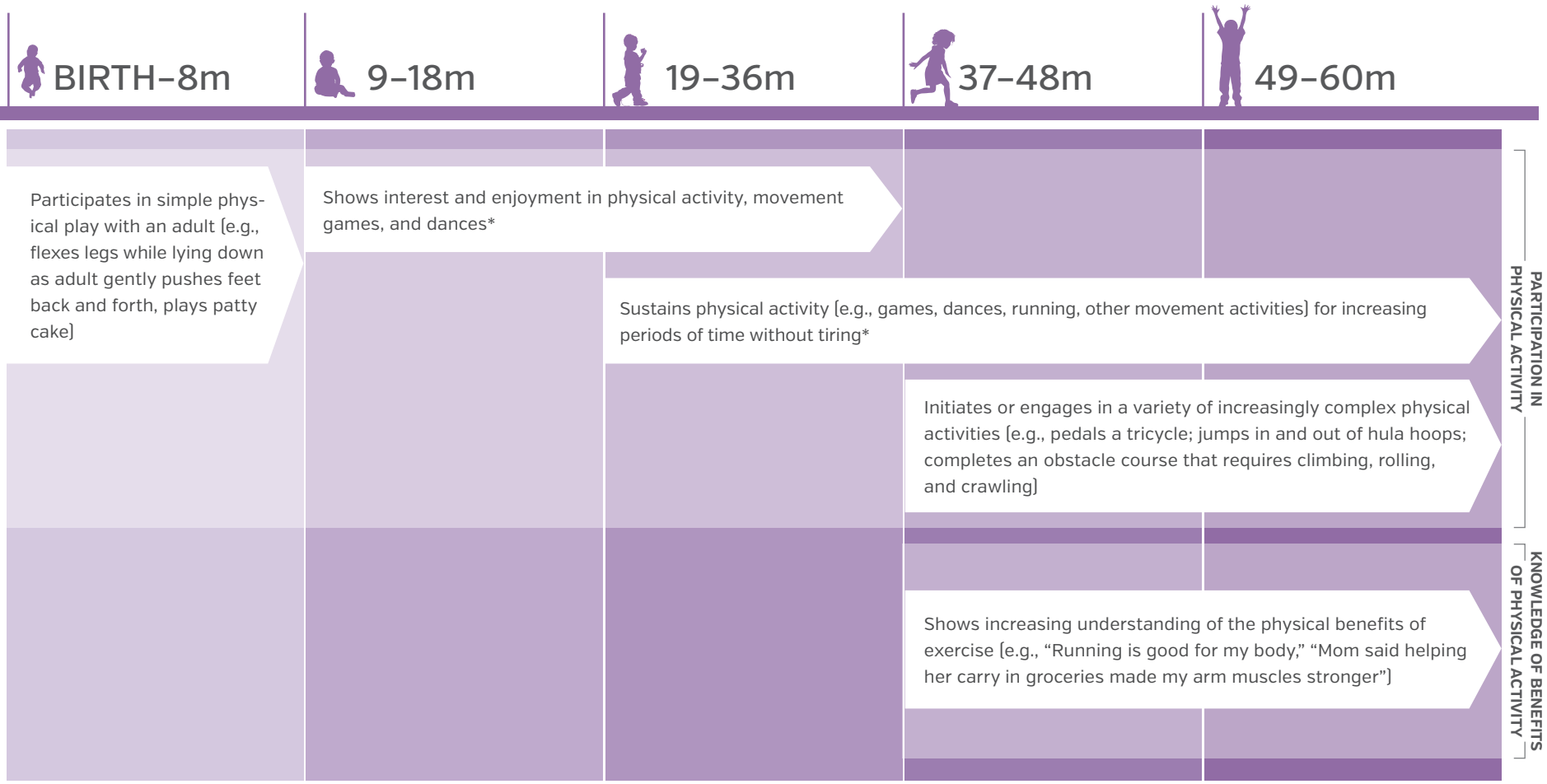
PH3. HEALTH AND WELL-BEING

PH3.2 Shows awareness of safe behavior



PH3. HEALTH AND WELL-BEING

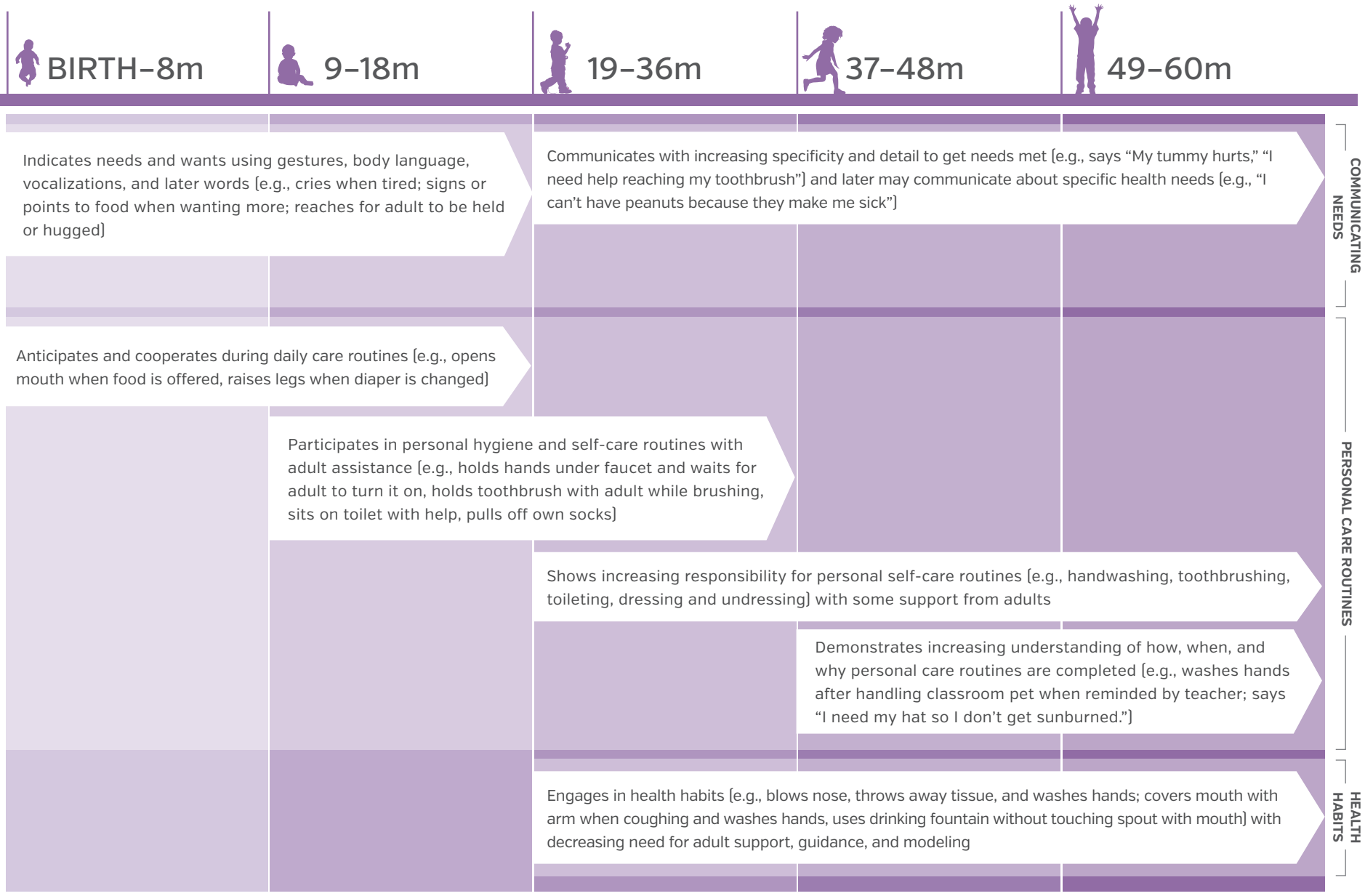
PH3.3 Engages in a variety of developmentally appropriate physical activities



* The National Association of Sport and Physical Education recommends that toddlers and preschoolers should engage in at least 60 minutes total (and up to several hours) of unstructured free play physical activity each day and should not be sedentary for more than 60 minutes at a time except when sleeping. In addition, preschoolers should engage in at least 60 minutes of structured play (physical activity in which an adult is providing activities, instruction, and feedback to help with skill development).

PH3. HEALTH AND WELL-BEING

PH3.4 Takes appropriate actions to meet basic needs*



*Children may show variation in these skills based on whether early self-help skills are expected and taught in their family and culture

Early childhood researchers refer to young children as linguistic geniuses.[1] From a very young age children have the capacity to learn language. Research shows that children are processing the sounds of language even before they are born and engage in an immense amount of language learning long before they learn to speak.[2] Children's language learning is largely driven by the language environment to which they are exposed. For example, at birth children can discriminate the sounds of any language, but this ability quickly becomes specific to the language or languages to which they are most exposed.[3] Furthermore, a child's "language nutrition"–the quantity and quality of language children experience–is as critical to a young child's brain development as healthy food is to physical growth. Unfortunately, too many children are "linguistically malnourished." For example, by age 3, children from lower income homes hear an estimated 30 million fewer words than their peers in higher income homes. Children also experience disparities in the quality of language exposure, in terms of the richness and variety of vocabulary words they hear, the types of questions that are asked of them that encourage thinking skills, and *encouraging* versus *discouraging* conversations ("What does that feel like?" versus "Don't touch that," for example).[4] However, research shows that high-quality, language-rich interactions in early childhood classrooms can have a profound impact on children's language abilities, and that these effects can overcome the word gap. Language is essential to all areas of development and learning.[5] It is important to social interaction, with skilled communicators more likely to demonstrate social competence, and is a key foundational component of a child's emergent literacy skills.

Areas of language development in the standards

The *Arkansas Child Development and Early Learning Standards* focus on three areas of language development for all children:

- **Receptive language** describes children's ability to understand and respond to language (in the child's home language). This includes their understanding of an increasingly large vocabulary of words and their ability to comprehend and follow directions.
- **Expressive language** refers to a child's speaking vocabulary, grammar and sentence structure, and clarity of communication.
- **Communication skills** outline a child's ability to hold conversations and understand the social rules of language. Even young babies engage in "conversations" by making sounds or faces back-and-forth with adults.

For children from families who speak a language other than English at home, the standards also include indicators for English Language Development. These standards focus on the development of a child's expressive, receptive, and communication skills in English as well as the development of receptive and expressive language **in the child's home language**. Since English language development depends on when a child is exposed to English and not the child's age, the indicators do not include age ranges. One 4-year-old child could have started learning English at the age of 1 while another may have just started, making age thresholds inappropriate. Instead, the developmental progressions capture "early stage," "mid-stage," and "late-stage" English language development regardless of age. It is also important to note that there is no set time for how long it will take a child to progress through these stages. Progress depends upon the unique characteristics of the child, his or her exposure to English, and other factors.

Potential warning signs of developmental delay

Early childhood professionals play a key role in the early identification of delays in language development. Although the standards have been developed with the understanding that children's language development will vary widely, there are signs that might indicate a developmental delay or behavioral issue. The Centers

[1]Kuhl, P. (2010) "The linguistic genius of babies." Ted talk. Retrieved from: https://www.ted.com/talks/patricia_kuhl_the_linguistic_genius_of_babies?language=en

[2]Moon, C., Lagercrantz, H., & Kuhl, P. K. (2013). Language experienced in utero affects vowel perception after birth: A two-country study. *Acta Paediatrica, 102*(2), 156 – 160.

[3]Kuhl, P. K. (2010). Brain mechanisms in early language acquisition. *Neuron*, *67*(5), 713–727.

[4]Hart, B. & Risley, T. R. (1995). Meaningful differences in the everyday experiences of young American children. Baltimore, MD: Brookes Publishing.

[5]Dickinson, D. K., & Porche, M. V. (2011). Relation between language experiences in preschool classrooms and children's kindergarten and fourth-grade language and reading abilities. *Child Development, 82*, 870–886.

for Disease Control and Prevention[6] recommend talking with a medical or early childhood specialist if:

By 9 months, a child doesn't babble ("mama," "baba," "dada") or doesn't respond to own name.

By 18 months, a child doesn't gain new words or doesn't have at least 6 words.

By 3 years old (36 months), a child doesn't speak in sentences or doesn't understand simple instructions.

By 4 years old (48 months), a child doesn't follow 3-part commands, doesn't understand "same" and "different," doesn't use "me" and "you" correctly, or doesn't speak clearly.

By 5 years old (60 months), a child can't give his first and last name, doesn't use plurals or past tense properly, or doesn't talk about daily activities or experiences.

The indicators above may not include all of the signs of a language delay. Early childhood professionals and parents know the young children in their care best. If there is a suspicion of a language delay, it is important to consult a medical or early childhood specialist.

Special considerations

Children will reach the language development indicators at different ages. Young children who live in poverty, lack stable relationships at home, live with drug- or alcohol-dependent caregivers, or who are exposed to other adverse conditions may progress more slowly and exhibit disparities in language development compared to their peers. These children may require more intense positive interactions and learning opportunities to support their language development.

Language learning is a key component of early development for all children. However, as the term *dual language learners* implies, some children are learning to speak their home language at the same time as they are learning a second language, such as English. For children from families who speak a language other than English at home, research indicates that the development of a child's home language supports English language development.[7,8] As such, it is important that early childhood professionals support and understand the progression of the child's home language even if they don't speak the language themselves. Early childhood professionals should attempt to obtain information about home language development from parents and caregivers through a qualified interpreter and encourage them to create language-rich environments at home. Early childhood programs can also support a child's home language by utilizing teaching assistants, volunteers, or other members of the community who may speak the child's home language to provide experiences in the early learning setting by reading books, telling stories, and singing songs in the child's home language.

Finally, language development may look different among children with disabilities. Children who are hearing-impaired may use gestures, symbols, pictures, or require extra support to communicate. Children with developmental delays may meet the language indicators at a different pace, and potentially in a different order than typically developing children. Children may meet indicators using sign language or assistive or adaptive technology.

Language Development: Key Takeaways

- Children are processing the sounds of language even before they are born and engage in an immense amount of language learning far before they learn to speak.
- For children who are dual language learners, the standards focus on the development of English as well as the development of a child's home language. The standards chart "early stage," "mid-stage," and "late-stage" English language development regardless of age.
- The development of a child's home language supports English language development. Early childhood professionals should to the best of their abilities support and understand the progression of the child's home language even if they don't speak the language themselves.

