Foundation: Perceptual Development

The developing ability to become aware of the social and physical environment through the senses

<table>
<thead>
<tr>
<th>6 months</th>
<th>18 months</th>
<th>36 months</th>
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<tbody>
<tr>
<td>At around eight months of age, children use the senses to explore objects and people in the environment. [9-9 mos.; Ruff and Kohler 1978]</td>
<td>At around 16 months of age, children use the information received from the senses to change the way they interact with the environment. [12-18 mos.; Fogle 2001, 333]</td>
<td>At around 36 months of age, children can quickly and easily combine the information received from the senses to form the way they interact with the environment. [20-24 mos.; Parks 2004, 19]</td>
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For example, the child may:

- Look at an object in her hand, mouth it, and then take it out to look at it again. [9-9 mos.; Ruff and Kohler 1978]
- Hear the infant care teacher's footsteps in the darkened nursery and turn his head to try to look for her. [9-9 mos.; Ruff and Kohler 1978]
- Show excitement upon recognizing the color of a favorite food that is offered on a spoon. [9-9 mos.; Rosenstock and Bushnell 1998]

Perceptual Development

Behaviors leading up to the foundation (4 to 7 months)

During this period, the child may:

- Have a range of vision that is several feet. [By 4 mos.; American Academy of Pediatrics 2004, 207]
- Experience the sensation of being touched, and then search for the object or person. [4-6 mos.; Parks 2004, 11]
- Listen to the sounds that family members use while talking in the home language, and use these same sounds while babbling. [4-6 mos.; Parks 2004, 11]
- Kick feet while lying in the crib, kick the crib sides, and then kick feet again. [By 4 mos.; American Academy of Pediatrics 2004, 209]
- Recognize an object as something she has seen before, even while looking at it from a different perspective. [By 4 mos.; Fogle 2001, 252]
- Notice the difference between different songs that the infant care teacher sings. [By 6 mos.; Fogle 2001, 252]
- Look confused upon hearing sounds that do not fit with the motions observed (for example, hearing a squeaking noise while seeing a rattling toy). [By 6 mos.; Fogle 2001, 252]
- Explore objects with the mouth. [By 7 mos.; American Academy of Pediatrics 2004, 208]
- See different colors. [By 7 mos.; American Academy of Pediatrics 2004, 208]
- See things from a distance. [By 7 mos.; American Academy of Pediatrics 2004, 208]
- Track moving objects with both eyes together. [By 7 mos.; American Academy of Pediatrics 2004, 208]

Behaviors leading up to the foundation (9 to 17 months)

During this period, the child may:

- Nasal his face into a freshly washed blanket to smell it. [6-10 mos.; Parks 2004]
- Show recognition of sounds, such as the mother's footsteps, water running in the bathtub, or the refrigerator door being opened. [16 mos.; Maisels and others 2002, 28]
- Put hands away from the sensory table, which is filled with an unfamiliar slimy substance. [18 mos.; Maisels and others 2003, 37]
- Explore paper bags with a finger, than look around for something to fit in the holes. [18 mos.; Maisels and others 2003, 37]
- Explore noisy activities or show a dislike for many activities. [12-18 mos.; Parks 2004, 14]
- React to various sensations, such as extremes in temperature and taste, [12-18 mos.; Parks 2004, 14-16]
- Crease and tear paper. [7-9 mos.; Parks 2004, 26]
- Stop crying when touched on the edge of the mouth (by the time most infants are crawling). [Walk and Gibson 1990]
- Be able to remember where toys are stored in the classroom because she has crawled by them before. (By the time most infants are crawling) [Ganz and Duberthel 1992, Campos and Dube rthal 1969]

Behaviors leading up to the foundation (19 to 36 months)

During this period, the child may:

