

# Prenatal Development Timeline

- |   |   |  |  |
|---|---|--|--|
| <span style="color: blue;">■</span> Nervous           | <span style="color: red;">■</span> Cardiovascular       | <span style="color: maroon;">■</span> Muscular         | <span style="color: teal;">■</span> Early Events           |
| <span style="color: yellow;">■</span> Special Senses  | <span style="color: orange;">■</span> Respiratory       | <span style="color: grey;">■</span> Skeletal           | <span style="color: limegreen;">■</span> Growth Parameters |
| <span style="color: magenta;">■</span> Blood & Immune | <span style="color: purple;">■</span> Gastrointestinal  | <span style="color: cyan;">■</span> Endocrine          | <span style="color: white;">■</span> General               |
| <span style="color: pink;">■</span> Skin/Integument   | <span style="color: olivegreen;">■</span> Renal/Urinary | <span style="color: lightgreen;">■</span> Reproductive | <span style="color: green;">■</span> Movement              |

## Unit 1: The First Week

|               |   |   |
|---------------|---|---|
| Day 0         | — | <span style="color: teal;">■</span> Embryonic period begins   |
| Day 1         | — | <span style="color: teal;">■</span> Embryo is spherically shaped with 12 to 16 cells  |
| Day 1 - Day 1 | — | <span style="color: teal;">■</span> Fertilization - development begins with a single-cell embryo!!!   |
| Day 2         | — | <span style="color: teal;">■</span> Zygote divides into two blastomeres (24 - 30 hours from start of fertilization)   |
| Day 4         | — | <span style="color: teal;">■</span> Free floating blastocyst<br><span style="color: teal;">■</span> Inner cell mass<br><span style="color: teal;">■</span> See where the back and chest will be |
| Day 6         | — | <span style="color: teal;">■</span> Embryo attaches to wall of uterus   |
| 1 week        | — | <span style="color: teal;">■</span> Placenta begins to form   |

## Unit 2: 1 to 2 Weeks





















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|----------------|---|---|
| 1 week, 1 day  | — | <span style="color: teal;">■</span> Positive pregnancy test   |
| 1 week, 2 days | — | <span style="color: teal;">■</span> Cells in womb engorged with nutrients                                 |
| 1 week, 5 days | — | <span style="color: teal;">■</span> Implantation complete<br><span style="color: teal;">■</span> Yolk sac |

## Unit 3: 2 to 3 Weeks








|                 |   |   |
|-----------------|---|---|
| 2 weeks, 1 day  | — | <span style="color: teal;">■</span> Rostral-caudal orientation  |
| 2 weeks, 2 days | — | <span style="color: magenta;">■</span> Three types of blood-forming cells in yolk sac   |
| 2 weeks, 4 days | — | <span style="color: purple;">■</span> Foregut, midgut, and hindgut<br><span style="color: blue;">■</span> Brain is first organ to appear  |
| 2 weeks, 6 days | — | <span style="color: red;">■</span> Beginnings of the heart can be seen<br><span style="color: blue;">■</span> Forebrain, midbrain, and hindbrain<br><span style="color: blue;">■</span> Three main divisions of brain |
| 3 weeks         | — | <span style="color: red;">■</span> Blood and blood vessels  |

## Unit 4: 3 to 4 Weeks









|                 |   |   |
|-----------------|---|---|
| 3 weeks, 1 day  | — | <span style="color: orange;">■</span> Respiratory outgrowth<br><span style="color: red;">■</span> Circulatory system function begins<br><span style="color: red;">■</span> Heart begins beating<br><span style="color: red;">■</span> Tubular heart begins folding<br><span style="color: red;">■</span> Umbilical arteries<br><span style="color: red;">■</span> Umbilical veins (right and left)<br><span style="color: teal;">■</span> Body cavities |
| 3 weeks, 3 days | — | <span style="color: purple;">■</span> Liver<br><span style="color: purple;">■</span> Membrane between future mouth and throat may begin to rupture  |
| 3 weeks, 5 days | — | <span style="color: purple;">■</span> First part of pancreas<br><span style="color: orange;">■</span> Lung bud  |

|                |   |
|----------------|---|
|                |  Descending aorta                                  |
|                |  Lowermost spinal cord formation begins            |
|                |  Neural tube closes (lower back)                   |
|                |  Upper limb primordium at level of somites 8 to 10 |
|                |  Progressively C-shaped embryo                     |
| <b>4 weeks</b> |  Skin is so thin, you can see through it!          |
|                |  Esophagus primordia                               |
|                |  Pancreas: Ventral pancreas                        |
|                |  Pharynx   |
|                |  Small & large intestines                          |
|                |  Lungs begin filling chest cavity                  |
|                |  Trachea   |
|                |  Circulatory system "well established"             |
|                |  Functioning two-chamber heart                     |
|                |  Heart rate (about) 113 beats/min                  |
|                |  Fourth ventricle                                  |
|                |  Cervical flexure                                  |
|                |  Limb buds - the first sign of arms and legs       |
|                |  Umbilical cord emerging                           |
|                |  Upper and lower limb buds                         |






**Unit 5: 4 to 5 Weeks**

|                        |   |
|------------------------|---|
| <b>4 weeks, 4 days</b> |  Brain: Cerebral hemispheres appear and begin rapid growth |
| <b>4 weeks, 5 days</b> |  Blood vessels penetrate diencephalon                      |
|                        |  Brain with five main sections                             |
|                        |  First nerve fibers  |
| <b>5 weeks</b>         |  Lobar pattern mimics adult pattern                        |
|                        |  Pacemaker cells   |
|                        |  Head is one third of entire embryo                        |