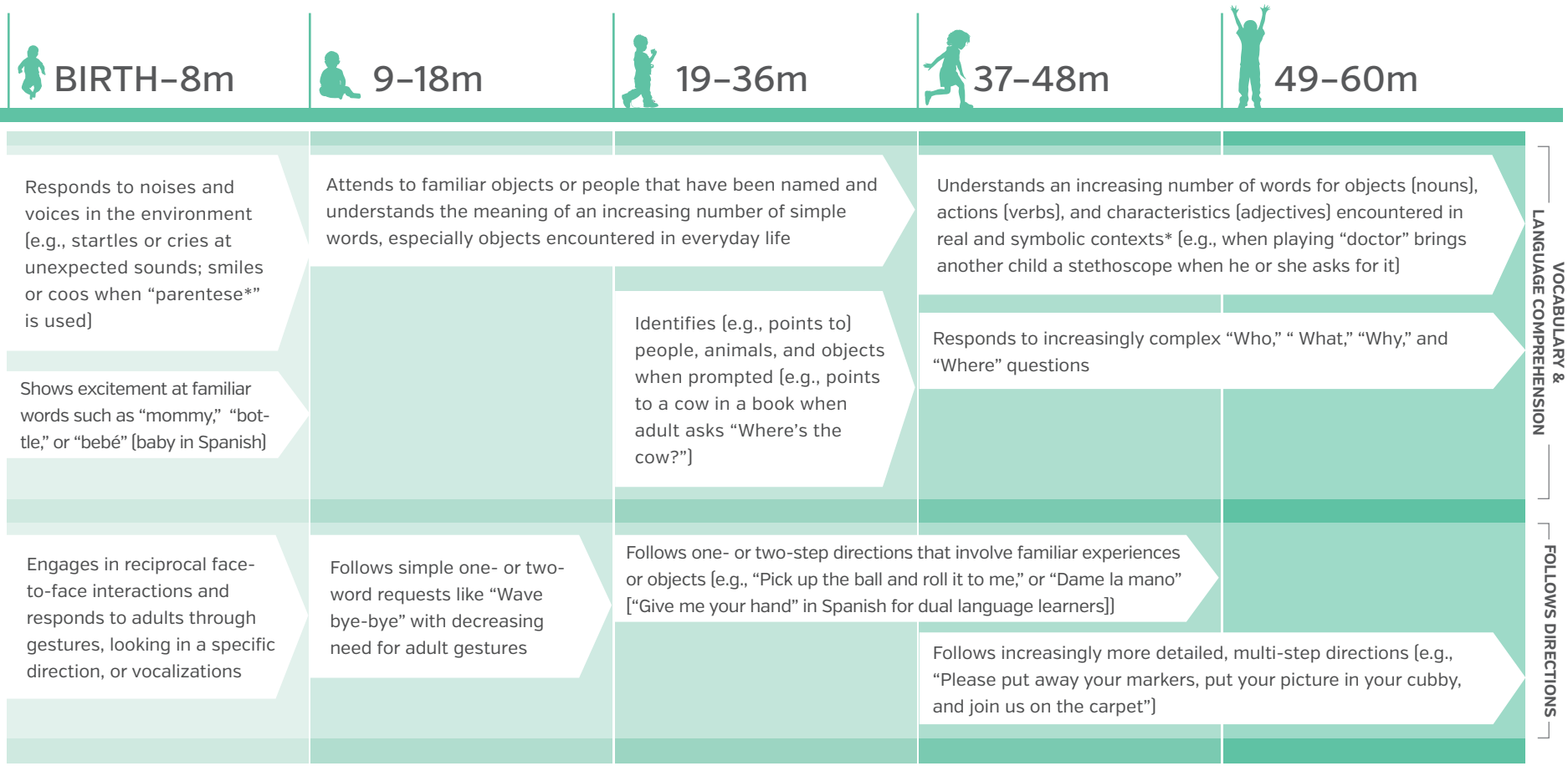
[6]Centers for Disease Control. (2009) *Learn the signs: Act early*. Atlanta, GA: Centers for Disease Control. Retrieved from: http://www.cdc.gov/ncbddd/actearly/pdf/checklists/all checklists.pdf

[7]Lindsey, K. A., Manis, F. R., & Bailey, C. E. (2003). Prediction of first-grade reading in Spanish-speaking English-language learners. *Journal of Educational Psychology, 95*(3), 482–494.

[8]Roberts, T. A. (2008). Home storybook reading in primary or second language with preschool children: Evidence of equal effectiveness for second-language vocabulary acquisition. *Reading Research Quarterly, 43(2),* 103–130.

LD1. RECEPTIVE LANGUAGE

LD1.1 Understands and responds to language (in child's home language)*



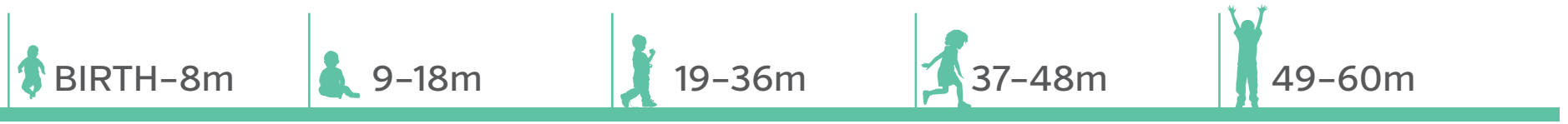
*A child's home language can include any language that the child is primarily exposed to at home, including languages such as Spanish, Marshallese, American Sign Language, etc.

***Parentese** = Commonly referred to as a "baby talk," and sometimes referred to as "motherese," it is a form of speaking used by adults in most cultures when speaking with very young children. When adults speak in parentese, they use real words but at a higher pitch, elongating words, and using longer pauses between words (e.g., "Wheeeeeere's baby? Heeeere you are!")

***Symbolic context** = environments other than the one that the child experiences in everyday life including those that are in books and created during dramatic play

LD2. EXPRESSIVE LANGUAGE

LD2.1 Uses increasingly complex vocabulary, grammar, and sentence structure (in child's home language)*



BIRTH–8m	9–18m	19–36m	37–48m	49–60m	
Experiments with making sounds (e.g., babbling), often repeating consonant sounds (e.g., da da and ba ba)	Begins to say a number of simple words (e.g., "nana," "go," "hi," and "leche" [milk in Spanish for dual language learners])	Begins to use two- and three-syllable words and names specific people, animals, and toys	Uses increasingly complex and varied vocabulary words to express needs and describe objects, relationships between objects, emotions, and actions		EXPRESSIVE VOCABULARY
	May combine two words to express a want or interest (e.g. says "go side" when wanting to go outside)	Begins to use plurals, past tense, subject-verb agreement, and the possessive form* although often incorrectly (e.g., "Mommy goed work")	Tells increasingly detailed stories about other times and places, with increasing accuracy in use of past and future tenses		GRAMMAR & SENTENCE STRUCTURE
		Increasingly combines simple words into sentence-like structures (e.g., "Me milk please") and when older, sentences (e.g., "Let's go to Grammy's house!" or "Léeme un cuento" ["Read me a story" in Spanish for dual language learners])	Uses increasingly longer (i.e., at least four to six word sentences) that are increasingly complex (i.e., combining two or three phrases* in a sentence)		
Uses vocalizations (e.g., cooing) and gestures to communicate needs, interests, and emotions	Uses a small number of real and made-up words that can be understood by familiar adults who speak the same language	Speaks or signs clearly enough most of the time that unfamiliar adults who speak the same language can understand; still mispronounces many words (e.g., says "buhsghetti" for spaghetti)	Communicates clearly enough to be understood by most people and will usually only mispronounce new and/or unusual words		CLARITY OF COMMUNICATION

*A child's home language can include any language that the child is primarily exposed to at home, including languages such as Spanish, Marshallese, American Sign Language, etc.

***Possessive form** = words that are used for showing possession like "mine," "yours," "hers," and "theirs."

***Phrase =** a group of words that do not express a complete thought (e.g., 'the car' and 'is going fast' are both phrases in the sentence 'The car is going fast')

LD3. COMMUNICATION SKILLS

LD3.1 Communicates using social and conversational rules

***Joint attention** = the shared focus on an object by two individuals

****Conversational exchanges** = Each exchange is a "turn" taken by someone participating in a conversation. Here is an example of a conversation with five conversational turns: (1) *Child*: "Look at the castle I made!" (2) *Teacher*: That's a big castle! Who lives there? (3) *Child*: Only cats. One hundred cats live in the castle. (4) *Teacher*: One hundred cats. I wonder what they all eat. (5) *Child*: There's a cook that makes them fish and chicken cookies every day.

*****Social rules of language** = making eye contact while speaking, taking turns in conversation, keeping an appropriate distance from the conversational partner, speaking with appropriate voice volume for the context, etc. It should be noted that conversational rules can vary by culture. For example, in some cultures, it is not appropriate to make eye contact during conversation. Cultural norms regarding volume of speech and physical proximity and contact between conversational partners may also vary.

LD4. ENGLISH LANGUAGE DEVELOPMENT

LD4.1 Demonstrates progress in attending to, understanding, and responding to English

EARLY-STAGE ENGLISH LANGUAGE DEVELOPMENT*	MID-STAGE ENGLISH LANGUAGE DEVELOPMENT	LATE-STAGE ENGLISH LANGUAGE DEVELOPMENT	
Responds to simple, commonly used words and phrases when accompanied by gestures and other supports			ENGLISH LANGUAGE DEVELOPMENT
Pays attention to and observes other children and adults as English is spoken	Responds to words, phrases, and directions in English when they are not accompanied by gestures or other visual aids		
Attends to English in small- and large-group activities, such as circle time, storybook reading, etc.	Demonstrates an understanding of English words related to basic concepts (e.g., colors, some animal classifications, foods, etc.)	Demonstrates an understanding of a larger set of words in English (for objects and actions, personal pronouns, and possessives) in both real and pretend activities	
Imitates behaviors of other children to get the same result (e.g. sees child make the sign for “me too” in sign language and makes the same sign)	Responds appropriately to requests in English that involve one-step directions (e.g., “clean up”) when personally directed by others (these requests may occur with or without contextual cues)	Demonstrates an understanding of words in English related to more advanced concepts (e.g., abstract emotions and ideas)	
		Follows directions that involve a one- or two-step sequence, relying less on contextual cues	
Continues to make developmentally appropriate progress in receptive language skills in home language, including increasing ability to comprehend and respond to directions in home language			HOME LANGUAGE DEVELOPMENT

*Unlike the other developmental progressions outlined for other learning goals, English Language Development is not dependent on a child’s age, but on a child’s exposure to English. For example, a four-year-old who has recently immigrated to the United State is likely to have less command of the English language than a three-year-old who immigrated when he or she was one. As such, the progression of English Language Development is defined by stages of development rather than by what should occur within a certain age range.

LD4. ENGLISH LANGUAGE DEVELOPMENT

LD4.2 Demonstrates progress in speaking and expressing self in English

EARLY-STAGE ENGLISH LANGUAGE DEVELOPMENT	MID-STAGE ENGLISH LANGUAGE DEVELOPMENT	LATE-STAGE ENGLISH LANGUAGE DEVELOPMENT
Relies on nonverbal communication, such as gestures or behaviors, to seek attention, request objects, or initiate a response from others	Combines nonverbal with some verbal communication to be understood by others	Demonstrates increasing reliance on verbal communication in English to be understood by others while still making some mistakes
Repeats sounds and words in English	Engages in codeswitching* during conversations	Uses new English vocabulary to share knowledge of concepts, including conversational and academic vocabulary
	Uses telegraphic speech**	Sustains a conversation in English with increasingly complex syntax, adding conjunctions, adjectives, adverbs, subject-verb-object patterns, and other more advanced elements of English sentence construction
	Uses formulaic speech (expressions that are learned whole, e.g., "I don't know")	Expands use of different forms of grammar in English (e.g., plurals; possessive pronouns; simple past-tense verbs), sometimes with errors
	Uses English vocabulary that mainly consists of concrete nouns and some verbs and pronouns	Uses "what," "why," "how," "when," and "where" questions in more complete forms in English, sometimes with mistakes
	Converses with others in English using two or three words at a time but switches back and forth between English and their home language	
	Uses some English grammatical markers (e.g., "-ing" or the plural-forming "-s") and applies at times the rules of grammar of the home language to English	
	Uses "what" and "why" questions in English, sometimes with errors	

ENGLISH LANGUAGE DEVELOPMENT

HOME LANGUAGE DEVELOPMENT
Uses age-appropriate vocabulary and grammar in the home language
Listens to and converses in age appropriate way in home language
Asks a variety of age-appropriate questions (e.g., "what," "why," "how," "when," and "where") in home language

* **Codeswitching** = the act of switching back and forth between English and the child's home language. Children often insert a home language word into an English sentence to get the point across when they don't know the word in English.

****Telegraphic speech** = two-word phrases rather than full sentences, such as "want food"

The most important predictor of high school graduation is a child's ability to read by the third grade.[1] Yet, by age 3, there are already dramatic differences in the development of emergent literacy skills between children from low- and higher-income families. It is very difficult for a child who starts behind to catch up after entering school.[2] These facts make achieving the goal of reading by the third grade more challenging for children from low-income families.

Emergent literacy is important for future development and learning. Emergent literacy skills are the foundation for later reading and writing, which support all academic progress in school. Early childhood professionals in Arkansas must use the years before a child enters school to build the foundation for literacy in a developmentally appropriate way. Developing this foundation begins at birth with later emergent literacy skills building on skills acquired in the very earliest years of life.

Areas of emergent literacy development in the standards

The *Arkansas Child Development and Early Learning Standards* focus on three areas of emergent literacy:

- **Engagement in literacy experiences and understanding of stories and books** outlines a child's growing level of engagement and interest with books and literacy experiences, as well as the child's ability to comprehend information from stories and books.
- **Phonological awareness** focuses on the ways in which children explore, play and manipulate the sounds of language.
- **Knowledge and use of books, print, and letters** charts the development of a child's understand of letters, letter sounds, print concepts and book features, as well as early writing skills.

Potential warning signs of reading difficulties or delay

Early childhood professionals play a key role in the early identification of delays in emergent literacy. Although the standards have been developed with the understanding that children's development and learning vary widely, there are signs to watch for that might indicate a developmental delay or future reading difficulties. The Centers for Disease Control and Prevention[3] recommend talking with a medical or early childhood specialist if:

By 9 months, a child doesn't babble ("mama," "baba," "dada"), doesn't play any games involving back-and-forth interaction, doesn't respond to own name or doesn't look where you point.

By 18 months, a child doesn't gain new words or doesn't have at least 6 words.

By 3 years old (36 months), a child drools, has very unclear speech, doesn't speak in sentences, or doesn't understand simple instructions.

By 4 years old (48 months), a child has trouble scribbling, can't retell a favorite story, doesn't follow 3-part commands, doesn't understand "same" and "different" or "he" and "she", doesn't use "me" and "you" correctly, or speaks unclearly.

By 5 years old (60 months), a child can't give his or her first and last name, doesn't use plurals or past tense properly, or doesn't talk about daily activities or experiences.