- Enjoy rough-and-tumble play. [18-24 mos.; Parks 2004, 19]
- Handle fragile items carefully. [24-28 mos.; Parks 2004, 17]
- Enjoy tactile books, such as books with fuzzy teddy animal fur. [24-28 mos.; Parks 2004, 17]
- Play with sand and water by filling up buckets, digging, and pouring water. [28-36 mos.; Parks 2004, 17]
## Foundation: Gross Motor

The developing ability to move the large muscles

<table>
<thead>
<tr>
<th>8 months</th>
<th>16 months</th>
<th>36 months</th>
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<tbody>
<tr>
<td>At around eight months of age, children demonstrate the ability to maintain their posture in a sitting position and to shift between sitting and other positions.</td>
<td>Around 16 months of age, children move from one place to another by walking and running with basic control and coordination.</td>
<td>At around 36 months of age, children move with ease, coordinating movements and performing a variety of movements.</td>
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<td>For example, the child may:</td>
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<td>• Sit on the floor, legs bent, with one leg closer to the body than the other. (8 mos.; Alexander, Bootha, and Cups 1993, 134)</td>
<td>• Stand on one foot, alone or with support. (Scaled score of 10 for 16:10-18:15 mos.; Bayley 2005, 162)</td>
<td>• Walk and run with skill, changing speed and direction. (30 mos.; Davies 2004, 194)</td>
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<td>• Use forearms to pull forward on the floor while on her tummy. (Scaled score of 9 for 7:16-6:15 mos.; Bayley 2005, 155)</td>
<td>• Walk sideways. (Scaled score of 10 for 16:16-18:15 mos.; Bayley 2005, 162)</td>
<td>• Kick and throw a ball, but with little control of direction or speed. (30 mos.; Maisels and others 2003, 70)</td>
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<td>• Move from a sitting position onto hands and knees. (Scaled score of 10 for 7:16-6:15 mos.; Bayley 2005, 154)</td>
<td>• Push a doll stroller or play shopping cart. (17–18.5 mos.; Parks 2004)</td>
<td>• Stand over to pick up a toy and stand up without trouble. (By 30 mos.; American Academy of Pediatrics 2004)</td>
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<td></td>
<td>• Climb onto an adult-sized couch. (By 16 mos.; Aylward and Provenza 2001, 30)</td>
<td>• Paddle a toy boat. (32–36 mos.; Parks 2004, 194)</td>
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<td></td>
<td>• Run. (Scaled score of 10 for 16:16-17:15 mos.; Bayley 2005, 162)</td>
<td>• Climb up inclines and ladders. (34–36 mos.; Parks 2004)</td>
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<td>• Walk backward a few feet. (28–29.5 mos.; Parks 2004; scaled scores of 10 for 34:19-36:15 mos.; Bayley 2006, 163, 167)</td>
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<td>Gross Motor</td>
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<td>• Jump up with both feet at the same time. (30–36 mos.; Parks 2004; by 30 mos.; Aylward and Provenza 2001, 30)</td>
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<td>• Catch a medium-size ball. (30–36 mos.; Parks 2004)</td>
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<td>• Walk up stairs, without holding on, placing one foot on each step. (30 mos.; Suines, Potter, and Birch 1996; by end of 24–36 mos., 34–36 mos.; Parks 2004, 304; scaled scores of 10 for 20:16–20:15 mos.; Bayley 2006, 64)</td>
</tr>
</tbody>
</table>

### Behaviors leading up to the foundation (4 to 7 months)

During this period, the child may:

- Hold onto a foot while lying on her back. (Scaled scores of 10 for 16:1-6:15 mos.; Bayley 2005, 162)
- Roll from back to stomach (4-6 mos.; Larner and Girve 2000)
- Roll from stomach to back (4-6 mos.; Larner and Girve 2000; Bayley 2006, 20; 6.36–7.6 mos.; Parks 2004)
- Bring both hands to the midline while lying on his back. (10 weeks; Squires, Potter, and Birch 1999)
- Sit without support and turn to the left or right to reach an object. (Scaled scores of 7 for 7:16-6:15 mos.; Bayley 2006, 154.7 mos.; Marcor 1999, 243)
- Balance on one side, bearing weight on the lower hip, arm, and leg, leaving the upper arm and leg free to move and to manipulate objects. (7 mos.; Alexander, Bootha, and Cups 1993, 131–133)
- Move hands and knees into a sitting position. (7 mos.; Alexander, Bootha, and Cups 1993, 130)
- Hook on hands and knees, sometimes losing balance. (7 mos.; Alexander, Bootha, and Cups 1993, 130)