The indicators above may not include all of the signs of a delay in emergent literacy. Other signs that may indicate the risk of future reading difficulties in school include:

- For older preschool children (4–5 years old), difficulty with rhyming games, learning the alphabet, associating the appropriate sounds with letters, or delayed or impaired speech.

[1]The Annie E. Casey Foundation. (2012). *Double jeopardy: How third-grade reading skills and poverty influence school graduation.* Baltimore, MD Retrieved from http://www.aecf.org/m/resourcedoc/AECF-DoubleJeopardy-2012-Full.pdf.

[2]See, for example, National Early Literacy Panel. (2008). *Developing early literacy; Report of the national early literacy panel.* Washington DC: National Institute for Literacy and National Center on Family Literacy.

[3]Centers for Disease Control. (2009) *Learn the signs: Act early*. Atlanta, GA: Centers for Disease Control. Retrieved from: http://www.cdc.gov/ncbddd/actearly/pdf/checklists/all checklists.pdf

- For children 5-years-old, not recognizing letters of the alphabet; or
- For all children, being from families who have a history of learning disabilities with speech, language, spelling, or reading.[4]

Early childhood professionals and parents know the children in their care best. If there is a suspicion of a developmental delay or risk of future reading difficulties, it is important to consult a medical or early childhood specialist.

Special considerations

Typically, children will reach the emergent literacy indicators at different ages. However, the development of children's emergent literacy skills depends on their exposure to and engagement in literacy learning opportunities both at home and in early learning settings. There is great variability in children's exposure to early literacy learning opportunities based on socioeconomic and cultural differences that contribute to differences in children's understanding and use of literacy skills even by age 3. For example, reading aloud appears to be one of the most important experiences for building children's emergent literacy skills. However, children from middle-class families are typically read to for about 1,000 hours before beginning kindergarten whereas children from families who live in poverty are read to for only about 25 hours.[5] Additionally, a family's beliefs about literacy and schooling may affect children's exposure to literacy experiences at home. For instance, within some cultures many parents believe that literacy is something that develops from formal schooling after age 5. These parents often do not see themselves as teachers of literacy or think it not necessary to read aloud to children under age 3.[6] Understanding different cultural models of literacy may be especially helpful for early childhood professionals as they work to create home–school partnerships.

Early childhood professionals must ensure that young children with disabilities can fully participate in early literacy learning activities. Children with disabilities may require adaptations both to engage in early literacy activities and to demonstrate their emergent literacy skills.

Emergent Literacy: Key Takeaways

- By the time children turn 3, there are already dramatic differences in the development of emergent literacy skills, making the goal of reading by third grade more challenging for some children than others.
- Developing the foundation of emergent literacy begins at birth with later emergent literacy skills building on skills acquired in the very earliest years of life.
- Children from socioeconomically and culturally diverse families have different levels of exposure to literacy experiences at home. It is important for Arkansas's early childhood professionals to understand different cultural models of literacy and create home–school partnerships that support the development of emergent literacy skills in the home.

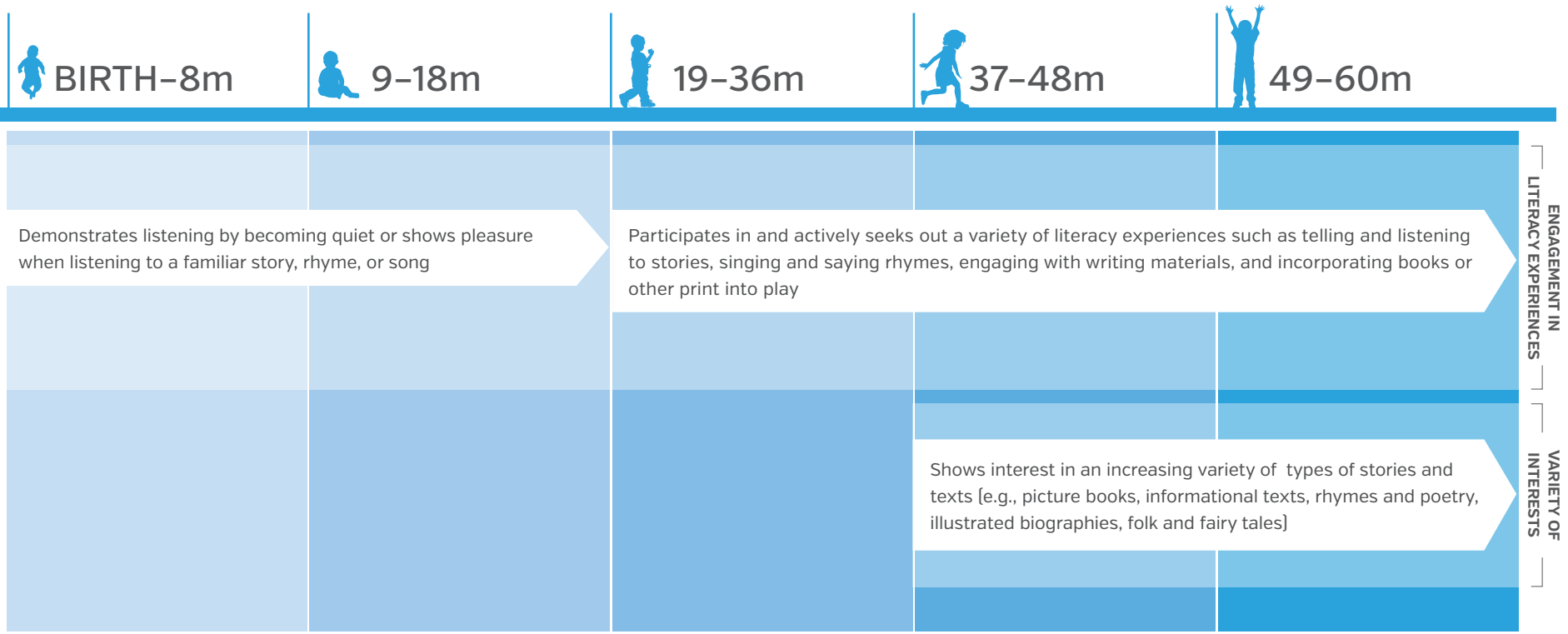
[4]Shaywitz, S.E. (1998). "Dyslexia". *New England Journal of Medicinne, 98*(338), 307–12.

[5]Berk, L. E. (2006). Looking at kindergarten children. In D. F. Gullo (Ed.), *K today: Teaching and learning in the kindergarten year* (pp. 11–25). Washington, DC: National Association for the Education of Young Children.

[6]Reese, L., & Gallimore, R. (2000). "Immigrant Latinos' cultural model of literacy development: An evolving perspective on home-school discontinuities." *American Journal of Education, 108*(2), 103-134.

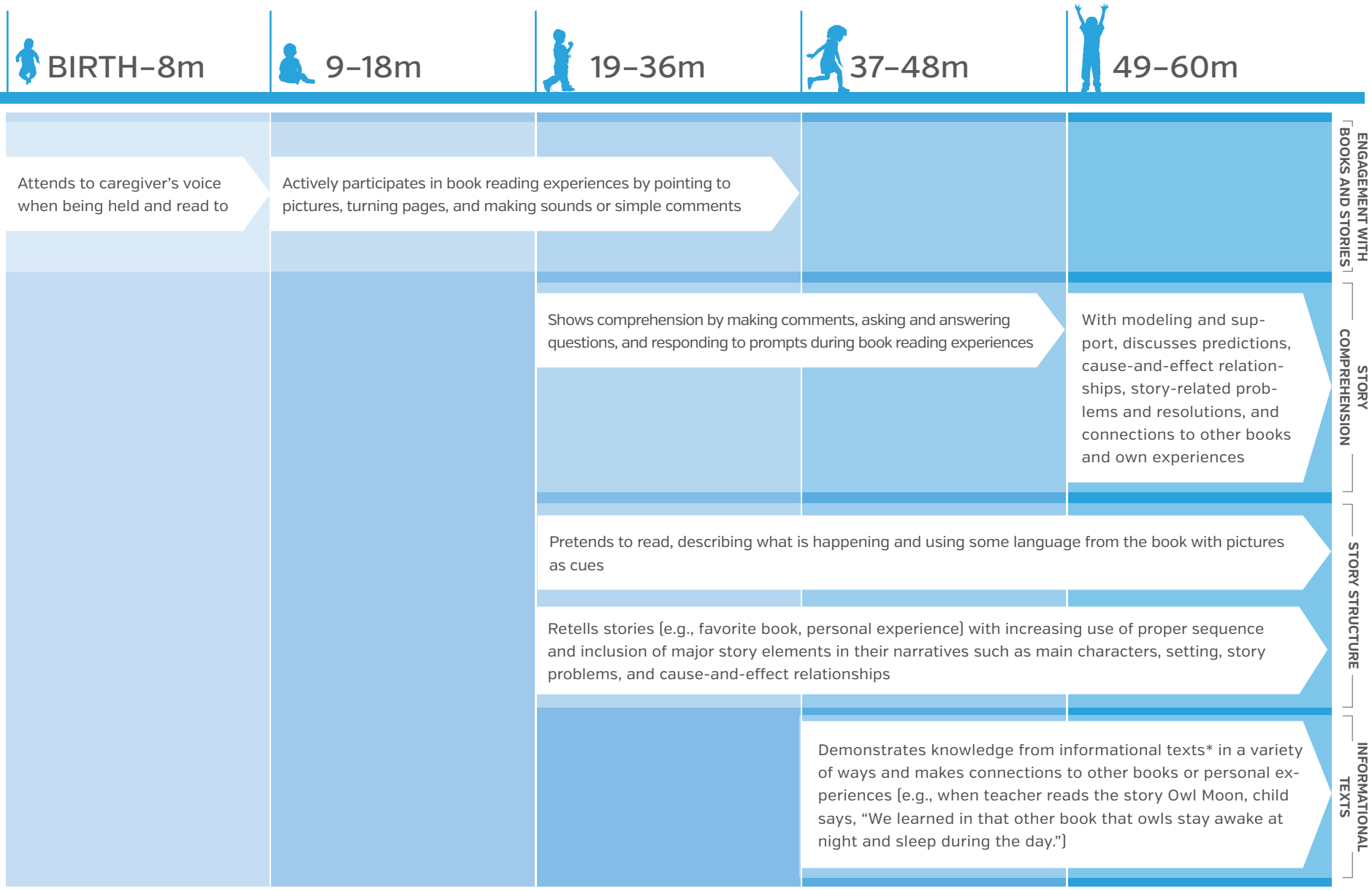
EL1. ENGAGEMENT IN LITERACY EXPERIENCES AND UNDERSTANDING OF STORIES AND BOOKS

EL1.1 Shows interest in literacy experiences



EL1. ENGAGEMENT IN LITERACY EXPERIENCES AND UNDERSTANDING OF STORIES AND BOOKS

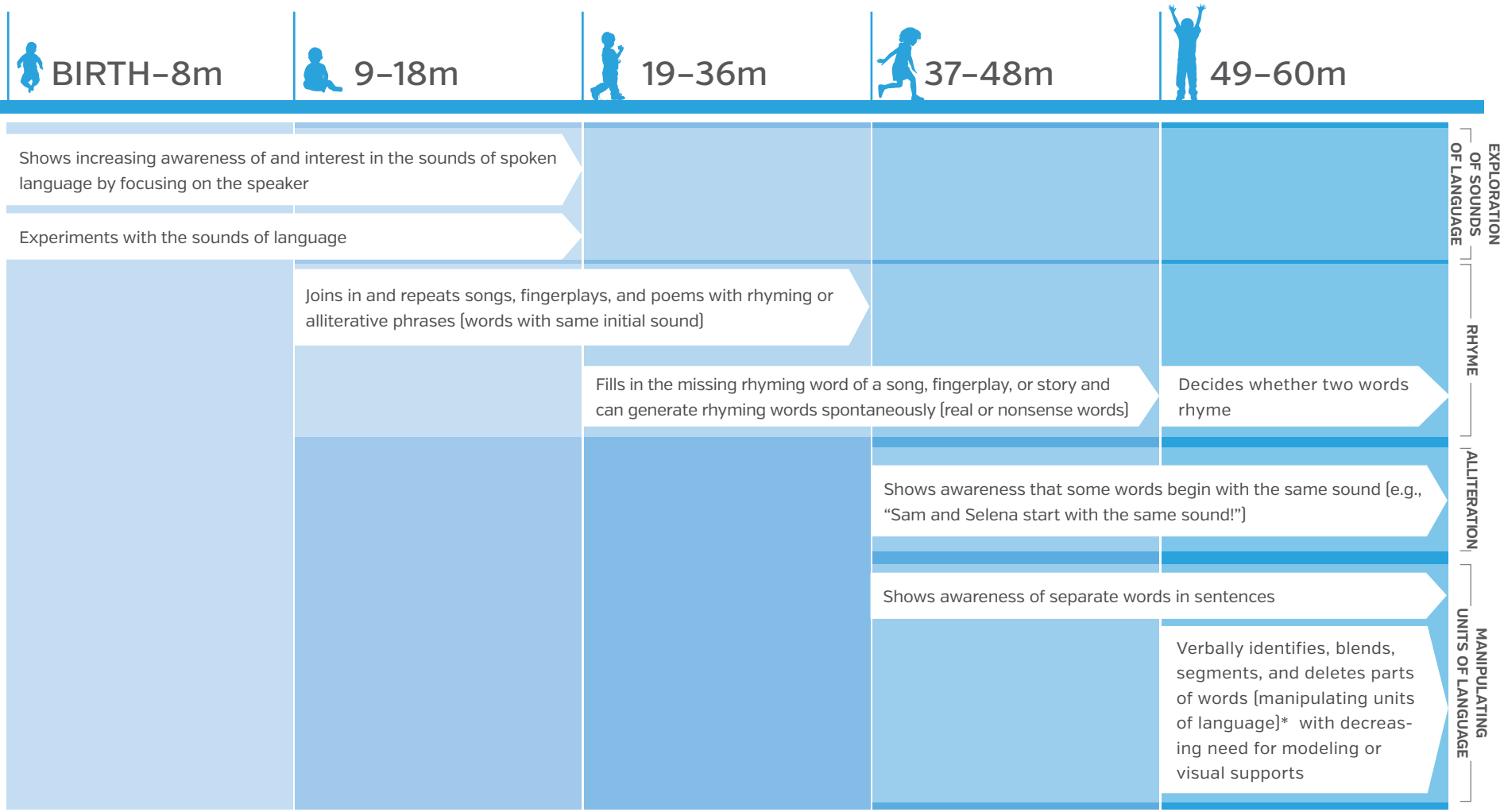
EL1.2 Engages in read-alouds and conversations about books and stories



Informational text = type of non-fiction that uses both text and illustrations to convey meaning about the natural and social world, provide facts, and explain processes. Illustrations in these texts are realistic and can include photographs, diagrams, charts, graphs, labels and captions.

EL2. PHONOLOGICAL AWARENESS

EL2.1 Notices and manipulates the sounds of language



*Children learn to manipulate units of language (e.g., words within compound words, syllables) in different ways, progressing from easier to more difficult manipulation tasks (in an overlapping sequence rather than by mastering one level before the next):

Identifying = e.g., counts or claps syllables in classmates' names

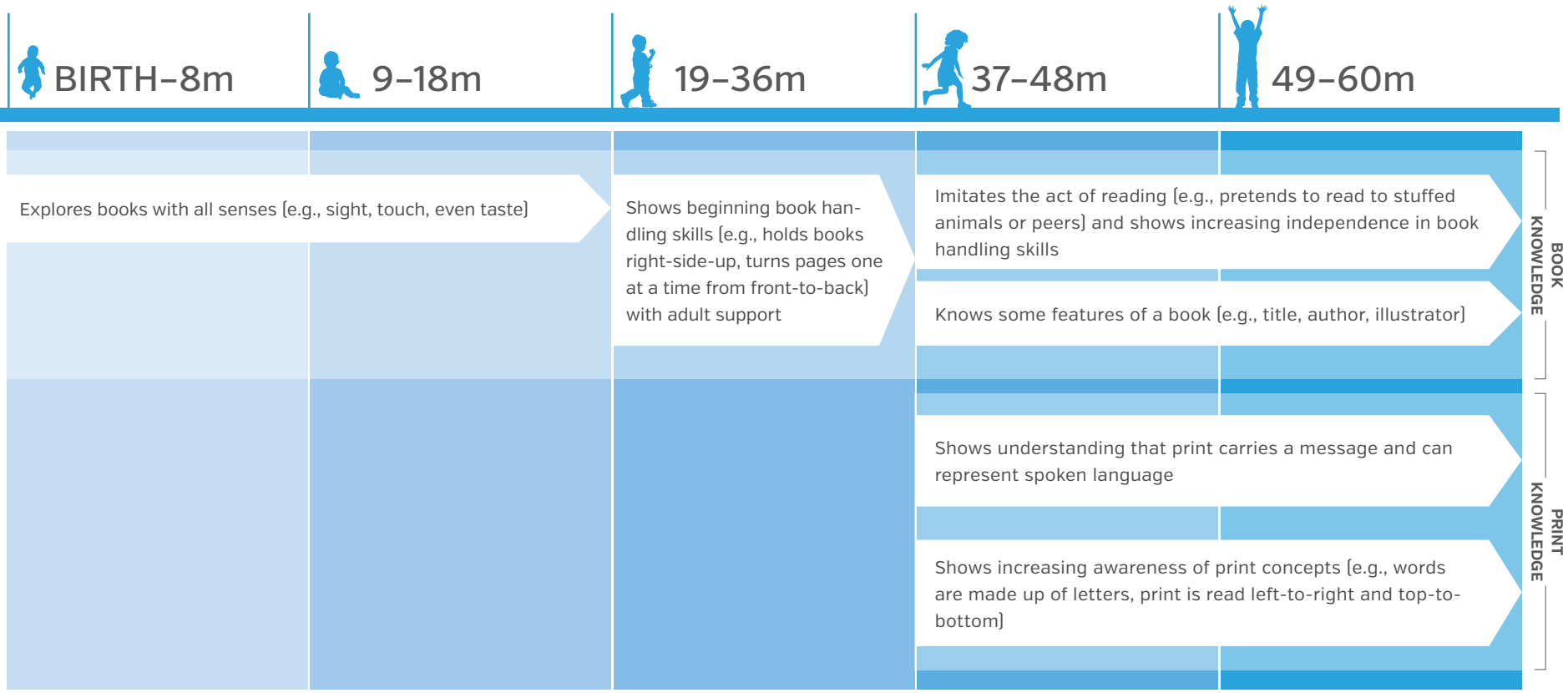
Blending = e.g., says *lavaplatos* (*dishwasher* in Spanish) when asked what word you get when you put *lava (wash)* and *platos (dishes)* together; puts together *com-pu-ter* and says *computer*

Segmenting = e.g., finds pictures of a cama (bed in Spanish) and a león (lion in Spanish) when asked what two words make camaleon (chameleon in Spanish); says *pen-* and *-cil* when asked to take apart the word pencil

Deleting = e.g., points to picture of a cup when asked "What's *cupcake* without *cake*?"; says no when asked, "What's *mono* (*monkey* in Spanish) without *mo-*?"

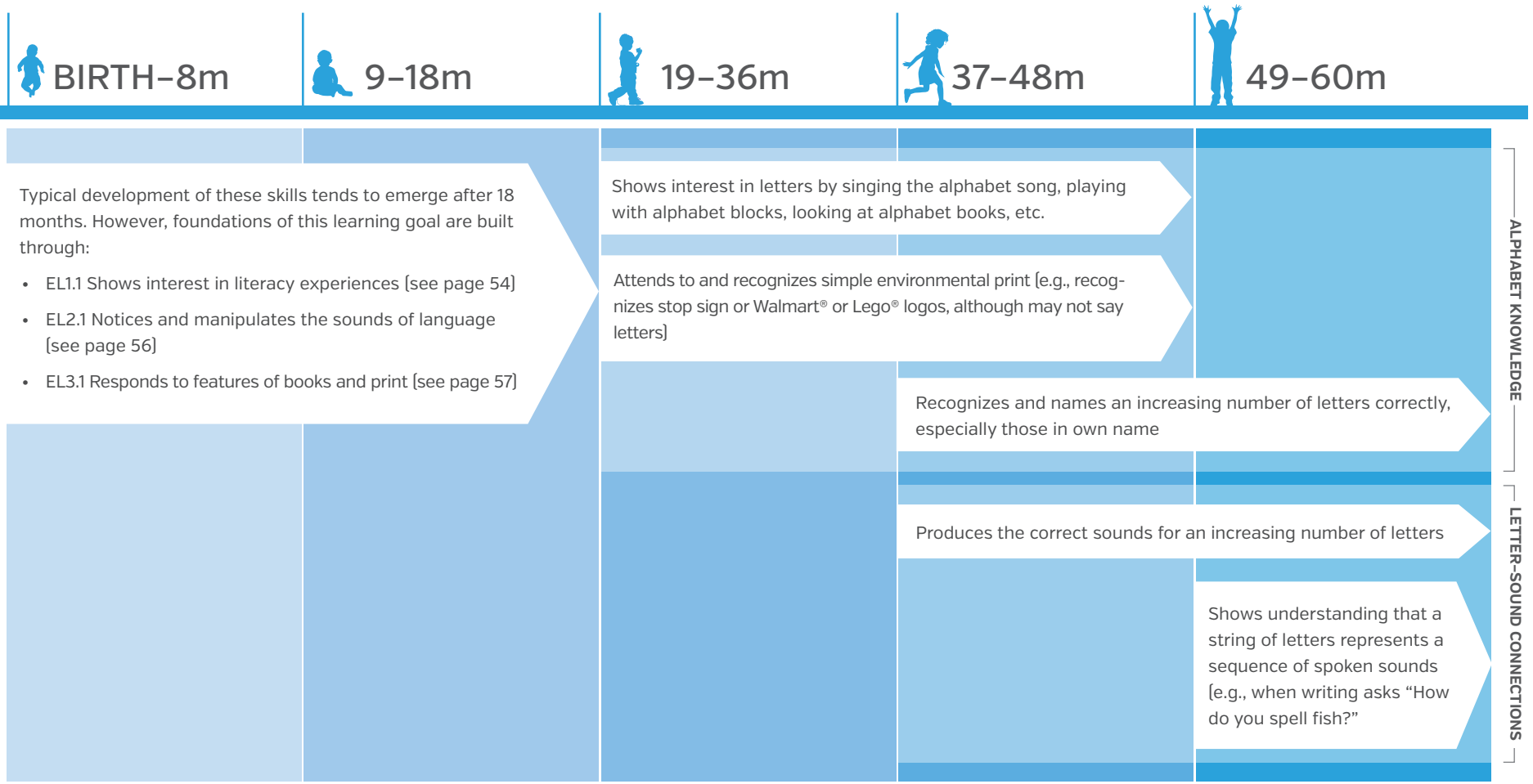
EL3. KNOWLEDGE AND USE OF BOOKS, PRINT, AND LETTERS

EL3.1 Responds to features of books and print



EL3. KNOWLEDGE AND USE OF BOOKS, PRINT, AND LETTERS

EL3.2 Shows knowledge of the shapes, names, and sounds of letters

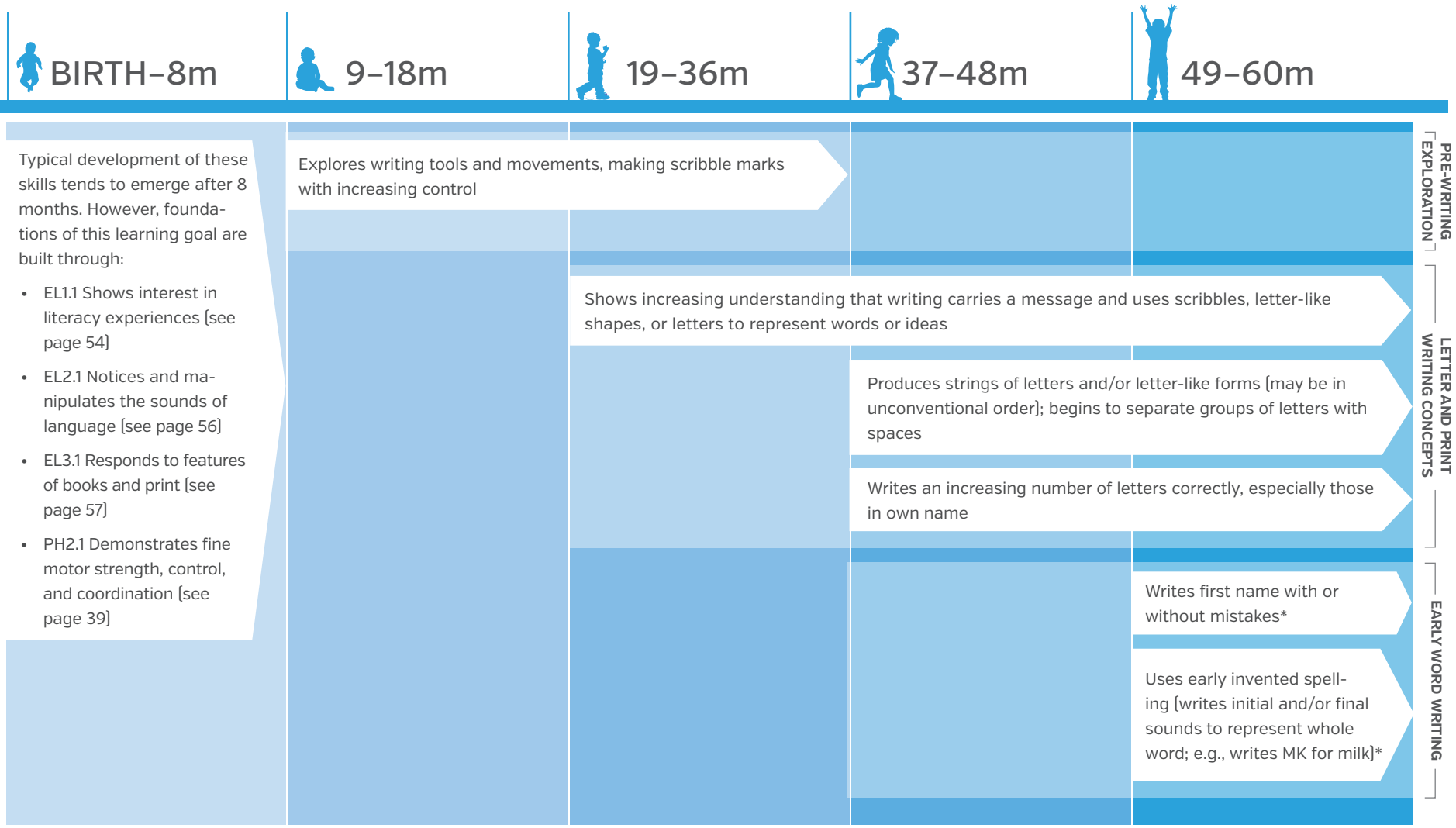


*When learning letter names, children tend to learn uppercase letters before lowercase. When they learn lowercase, they most quickly learn names of letters they already know in the uppercase. Children also learn the letters in their own name more quickly than other letters.

Children have an easier time learning the sounds for letters when the letter name provides a "clue" to the sound. For example, learning that the letter B ("bee") makes the sound /b/ is easier than learning that F ("eff") makes the sound /f/. Children also have more difficulty with letter–sound connections for letters that represent more than one sound (e.g., the letter C can make the /s/ sound as in city as well as the /k/ sound as in cat.

EL3. KNOWLEDGE AND USE OF BOOKS, PRINT, AND LETTERS

EL3.3 Demonstrates emergent writing skills



* May still include letter-like forms, write letters backward, exclude letters or switch their order, and/or may not always write left to right

Young children love to think mathematically. They enjoy building block towers, comparing quantities, and creating patterns. Children have an inherent interest in mathematics and can learn mathematical concepts at a very young age. The years before a child enters school are called the "years of promise" for mathematics because they are particularly important for mathematics development.[1] Children who demonstrate strong prekindergarten math skills are more advanced in mathematics achievement in 10th grade.[2] Furthermore, the complexity of children's block play in preschool has been linked to future success in junior high and high school, predicting the number of mathematics courses taken, the number of honors classes taken, the grades received in mathematics, and mathematics achievement scores.[3] Children's mathematical abilities as they enter kindergarten predict their mathematics achievement throughout school and are even related to later reading achievement.[4]

A child's capacity for learning and understanding mathematical content is often underestimated.[5,6] Research suggests that children are in fact capable of more mathematics learning than is typically encouraged in early education settings.[7] Beginning at birth, children use their everyday experiences to construct a variety of fundamental mathematical concepts and strategies. Children even as young as 3-months have an informal understanding of quantity.[8] By the time children are between 2 and 3 years of age, they are beginning to solve non-verbal calculations, and by age 3 or 4, children demonstrate many skills such as enumeration, number relations, counting, and informal addition and subtraction.[9]

All of Arkansas's early childhood professionals, whether or not they feel skilled in math, can be great teachers of early mathematical concepts. A term like *algebraic thinking* in early childhood simply means that a child can recognize patterns and sort objects–two important foundational skills that prepare children for more advanced concepts. Early childhood professionals can introduce mathematical concepts, methods, and language through a range of developmentally appropriate experiences and teaching strategies. Counting with children, using comparison vocabulary (e.g., more, less, same as), telling stories (e.g., *Ten Black Dots*[10]), and singing songs that involve number problems (e.g., *Five Little Monkeys*) all promote early mathematical development. Early childhood professionals must provide opportunities for active exploration and discovery to support mathematical thinking for a child's school readiness and later success.