### Behaviors leading up to the foundation (9 to 17 months)

During this period, the child may:

- Creep on hands and knees or hands and feet. (By 9 mos.; Aylward and Provenza 2001, 31)
- Pull to a stand, using furniture for support. (Scaled scores of 10 for 8:16-10:10 mos.; Bayley 2006, 157)
- Cruise while holding onto furniture. (8:01–13:15 mos.; Parks 2004; scaled score of 10 for 9:16-10:15 mos.; Bayley 2006, 158)
- Sit down from a standing position. (Scaled score of 9 for 10:16–11:15 mos.; Bayley 2005, 168)
- Throw a ball, underhand or overhand, to the infant care taker. (Scaled score of 10 for 12:15–13:15 mos.; Bayley 2005, 160)
- Squat to explore a toy on the ground and then stand up. (Scaled score of 10 for 13:16–14:15 mos.; Bayley 2006, 168)
- Walk up or down stairs by stepping with both feet on each step, without holding on. (Scaled score of 10 for up for 24:19-20:15 mos.; Bayley 2006, 160)
- Catch a big ball using two arms. (24–25 mos.; Parks 2004)
- Jump forward a few inches. (Scaled score of 10 for 27:19-28:15 mos.; Bayley 2006, 168)

### Behaviors leading up to the foundation (19 to 35 months)

During this period, the child may:

- Ride a ride-on toy without paddles, pushing feet on the ground to move. (18–24 mos.; Parks 2004)
- Walk up or down stairs by stepping with both feet on each step, without holding on. (Scaled score of 10 for up for 24:19-20:15 mos.; Bayley 2006, 160)
- Catch a big ball using two arms. (24–25 mos.; Parks 2004)
- Jump forward a few inches. (Scaled score of 10 for 27:19-28:15 mos.; Bayley 2006, 168)
### Foundation: Fine Motor

The developing ability to move the small muscles

<table>
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<tr>
<th>6 months</th>
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<tr>
<td>At around eight months of age, children easily reach for and grasp things and use eyes and hands to engage objects actively. (8 mos.; Alexander, Boahm, and Cupps 1993, 112)</td>
<td>At around 18 months of age, children are able to hold small objects in one hand and sometimes use both hands together to manipulate objects. (18 mos.; Maitai and others 2003, 49)</td>
<td>At around 30 months of age, children coordinate the fine movements of the fingers, wrists, and hands to skillfully manipulate a wide range of objects and materials in intricate ways. Children often use one hand to stabilize an object while manipulating it.</td>
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</tbody>
</table>

**For example, the child may:**

- Use hand in a raising or swaying motion to bring a toy closer. (7–6 mos.; Parks 2004; by end of 7 mos.; American Academy of Pediatrics 2004, 200; 7–6 mos.; Frankenburg and Dodds 1990)
- Hold a small block using the thumb and fingers. (7:6 mos.; Bayley 2006, 127)
- Hold a small block in each hand and bang the blocks together. (Scalae score of 10 for 7:15–8:15 mos.; Bayley 2006, 127)