Areas of mathematical thinking in the standards

The *Arkansas Child Development and Early Learning Standards* focus on four areas of mathematical thinking:

- **Demonstrates number sense and an understanding of quantity** outlines a child's increasing knowledge of numbers and counting, the ability to compare

[1]Clements, D. H., & Sarama, J. (2014). *Learning and teaching early math: The learning trajectories approach* (2nd ed.). New York, NY: Routledge.

[2]Stevenson, H., & Newman, R. (1986). Long-term prediction of achievement and attitudes in mathematics and reading. *Child Development* , *57*, 646-59.

[3]Wolfgang, C., Stannard, L., & Jones, I. (2001). Block play performance among preschoolers as a predictor of later school achievement in mathematics. *Journal of Research in Childhood Education*, *15*(2).

[4]Duncan, G.J, et al. (2007). School readiness and later achievement. *Developmental Psychology*, *43* (6).

[5]Seifert, K. 1993. Cognitive development and early childhood education. In B. Spodek (ed.), Handbook of Research on the Education of Young Children (9-23). New York: Macmillan.

[6]Case, R. & Okamoto, Y., eds. (1996) *The role of central conceptual structures in the development of children's thought.* Monographs of the Society for Research in Child Development, 61 (1-2). Chicago: University of Chicago Press.

[7]Clements, D. H. & Sarama, J. A. (2009). *Learning and teaching early math: The learning trajectories approach.* New York: Routledge.

[8]Izard, V., Dehaene-Lambertz, G., & Dehaene, S. (2008). Distinct cerebral pathways for object identity and number in human infants. *Public Library of Science. Biology* 6(2).

[9]Ginsburg, H.P., Klein, A., & Starkey, P. (1998). The development of children's mathematical thinking: Connecting research with practice. In I.E. Sigel, K.A., Renninger, (Eds.) *Handbook of Child Psychology,* Vol. 4, NY: Wiley.

[10]Crews, D. (1968). Ten black dots. New York: Scholastic.

whether items and groups are bigger or smaller than one another, as well as an understanding of the relationship between a number and the quantity it represents, changes in quantity (addition and subtraction), and foundational concepts related to division and fractions.

- **Algebraic thinking** charts a child's progression in the ability to sort objects and recognize and create patterns.
- **Participates in exploratory measurement activities and compares objects** focuses on a child's growing ability to measure, compare, and organize (seriate) objects.
- **Explores and describes shapes and spatial relationships** provides a progression of a child's knowledge of shapes and spatial sense, as well as the child's ability to manipulate shapes.

Potential warning signs of mathematical difficulties or delay

Early childhood professionals play a key role in the early identification of delays in mathematical development. Although the standards have been developed with the understanding that children's development and learning vary widely, there are signs to watch for that might indicate a developmental delay or future mathematical difficulties. Signs that may indicate the risk of future mathematical difficulties in school include:

- For older preschool children (4–5 years old), difficulty learning to associate specific numbers to a small group of items (i.e., fewer than four), sorting items in logical ways, remembering numbers, and sensing time accurately (e.g., wants to know soon after arriving at school why it's not lunchtime already).
- Five-year-old children who do not recognize numbers, have difficulty counting, and have problems recognizing patterns, sizes, shapes, or colors.
- Children from families who have a history of learning disabilities,[11] children whose mothers consumed alcohol during pregnancy,[12] children who were born at a low birth weight,[13] and children who have experienced a traumatic brain injury[14] are at higher risk of a mathematical learning disability.

Early childhood professionals and parents know the young children in their care best. If there is a suspicion of a developmental delay or risk of future mathematical difficulties, it is important to consult a medical or early childhood specialist.

Special considerations

Typically, children reach the mathematical thinking indicators at different ages. However, the development of children's mathematical thinking skills depends on their exposure to and engagement in mathematical learning opportunities both at home and in early learning settings. The varying experiences of children outside of their early learning setting provide them with different foundations from which to build mathematics learning. Excellence in mathematics education requires equally high expectations and strong support for all children. Teachers must know as much as they can about these differences and build on children's varying experiences to foster new learning.[15] Building on children's individual strengths and learning styles makes mathematics experiences more effective.

Language plays a primary role in teaching and learning mathematics, so it is important to culturally and linguistically diverse children that language does not become a barrier to teaching mathematics. It is important to use mathematics

[11]Shalev, R. S., Manor, O., Kerem, B., Ayali, M., Badichi, N., Friedlander, Y., & Gross-Tsur, V. (2001). Developmental dyscalculia is a familial learning disability. *Journal of Learning Disabilities, 34*(1), 59 – 65.

[12]Kopera-Frye, K, Dehaene, S., & Streissguth, A. P. (1996). Impairments of number processing induced by prenatal alcohol exposure, *Neuropsychologia, 34*, 1187–1196.

[13]Isaacs, E.B., Edmonds, C. J., Lucas, A. & Gadian, D. G. (2002). Calculation difficulties in children of very low birthweight: A neural correlate. *Brain, 124,* 1701–1707.

[14]Levin, H. S., Scheller, J., Rickard, T., Grafman, J., Martinkowski, K., Winslow, M., & Mirvis, S. (1996). Dyscalculia and dyslexia after right hemisphere injury in infancy. *Archives of Neurology, 53*(1), 88–96.

[15]National Association for the Education of Young Children. (2002). *Early childhood mathematics: Promoting good beginnings.* Washington, DC: NAEYC.

vocabulary with visual representations of the concepts that are being taught (e.g., using number lines, different block shapes, etc.), and that children are given a variety of ways to understand a given concept.

Early childhood professionals must ensure that young children with disabilities can fully participate in learning activities that foster mathematical thinking. Children with disabilities may require adaptations both to engage in learning activities and to demonstrate their understanding of mathematical concepts.

Mathematical Thinking: Key Takeaways

- Children have an inherent interest in mathematics and can learn mathematical concepts at a very young age.
- Children's mathematical abilities as they enter kindergarten predict their mathematics achievement throughout school and are even related to later reading achievement.
- All early childhood professionals, whether or not they feel skilled in math, can be great teachers of early mathematical concepts. Early childhood professionals use a range of developmentally appropriate experiences and teaching strategies like counting, using comparison vocabulary, telling stories, and singing songs.

MT1. NUMBER CONCEPTS AND OPERATIONS

MT1.1 Demonstrates number sense and an understanding of quantity


BIRTH–8m


9–18m


19–36m


37–48m


49–60m

BIRTH–8m	9–18m	19–36m	37–48m	49–60m	
Attends to quantity while playing with objects (e.g., reaches or looks for more than one object)	Knows some number names (e.g., joins in counting songs, says or gestures "two" when asked age), and later in this age range says or signs more number words in sequence with occasional errors (e.g., says "one, two, three, five")		Says or signs number words in order accurately with increasing ability to count to 5, then up to 10, and finally to 20 and beyond by the end of this age range	Names what number comes after another number with decreasing need to count up from one (e.g., When asked "What comes after four?" immediately says "Five" instead of "One, two, three, four, five…five!")	NUMBER NAMES & COUNT SEQUENCE
	Places objects in one-to-one correspondence; later in this age period, begins to use the words more," "less," or "the same	Visually determines (without counting) which group of objects has more or less for groups of five or fewer objects (e.g., chooses a group that has more of a preferred item; indicates which group of crackers has more when prompted)	Identifies place in a series using terms like first, second, last, etc. (ordinality)		COMPARISON OF QUANTITY
			Counts to determine and compare whether the number of objects in one group is more than, less than, or the same as objects in another group (for groups of five to ten objects)		
	Shows early one-to-one correspondence* when supported by context (e.g., places one plastic egg in each indentation in a muffin tin)	Shows increasing ability to count objects using one number for each object (one-to-one correspondence) and with increasing consistency uses the last number counted to represent how many objects are in a group (cardinality)			CONNECTION OF NUMBER, NUMERAL, & QUANTITY
		Instantly recognizes without counting (subitizes) the number of objects in sets of one to three objects	Instantly recognizes without counting (subitizes) objects in sets of one to four objects (e.g., when playing game where teacher changes the number of blocks under a sheet and then uncovers them, child correctly identifies number of blocks without counting)		
			Begins to use numerals to represent and communicate quantity (e.g., puts three counting bears on a card with the numeral "3" in a game)		
			Shows increasing understanding of the concept of zero (e.g., holds up closed fist to show "no more monkeys jumping on the bed" during the last verse of the song; when teacher takes all of counting bears during a game and asks, "Now how many do you have?" child responds "None!")		
			Produces a set of a certain number when prompted (e.g., puts five napkins on the table when asked)		

One-to-one correspondence: matching each item in a set to one–and only one–item in another set or, in counting, matching one number word to each object in a set being counted.

MT1. NUMBER CONCEPTS AND OPERATIONS

MT1.2 Explores combining and separating groups (numerical operations)


BIRTH–8m


9–18m


19–36m


37–48m


49–60m

Typical development of these skills tends to emerge after 8 months. However, foundations of this learning goal are built through:

- MT1.1 Demonstrates number sense and an understanding of quantity (see page 63)

CHANGES IN QUANTITY

Shows increasing understanding of changes in quantity by using and responding to phrases like "more," "less," and "all gone" and later in this age range "one fewer" and "one more" (e.g., when prompted, child hands peer one more block)

Shows increased understanding that adding to or taking away objects from a group will increase or decrease the number of objects in the set (e.g., communicates, "I wanted more green blocks so my friend gave me three of his") and can describe parts of a group (e.g., Says, "I have four cubes. Two are red, and two are blue")

ADDITION & SUBTRACTION

With increasing independence creates larger and smaller groups of objects (e.g., placing and removing rings on a vertical peg) and later in this age range adds and subtracts with sets of objects smaller than three with adult support (e.g., "subtracts" from a group of three toys by offering one to an adult, then pointing to the remaining toys and communicating "Two")

Using fingers or manipulatives as tools, shows increasing ability to solve simple addition problems by joining objects together for increasingly larger totals (up to 10; e.g. when adding a group of 3 and a group of 2, counts "one, two, three..." and then counts on "four, five!" keeping track with fingers)

Using fingers or manipulatives as tools, shows increasing ability to solve simple subtraction problems by separating increasingly larger totals (up to 10; e.g., when asked how many counting bears will be left from a group of six if a friend takes two, child moves two bears to the side then counts remaining bears, "one, two, three, four...four bears!")

EARLY DIVISION AND FRACTIONS

Explores early division concepts by dividing objects into "fair-share" groups (e.g., gives three peers each two pieces of play fruit while playing restaurant) and identifying the concepts of a fraction whole and half by using real objects (e.g., identifies two equal parts of an apple or graham cracker as a half)

MT2. ALGEBRAIC THINKING

MT2.1 Uses classification and patterning skills


BIRTH–8m


9–18m


19–36m


37–48m


49–60m

CLASSIFICATION

Explores the characteristics of objects through various means (e.g., banging, mouthing, dropping) and shows different responses to familiar and unfamiliar people and situations

Forms groups of like objects based on broad categories (e.g., puts toy cars in one pile and toy animals in another) and later in this age range, child can name the attribute used in sorting

Sorts objects based on a single, simple characteristic (e.g., color, shape, size) with increasing ability to sort into more than two categories (e.g., making three color groups instead of two color groups)

Sorts objects by more than one attribute (e.g., color and shape); attends to more complex attributes (e.g., weight, texture); Sorts and then resorts based on a different characteristic (e.g., sorts by size and then by color)

PATTERNING

Enjoys and anticipates repetition in activities and daily routines (e.g., smiles in anticipation of adult revealing face during peek-a-boo; makes vocalizations upon hearing a familiar song that is sung each time they are diapered)

Repeats certain action sequences intuitively (e.g., fills up and dumps out container repeatedly) and joins in or copies simple patterns (e.g., does stomp-clap-stomp-clap movements during a song with modeling and support) Later in this age range, shows recognition of simple ABAB patterns (e.g., points to stripes on a shirt and communicates, "Black, white, black, white.")

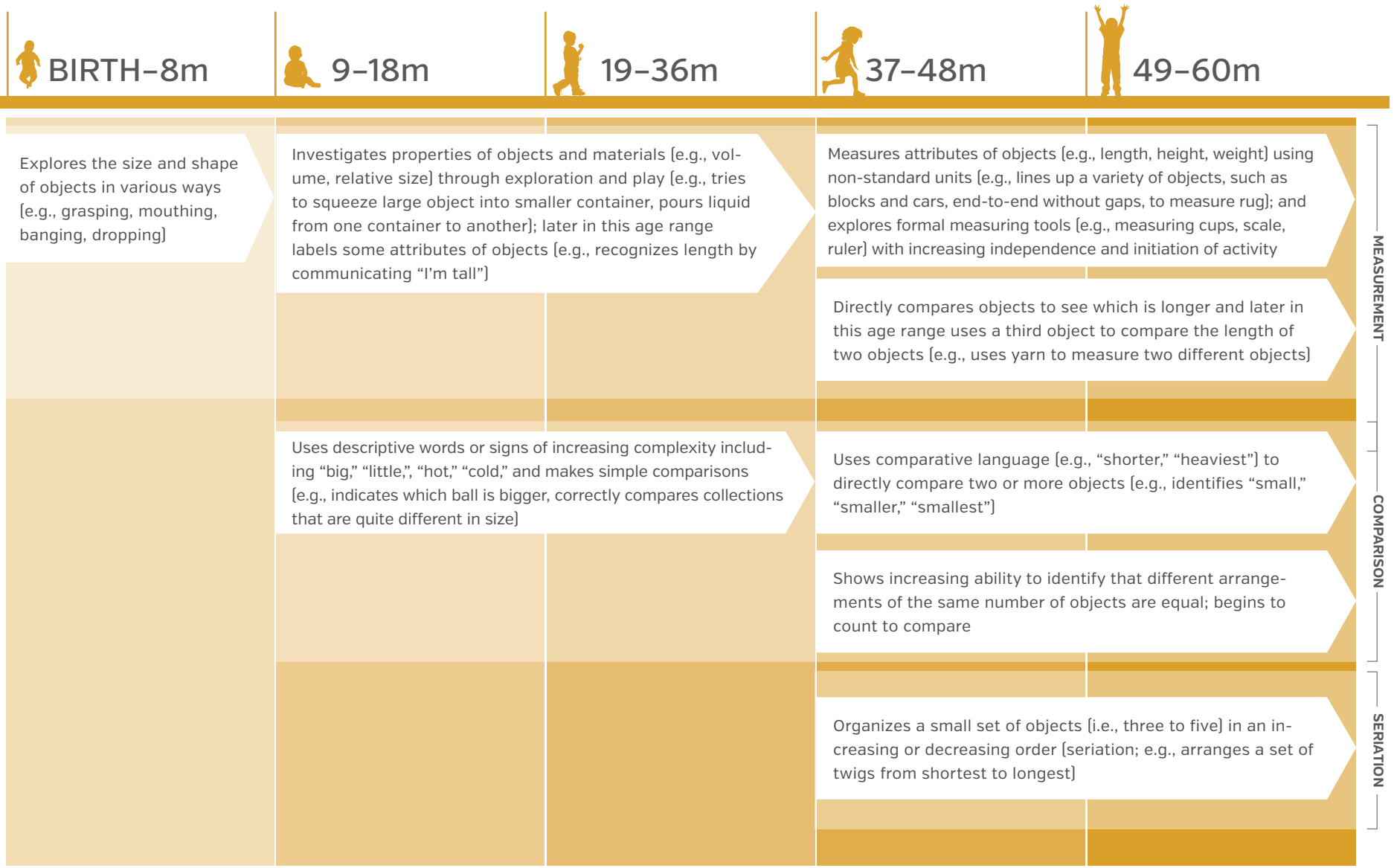
Recognizes, extends, and replicates simple repeating patterns* (e.g., triangle, square, triangle, square or repeated music verses)

Creates own patterns in different forms (e.g., objects, sounds, movements) and fills in missing elements of a simple pattern (e.g., selects a green counting bear and completes the series of bears set out by the teacher: yellow, green, green, yellow, green, green, yellow, ____, green)

*Simple patterns include ABAB format (e.g., cat, cow, cat, cow) and AAB or ABB patterns (ABB Pattern: red, blue, blue, red, blue, blue). It is important when presenting patterns to children that the pattern unit be repeated twice to establish the pattern (e.g., AAB pattern: square, square, circle, square, square, circle).

MT3. MEASUREMENT AND COMPARISON

MT3.1 Participates in exploratory measurement activities and compares objects



MT4. GEOMETRY AND SPATIAL SENSE

MT4.1 Explores and describes shapes and spatial relationships*


BIRTH–8m


9–18m


19–36m


37–48m


49–60m

SHAPE KNOWLEDGE

Explores the size and shape of objects in various ways (e.g., grasping, mouthing, banging, dropping)

Matches and sorts familiar shapes with increasing ability to do so with shapes of different sizes or orientations (e.g., puts small square and large square together; picks up triangle block to put in shape sorter even if block is rotated at a different orientation, e.g., ▲ and ▶)

Recognizes and names familiar shapes (e.g., square, triangle, circle, rectangle) and later less familiar shapes (e.g., hexagon, trapezoid) and some three-dimensional shapes (e.g., cube, cone, cylinder, sphere); with increasing ability to recognize shapes regardless of orientation or size and to describe shapes in terms of their attributes (e.g., a triangle has three straight sides)

SPATIAL SENSE

Explores how objects move (e.g., tracking objects with eyes and head, pushing cars down a ramp) and their own spatial sense (e.g., rolling over, bumping into things, trying to sit on chair that is too small)

Responds to and uses basic spatial directions (e.g., "reach up," "slide down") and simple prepositions (e.g., on, in, under, up), especially when accompanied by gestures

Uses increasingly complex spatial vocabulary (e.g., inside, beside, below); follows directions related to directionality, order, and position in space (e.g., "move forward," "put it behind the green car"); and without needing to handle the object can mentally turn an object to perform simple tasks (e.g., communicates to a friend, "If you turn the puzzle piece it will fit")

SHAPE MANIPULATION

Builds increasingly complex designs, pictures, and structures using two- and three-dimensional shapes (e.g., uses circles and rectangles to make a snowman image, constructs a castle out of building blocks), progressing from using one shape for each part of a picture to using several shapes to make one part

Combines, rotates, flips, and separates shapes to create designs (e.g., using parquetry blocks) and to make other shapes (e.g., combines two wood triangle-shaped unit blocks to make a square [◣+◥→■]) and later in this age range shows increasing ability to predict which shapes might be used to create other shapes

Spatial relationships = the positions of objects in space and how objects are oriented in relation to one another (e.g., whether something is over, under, beside, or on another object)

Every young child is a natural scientist and engineer. Children strive to understand "the great mystery into which they are born" by observing the world around them and by experimenting. Even if a child doesn't grow up to be a scientist, the process of identifying problems, thinking critically, observing, analyzing information, noticing patterns, and forming conclusions is important for success in adulthood. Researchers have identified three broad areas of science knowledge and skills that are important for future learning and success. The first is knowledge of *scientific practices*. These practices include asking questions, making predictions, and conducting investigations. The second area is an understanding of the big *concepts of science* like understanding parts of a whole, how structure relates to how something functions, and change over time. The final area is *science content*, which includes knowing about living things, the earth, space, and man-made objects.[1]

There is a great deal of overlap between the *Science and Technology* domain and other domains within the standards. For example, curiosity is the driving force behind advancements in science, which is an aspect of approaches to learning within the *Cognitive Development* domain. Children also need to sustain attention, use their mathematical knowledge and fine and gross motor skills in learning science, as well as collaborate with their peers in the scientific process.

It is important that Arkansas's early childhood professionals understand that young children have the capacity and inherent interest in engaging in scientific thinking. Arkansas's early childhood professionals must be intentional in preparing developmentally appropriate activities for children that foster scientific learning, and understand that science can be a means of building cognitive, social and emotional, mathematical, and even physical skills.

Areas of science and technology in the standards

The *Arkansas Child Development and Early Learning Standards* focus on three areas of science and technology:

- **Scientific practices** focuses on the growth in a child's ability to ask questions, form hypotheses, collect and analyze data, and communicate the results to others.
- **Knowledge of science concepts** charts the development of a child's understanding of systems (e.g., transportation system), the relationships between structure and function (e.g., round balls roll and plants needs stems) and stability and change (e.g., living things grow and seasons change).
- **Knowledge of science content** outlines a child's growing understanding of living things, nature and the environment, physical objects, as well as developmentally appropriate uses of technology and engineering practices to foster creativity and gain knowledge.

Special considerations

Children will reach the science and technology indicators at different ages. However, children's understanding of science and technology depends on their exposure to learning opportunities both at home and in early learning settings. There is great variability in children's exposure to early science and technology learning at home based on socioeconomic and cultural differences that contribute to disparities in children's knowledge of scientific concepts. These disparities can be overcome through intentional, developmentally appropriate teaching.

Language plays a primary role in teaching and learning science, so it is important to culturally and linguistically diverse children that language does not become a barrier to teaching science. Also, early childhood professionals must ensure that young children with disabilities can fully participate in learning activities that foster scientific thinking and practices. Children with disabilities may require adaptations both to engage in learning activities and to demonstrate their understanding of science and technology concepts.

[1]NGSS Lead States. (2013). Next generation science standards. For states, by states. Washington, DC: The National Academies Press.

Finally, the science and technology indicators address appropriate interactions between children and technology to support learning, exploration, play, and creativity. Although technology can be used for multiple purposes to support learning, the American Academy of Pediatrics (AAP) provides well-balanced guidance related to digital devices and screens. Arkansas's early childhood professionals should consult Arkansas's minimum child care licensing requirements and the AAP publication, *Beyond 'turn it off': How to advise families on media use* for guidance on the use of technology and screen time for young children.[2]

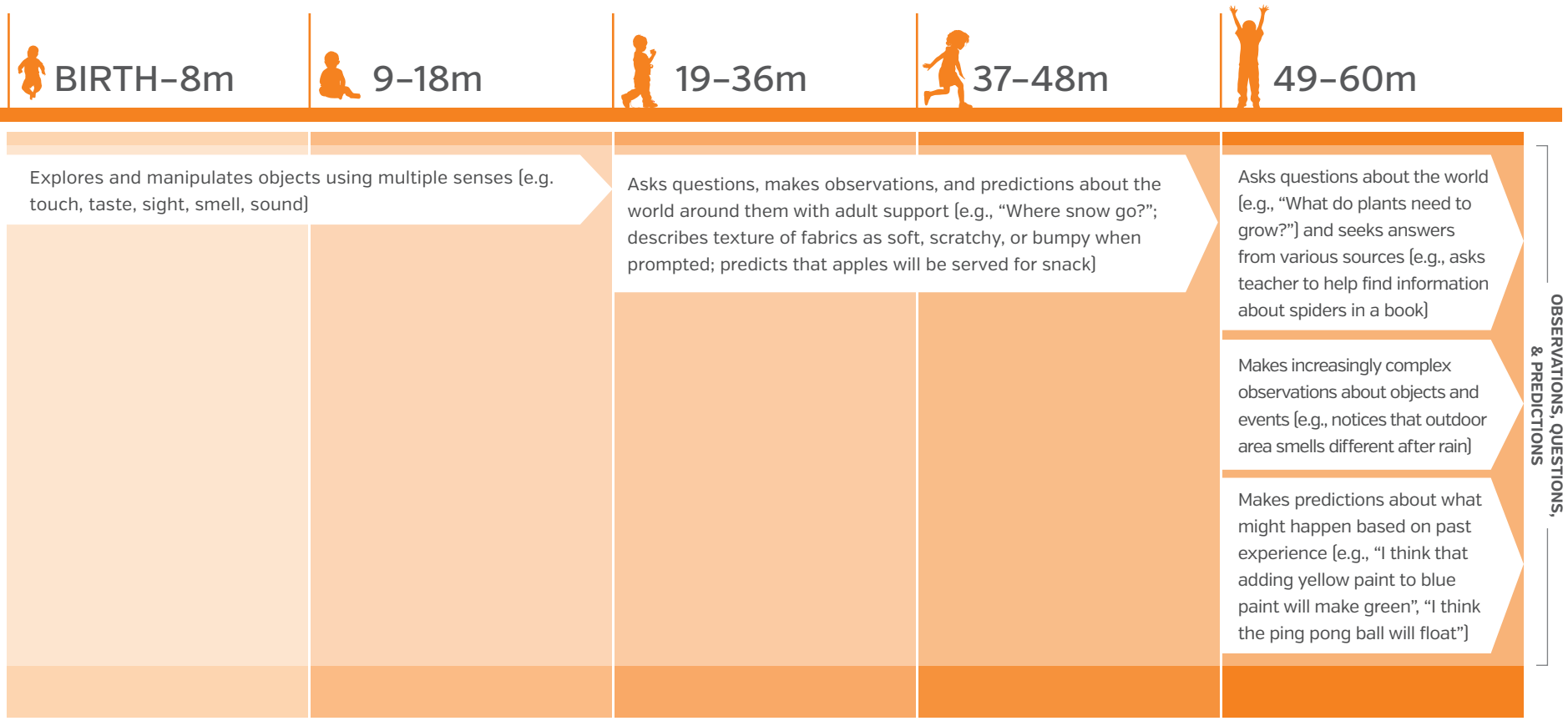
Science and Technology: Key Takeaways

- Young children have the capacity and inherent interest to engage in scientific thinking.
- Arkansas's early childhood professionals must be intentional in preparing developmentally appropriate activities for children that foster scientific learning, and understand that science can be a means of building cognitive, social and emotional, mathematical, and even physical skills.
- Although technology can be used for multiple purposes to support learning, the American Academy of Pediatrics (AAP) provides well-balanced guidance related to the use of digital devices and screens during early childhood. Arkansas's early childhood professionals should consult Arkansas's minimum child care licensing requirements and the AAP publication, *Beyond 'turn it off': How to advise families on media use* for guidance on the use of technology and screen time for young children.

[2]Brown, A, Shifrin, D.L. and Hill, D. (2015). "Beyond 'turn it off'" How to advise families on media use." *In AAP News.* DOI: 10.1542/aapnews.20153610-54

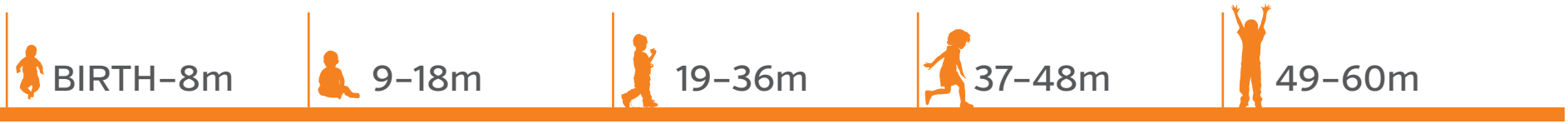
ST1. SCIENTIFIC PRACTICES

ST1.1 Engages in the scientific process to collect, analyze, and communicate information



ST1. SCIENTIFIC PRACTICES

ST1.1 Engages in the scientific process to collect, analyze, and communicate information (continued)



INVESTIGATION & HYPOTHESIS TESTING

Recognizes ability to make things happen (e.g., hits or kicks an object and it moves) and intentionally repeats actions to observe the reaction (e.g., bangs block on floor repeatedly to hear the sound it makes; flips switches on and off; splashes hands in water to see toys move)

Explores cause-and-effect relationships by varying actions to change the reaction (e.g., mixes red paint with blue paint, then mixes red paint with green paint; changes the size and/or orientation of blocks used when attempting to build a tall structure that doesn't fall down)

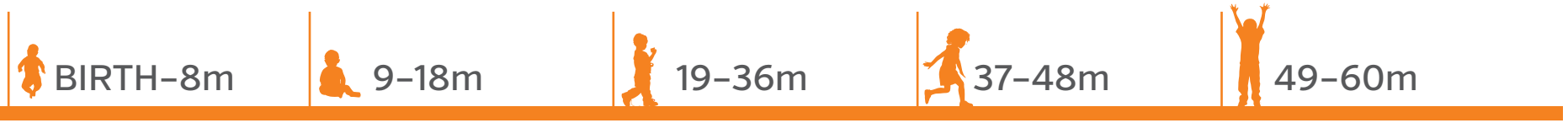
Engages in adult-supported investigations; forms and tests hypotheses (e.g., mixes soil and water to make mud; builds a "bridge" out of classroom materials and seeing how many foam blocks it will hold before collapsing; waters seeds in one container, but not another to answer the question, "Do plants need water to grow?")