**For example, the child may:**

- Scribble with big arm movements. (13–18 mos.; Introduction to Infant Development 2002, 62)
- Place pegs into a pegboard. (11–10 mos.; Parks 2006)
- Hold a toy with one hand and use the fingers of the other hand to explore it. (By 18 mos.; Maitai and others 2003, 49)
- Point to the pictures of a book. (By 18 mos.; Maitai and others 2003, 40)
- Place a stacking ring on the post. (By 18 mos.; Maitai and others 2003, 40)
- Use two hands to pick up a big brick, but only one hand to pick up a small one. (2–18 mos.; Parks 2004, 81)
- Use the wrist to rotate objects in order to explore all sides. (By 18 mos.; Maitai and others 2003, 40)
- Use one hand in opposition to the other. (18 mos.; Maitai and others 2003, 40)

**For example, the child may:**

- Use child-safe scissors in one hand to make snips in a piece of paper. (Scalae score of 10 for 34:16–35:15 mos.; Bayley 2006, 130; 28:05 mos.; Parks 2004)
- String large wooden beads onto a shoelace. (30–36 mos.; Parks 2004)
- Build a tall tower with six or more blocks. (28–31 mos.; Parks 2004; by the end of 24–30 mos.; American Academy of Pediatrics 2004, 200)
- Turn the pages of a paper book. One at a time. (By end of 24–36 mos.; American Academy of Pediatrics 2004, 300)
- Imitate toy nuts and bolts on and off. (By end of 24–36 mos.; American Academy of Pediatrics 2004, 300)
- Open a door by turning the round handle. (By end of 24–36 mos.; American Academy of Pediatrics 2004, 306)
- Use one hand to hold and drink from a cup. (By 36 mos.; Maitai and others 2003, 49)
- Place a wooden puzzle piece in the correct place in the puzzle. (By 36 mos.; Maitai and others 2003, 49)

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### Fine Motor

**Behaviors leading up to the foundation (4 to 7 months)**

- Transfer a cloth from one hand to another. (9 mos.; Alexander, Boahm, and Cupps 1993, 110; scaled score of 10 for 9:10–10:15 mos.; Bayley 2003)
- Pull the spoon out of another mouth. (6 mos.; Alexander, Boahm, and Cupps 1993, 111)
- Reach toward a toy and make grasping motions with the hand. (4–6 mos.; Lever and Carse 2003)
- Reach for a second toy when already holding one in the other hand. (6–8.5 mos.; Parks 2004, 48)
- Hold one block in each hand, then drop one of them when the infant caregiver holds out a third block. (6–7.5 mos.; Parks 2004, 46)
- Have the hands in an open position when raised, it mos.; Maitai and others 2003, 11)

**Behaviors leading up to the foundation (9 to 17 months)**

- Hold on to two blocks while reaching for another block. (8–10 months; Parks 2004, 109)
- Use thumb and index finger to pick up a piece of cereal. (Scalae score of 11 for 9:15–10:15 mos.; Bayley 2006, 126)
- Drop a block into the wide opening of a large container. (8–10 mos.; Alexander, Boahm, and Cupps 1993, 107)
- Turn the pages of a board book. (Scalae score of 10 for 10:15–10:15 mos.; Bayley 2006, 126)
- Use hands to follow along with some motions of a song, chant, or finger play. (Scalae score of 10 for 10:15–10:15 mos.; Bayley 2006, 87)
- Grasp onto and pull the string of a pull toy. (6–12 mos.; Parks 2004, 51)
- Point with the index finger. (12 mos.; Coplan 1993, 2; scaled score of 10 for 11:10–12:15 mos.; Bayley 2006, 129)
- Stack two to three small blocks into a tower. (Scalae score of 10 for 12:15–12:15 mos.; Bayley 2006, 128)
- Unpack or use the lid of a plastic jar. (Scalae score of 10 for 14:10–15:15 mos.; Bayley 2006, 122)
- Put pieces of cereal inside a container with a small opening. (Scalae score of 10 for 16:10–17:15 mos.; Bayley 2006, 120)

**Behaviors leading up to the foundation (19 to 35 months)**

- Fold a piece of paper. (9:10–10:15 mos.; Parks 2004)
- Dump a container by turning it over. (By 24 mos.; American Academy of Pediatrics 2004)