DATA ANALYSIS & COMMUNICATION

With adult assistance, analyzes, interprets, and communicates data (e.g., compares initial prediction of which objects would float to actual results; records information through a drawing or dictation)

ST2. KNOWLEDGE OF SCIENCE CONCEPTS

ST2.1 Demonstrates knowledge of core science ideas and concepts



BIRTH–8m	9–18m	19–36m	37–48m	49–60m	
Shows beginning awareness of parts of own body and how to use them to interact with the world in specific ways (e.g., using hands to pick up things; later in this age range leans ear closer to window when adult says, "Listen! Can you hear that outside?")		Identifies parts of a whole (e.g., labels parts of a toy car such as door, wheel, headlight) and with adult support can describe their basic functions	With adult support asks questions and makes comments about parts of more complex systems and how they interact to make it function (e.g., talks about roles of members of their family; asks about the gears and parts of a wind-up toy and how they make it work)		SYSTEM PARTS & WHOLES
Explores characteristics of different animals, materials, and objects (e.g., explores different textures in touch-and-feel books; touches mouth of caregiver who is singing to see where sound is coming from)		Observes and describes basic features and functions of living things, objects, and materials (e.g., talks about body parts and their uses; describes attributes of materials related to their function by using words like strong, squishy, round, soft; communicates, "Windows are clear so we can see through them")		Makes observations and generalizations about structure and function (e.g., generalizes that objects that are round will roll; talks about why plants need stems; describes why birds can fly and people can't)	STRUCTURE & FUNCTION
Anticipates familiar routines and activities (e.g., mealtimes) and notices changes in the environment (e.g., later in this age range points to a piece of furniture that has been moved)		Describes changes in the environment with adult support (e.g., talks about weather conditions such as rain, snow, and wind; notices clouds changing shape and moving across the sky)	Observes and describes environmental changes over time with increasing sophistication (e.g., comments on flowers blooming in the spring; notices when branches have been trimmed from a tree; communicates, "The sun made the slide hot!"; notices the shape of the moon changing over time)		STABILITY AND CHANGE
			Demonstrates an understanding that living things change over time in size and other capacities as they grow (e.g., talks about similarities and differences between babies and adults; acts out a song about growth by pretending to be a plant and demonstrating with body how a seed grows into a seedling then a tree)		

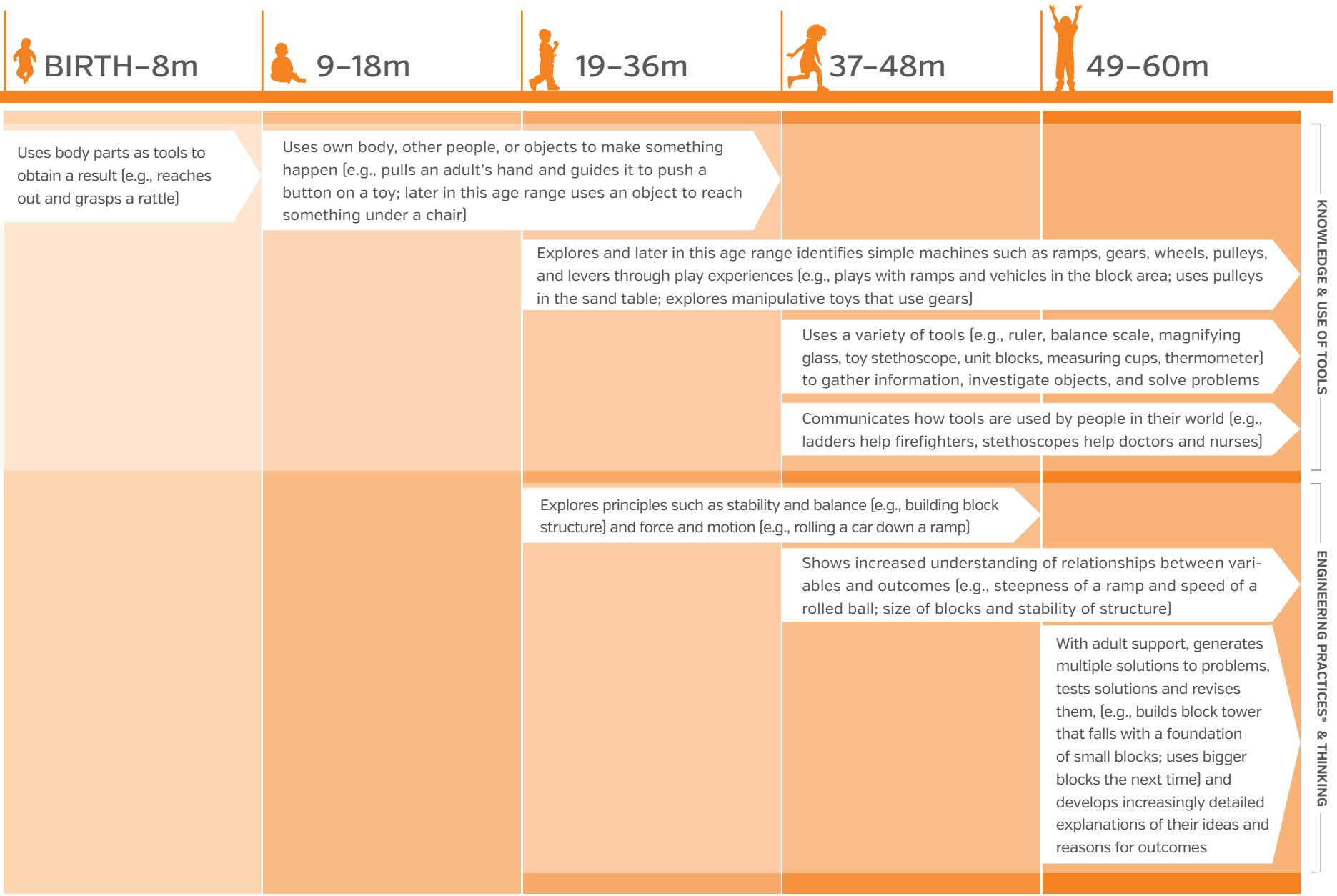
ST3. KNOWLEDGE OF SCIENCE CONTENT

ST3.1 Demonstrates knowledge of the characteristics of living things, the earth's environment, and physical objects and materials

BIRTH–8m	9–18m	19–36m	37–48m	49–60m	
Responds to and explores characteristics of living things (e.g., Observes with interest fish swimming in a bowl or aquarium; points and squeals when sees a dog; runs hand over bark of a tree; later in this age range, chases or follows a butterfly, ladybug, or bird)			With increasing independence, asks and answers questions about the similarities, differences, and categories of plants and animals (e.g., talks about how birds have feathers covering their bodies, but snakes have scales)		LIVING THINGS
			Shows curiosity and knowledge about how living things grow and change over time (e.g., talks about how kitten at home is getting bigger; asks why leaves change color)		
			With adult support describes characteristics that define living things (e.g., breathes, moves, grows)		
			Shows curiosity about the relationship of living things to their environments/habitats (e.g., asks why fish always live in water; wonders where birds sleep)		
Shows interest in the natural world (e.g., closes eyes and tilts head up to feel breeze on face; touches flowers and plants; investigates natural materials such as water, dirt, and leaves)			Investigates and uses increasingly complex vocabulary to describe natural elements in the environment (e.g., observes a group of ants moving on the playground and comments, "They're moving around like they're scared"; draws different kinds of leaves in the science center and communicates "This one has round edges, this one has pointy edges.")		NATURE & THE ENVIRONMENT
	Helps care for the environment (e.g., throws away a used paper towel; participates in some way in clean-up time)		Demonstrates respect for the environment (e.g., observes flowers or insects without intruding or destroying; picks up a piece of litter and says, "Animals might get sick if they eat this")		
Actively explores and experiments with the physical properties of objects and materials (e.g., combines different substances such as water and dirt; stacks and knocks down towers; bounces balls; explores fabrics with different textures)			Uses observable characteristics to describe and categorize physical objects and materials based on similarities and differences (e.g., after participating in an investigation, sorts items into those that float and those that sink; sorts objects made of wood and those made of plastic)		PHYSICAL OBJECTS & MATERIALS

ST3. KNOWLEDGE OF SCIENCE CONTENT

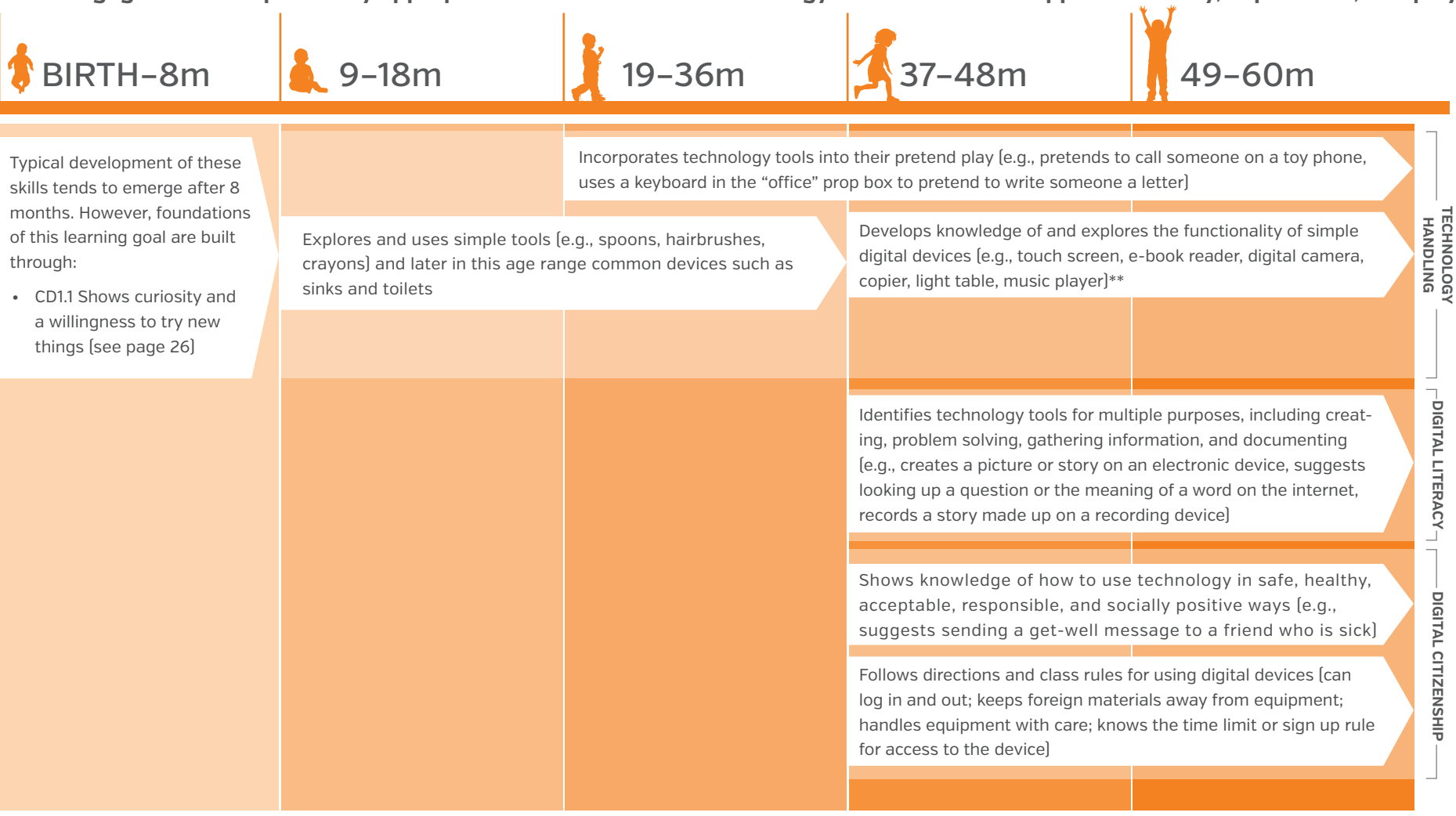
ST3.2 Uses tools and engineering practices to explore and solve problems



***Engineering Practice** = the application of scientific principles to determine criteria for a successful solution to a problem and identify constraints.

ST3. KNOWLEDGE OF SCIENCE CONTENT

ST3.3 Engages in developmentally appropriate interactions with technology* and media that support creativity, exploration, and play



*Arkansas's child care licensing requirements prohibit the use of television, DVDs, video cassettes and computer/video games and other screen time activities for children younger than two years of age. New recommendations published in the fall of 2015 by the American Academy of Pediatrics (AAP) reinforce this regulation and suggest that optimal educational media opportunities begin after age 2. The guidance discourages the use of screen media for children under the age of 2 as neuroscience suggests that very young children learn best through two-way, social, and language-rich interactions. However, the AAP guidance does acknowledge some appropriate uses of technology for infants and toddlers such as viewing digital photos, participating in Skype interactions with loved ones, co-viewing e-books, and engaging with some interactive apps.[1]

**Children's proficiency using technology tools will differ in large part due to varying amounts of exposure and modeling they receive in their home environment, which may depend on family values and attitudes toward technology as well as access to technology tools and associated resources (e.g., broadband internet connection)

[1] Brown, A., Shifrin, D.L., & Hill, D.L. (2015). Beyond "turn it off": How to advise families on media use. *AAP News, 36,* 10, 5 55. doi: 10.1542/aapnews.20153610-54.

The area of social studies in early childhood consists of a child's progression from "me" to "we."[1] Young children show a gradual expansion in their understanding of the world, with infants and toddlers first interested primarily in themselves. During the preschool years, children begin to widen their circles to include their early learning setting, family and cultural heritage, and broader community. Children also become interested in the roles that people play in society. Social studies is a broad area of learning, incorporating concepts from the fields of history, geography, anthropology, sociology, civics, economics, and mathematics.[2] For example, understanding basic geographical concepts such as knowing where you are and how to get around in the world is related to the understanding of spatial relationships, a mathematical thinking skill.[3]

The foundation of children's learning of social studies concepts such as history and geography lies in their early understanding of daily routines, sequences and the characteristics of familiar places such as home and school. Through social studies, early childhood educators can broaden a child's understanding of the world by taking them "beyond the here-and-now." By talking about things that are not immediately present in the child's environment, a child can learn of other places, cultures, and traditions. For example, a child's interest in building castles in the block area may lead to a discussion of what it may have been like to live in another time when people did not have access to modern technologies such as electricity or cars. Arkansas's early childhood professionals can also encourage children to explore their own and others' family and cultural identities.

Areas of social studies in the standards

The *Arkansas Child Development and Early Learning Standards* focus on two areas of social studies:

- **Family, community, and culture** describes a child's development of family pride and positive social identity, including their participation as a member of a learning community, their evolving family and cultural identity, and their awareness of roles in society.
- **History and geography** outlines a child's growing awareness of time, including their understanding of concepts such as past and future and change over time, as well as their knowledge of simple geographic concepts.

Social Studies: Key Takeaways

- During the preschool years, children begin to widen their circles to include their early learning setting, family and cultural heritage, and broader community.
- Social studies is a broad area of learning, incorporating concepts from the fields of history, geography, anthropology, sociology, civics, economics, and mathematics.
- Through social studies, early childhood educators can broaden a child's understanding of the world by talking about things that are not immediately present in the child's environment.

[1]Neill, P. (2015). Going from me to we: Social studies in preschool. *High Scope Extensions, 29*(1), 1–10.

[2]Seefeldt, C. (1997). Social studies in the developmentally appropriate integrated curriculum. In C. H. Hart, D. C. Burts, & R. Charlesworth (Eds.), *Integrated curriculum and developmentally appropriate practice: Birth to age eight* (pp. 171–199). Albany, NY: SUNY Press.

[3]Clements, D. H. & Sarama, J. (2009). Early childhood mathematics education research: Learning trajectories for young children. In *Learning and Teaching Early Math: The Learning Trajectories Approach,* New York: Routledge.

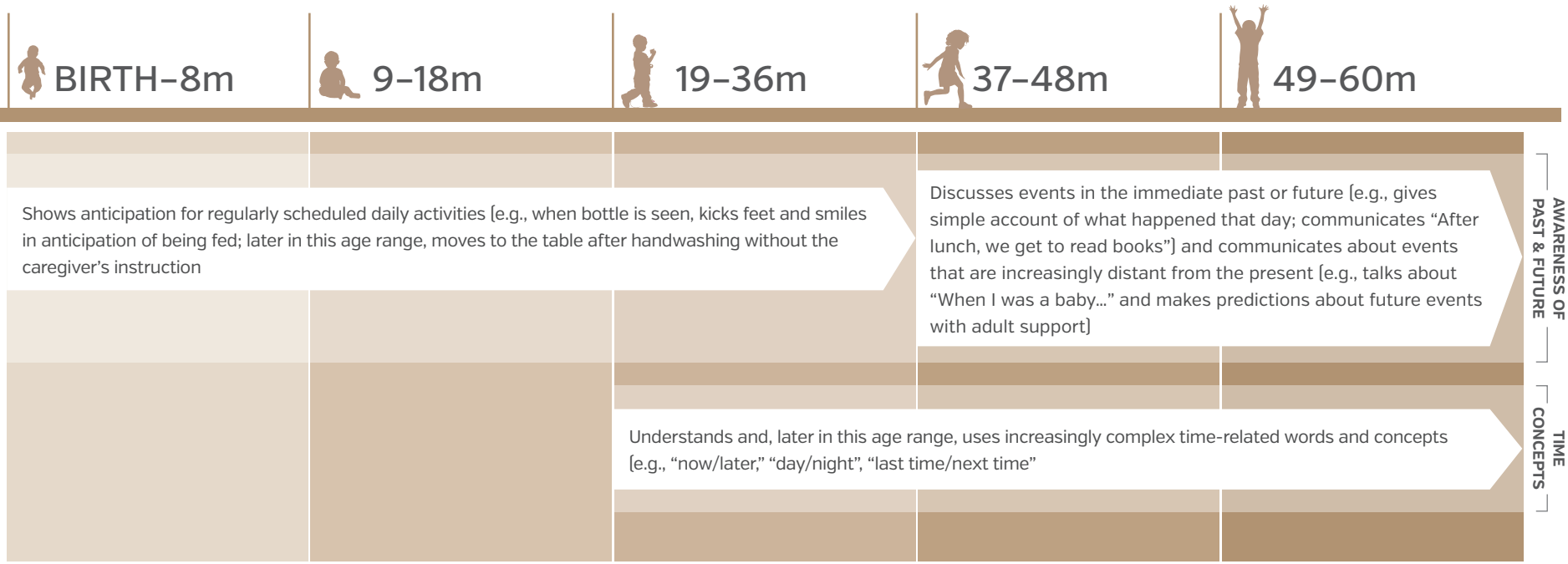
SS1. FAMILY, COMMUNITY, AND CULTURE

SS1.1 Demonstrates positive connection to family and community

BIRTH–8m	9–18m	19–36m	37–48m	49–60m	
		Begins to identify as a member of a classroom or group (e.g., "I'm a Ladybug [class name]") and follows simple rules with adult support	Shows increasing participation as a member of the learning community (e.g., participates in whole-group activities, helps establish rules for behavior, participates in classroom clean-up, etc.)		LEARNING COMMUNITY
Typical development of these skills tends to emerge after 18 months. However, foundations of this learning goal are built through: • SE1.1 Forms trusting relationships with nurturing adults (see page 18) • SE1.2 Interacts with peers (see page 19) • SE3.1 Shows awareness of self as unique individual (see page 22) • CD 3.2 Engages in symbolic and abstract thinking (see page 33)		Recognizes similarities and differences among individual people and groups of people (e.g., notices when another language is spoken; says "Everyone in my family has brown hair")	Shows pride in family and cultural heritage (e.g., talks about family members and traditions; draws pictures of family members and own cultural group; shares a song or special food from cultural group, shows pride in home language [e.g., "Gato means cat in Spanish. We speak Spanish at home!"]	Shows knowledge of family, cultural and political history (e.g., talks about where family came from, where cultural traditions came from, knows who president is)	FAMILY & CULTURAL IDENTITY
		Engages in increasingly complex pretend play acting out family or community roles and events (e.g., pretends to be a "daddy" sweeping the house or feeding the baby; later in this age range, acts out scenes at a restaurant, beauty salon, or doctor's office)	Shows increasing awareness of the roles people play in society (e.g., talks about roles of various family members; describes jobs of community helpers such as firefighters, grocery clerks, and veterinarians; talks about what they would like to be when they grow up)		AWARENESS OF ROLES IN SOCIETY

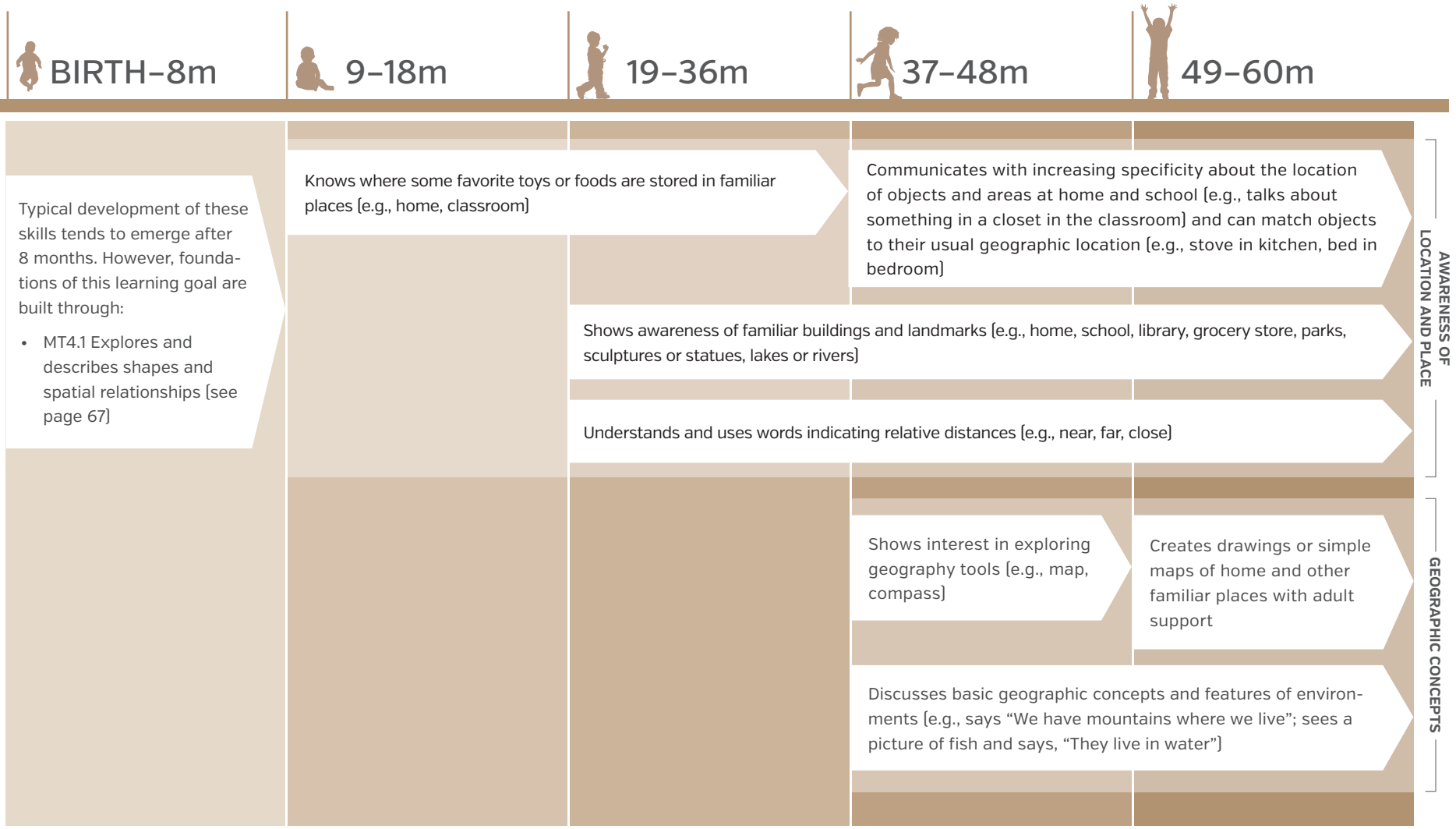
SS2. HISTORY AND GEOGRAPHY

SS2.1 Shows awareness of sequence and change over time



SS2. HISTORY AND GEOGRAPHY

SS2.2 Demonstrates simple geographic knowledge



Young children love to express themselves through music, movement, visual arts, and drama. With the proper learning environment, engaging in artistic expression can foster a child's creativity and support other areas of development and learning. Creativity and creative thinking are critical 21st century skills, important drivers of innovation in society, and key elements for success and happiness in school and adulthood.[1] At the same time, music, visual arts, and drama are serious fields of study much like mathematics and science. Sophisticated artistic expression requires an understanding of the specific concepts and processes of these art forms that begins in early childhood. Music, for example, requires an understanding of tempo, dynamics (loud and soft), and pitch. Visual art requires an understanding of shape, color, and texture. Arkansas's early childhood professionals can help young children learn these concepts and provide a foundation for more advanced artistic expression.

The domain of *Creativity and Aesthetics* intersects with all other areas of development and learning. Through music, movement, visual arts, and drama, children can improve their fine and gross motor skills, language and vocabulary, and social skills. Children can also learn mathematical and science concepts through different forms of artistic expression (e.g., fractions and sound waves), as well as about different cultures through songs, dance, and art. It is important that Arkansas's early childhood professionals encourage exploration of different forms of artistic expression and provide developmentally appropriate opportunities to draw, sing, and engage in dramatic play activities.

Areas of creativity and aesthetics in the standards

The *Arkansas Child Development and Early Learning Standards* focus on three areas of creativity and aesthetics:

- **Music and movement** focuses on a child's growing ability to explore and move to music, understand music concepts, and appreciate music.
- **Visual arts** charts a child's progression in exploring and appreciating art, understanding art concepts, and expressing themselves through art.
- **Drama** outlines a child's growing ability to explore drama, understand drama concepts, and appreciate and express themselves through drama.

Special considerations

Children will reach the creativity and aesthetics indicators at different ages. However, children's understanding of the indicators depends on their exposure to learning opportunities both at home and in early learning settings. There is great variability in children's exposure to art, music, and drama at home, which is related to socioeconomic and cultural differences. These differences contribute to disparities in children's knowledge, understating, and engagement in music, movement, visual art, and drama.

For culturally and linguistically diverse children, using art, music, and stories from their home culture is an excellent way of engaging them in classroom learning activities. In addition, early childhood professionals must ensure that young children with disabilities can fully participate in artistic activities that support progress on the creativity and aesthetics indicators. Children with disabilities may require adaptations both to engage in learning activities and to demonstrate their understanding of artistic concepts.

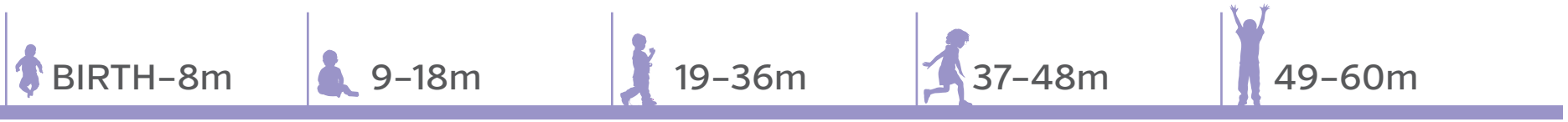
Creativity and Aesthetics: Key Takeaways

- Creativity and creative thinking are critical 21st century skills, important drivers of innovation in society, and key elements for success and happiness in school and adulthood.
- Music, visual arts, and drama are serious fields of study much like mathematics and science. Sophisticated artistic expression requires an understanding of the specific concepts and processes of these art forms that begins in early childhood.
- Through music, movement, visual arts, and drama, children can improve development and learning in other areas. It is important that Arkansas's early childhood professionals encourage exploration of different forms of artistic expression and provide opportunities to paint, sing, and engage in dramatic play activities.

[1]Partnership for 21st Century Skills. (2007). *The Intellectual and Policy Foundations of the 21st Century Skills Framework.*

CA1. MUSIC AND MOVEMENT

CA1.1 Explores through listening, singing, creating, and moving to music



BIRTH–8m	9–18m	19–36m	37–48m	49–60m	
Responds to music by turning head and reacting with body movements	Enjoys producing music and other sounds with voice and simple instruments (e.g., explores making noises with tambourine, attempts to blow into a whistle or harmonica)		Explores a widening variety of culturally diverse musical instruments, using them to produce increasingly complex rhythms, tones, melodies, and songs		EXPLORATION OF MUSIC & MOVEMENT
Uses objects and tools to make sounds (e.g., shakes rattle)	Moves body in response to rhythms and music (e.g., sways to the sound of music, claps along with song, though may not be on the beat)		Uses body movement to respond with increasing accuracy to beat, dynamics (loud versus quiet), and tempo (speed) of music (e.g., marches with musical instruments with increasing ability to move in step with the beat; tiptoes during quiet music and stomps when it gets louder; moves slower or faster in time with music)		
	Imitates and begins to demonstrate understanding of fast/slow and loud/soft as they relate to playing music and singing			With adult support demonstrates the foundational components of music, including tempo (e.g. by singing faster when asked to up the tempo), dynamics (e.g. by louder and softer during a song and pitch*(e.g. by singing higher and lower notes)	MUSIC & MOVEMENT CONCEPTS
	Develops preferences for favorite songs and fingerplays (e.g., claps and smiles or communicates “Again! Again!” when a song is finished; requests certain songs or fingerplays be played or sung)		Requests favorite types of music, discusses favorite songs, and shows appreciation for the music and dance of others		MUSICAL EXPRESSION & APPRECIATION
				Expresses self through music by making up songs, changing words to familiar songs, and experimenting with rhythmic patterns	

***Tempo** = how slow or fast a song should be sung or played
***Dynamics** = loudness or softness of a piece of music
***Pitch** = how high or low a note or tone is