**Unit 6: 5 to 6 Weeks**

|                           |  |
|---------------------------|--|
| <b>5 weeks, 2 days</b>    |  All cranial nerves identifiable              |
| <b>5½ weeks</b>           |  Initial tooth formation                      |
| <b>5½ weeks - 6 weeks</b> |  Subtle movement begins                       |
| <b>5 weeks, 6 days</b>    |  Primordial vermiform appendix                |
| <b>6 weeks</b>            |  Face withdraws from light touch around mouth |
|                           |  Blood forming in liver                       |
|                           |  Tooth buds (primary teeth)                   |
|                           |  Intestines fill base of umbilical cord       |

**Unit 7: 6 to 7 Weeks**

|                        |  |
|------------------------|--|
| <b>6 weeks, 2 days</b> |  Elbow regions sometimes identifiable |
|                        |  Humerus, radius, and ulna            |
|                        |  Submandibular gland primordia        |
|                        |  Brainwave activity has begun         |
| <b>6½ weeks</b>        |  The hands begin to move              |

|                        |  |
|------------------------|--|
|                        | <ul style="list-style-type: none"> <li><input type="checkbox"/> Bones first form in the collar bones and lower jaw</li> </ul>  |
| <b>6 weeks, 5 days</b> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Arms point forward</li> <li><input type="checkbox"/> Beginnings of occipital and sphenoid bones</li> </ul>   |
| <b>6 weeks, 6 days</b> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Cloacal membrane ruptures</li> </ul>   |
| <b>7 weeks</b>         | <ul style="list-style-type: none"> <li><input type="checkbox"/> Head rotates</li> <li><input type="checkbox"/> Leg movements</li> <li><input type="checkbox"/> Ovaries</li> <li><input type="checkbox"/> Hiccups</li> <li><input type="checkbox"/> The heart has four chambers and is nearly complete.</li> <li><input type="checkbox"/> The heart rate peaks at 165 to 170 beats per minute.</li> </ul> |

**Unit 8: 7 to 8 Weeks**

|                                 |   |
|---------------------------------|---|
| <b>7 weeks, 1 day</b>           | <ul style="list-style-type: none"> <li><input type="checkbox"/> Upper limbs with slightly flexed elbows</li> <li><input type="checkbox"/> Sacrocaudal spinal cord formation (secondary neurulation) complete</li> </ul>   |
| <b>7 weeks, 1 day - 8 weeks</b> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Stomach: Folds in stomach wall</li> </ul>   |
| <b>7 weeks, 2 days</b>          | <ul style="list-style-type: none"> <li><input type="checkbox"/> Arteries and veins of heart complete</li> </ul>   |
| <b>7 weeks, 3 days</b>          | <ul style="list-style-type: none"> <li><input type="checkbox"/> The knee joints have arrived</li> </ul>   |
| <b>7½ weeks</b>                 | <ul style="list-style-type: none"> <li><input type="checkbox"/> Fingertips thicken</li> <li><input type="checkbox"/> EKG pattern similar to adult</li> </ul>  |
| <b>7 weeks, 4 days</b>          | <ul style="list-style-type: none"> <li><input type="checkbox"/> The fingers are free</li> </ul>   |
| <b>7 weeks, 5 days</b>          | <ul style="list-style-type: none"> <li><input type="checkbox"/> Bone-forming cells emerge</li> <li><input type="checkbox"/> Hands can reach one another and fingers can overlap</li> </ul>  |
| <b>8 weeks</b>                  | <ul style="list-style-type: none"> <li><input type="checkbox"/> Complex response to touch</li> <li><input type="checkbox"/> More frequent hand-to-face contact</li> <li><input type="checkbox"/> Urine production and release</li> <li><input type="checkbox"/> Occasional breathing motions begin</li> <li><input type="checkbox"/> Blood supply to the brain closely resembles adult pattern</li> <li><input type="checkbox"/> Ear drum</li> <li><input type="checkbox"/> "The hindbrain "presents striking resemblance to that of the newborn."</li> <li><input type="checkbox"/> Brain represents 43% of embryo</li> <li><input type="checkbox"/> Right- and left-handedness emerges</li> <li><input type="checkbox"/> Embryonic Period Ends</li> </ul> |

**Unit 9: 8 to 9 Weeks**

|                |   |
|----------------|---|
| <b>9 weeks</b> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Bends hip &amp; knee if sole of foot touched</li> <li><input type="checkbox"/> Drinking fluid is becoming routine</li> <li><input type="checkbox"/> Sucking the thumb</li> <li><input type="checkbox"/> The young fetus now sighs, stretches, moves the head, opens the mouth, and moves the tongue</li> <li><input type="checkbox"/> Thyroid gland weighs 2 grams</li> <li><input type="checkbox"/> Face, hands, and feet sense light touch</li> </ul> |
|----------------|---|

**Unit 10: 9 to 10 Weeks**

|                           |  |
|---------------------------|--|
| <b>9 weeks - 10 weeks</b> | <ul style="list-style-type: none"> <li><input type="checkbox"/> My weight will rise more than 75% this week</li> </ul> |
| <b>9 weeks, 4 days</b>    | <ul style="list-style-type: none"> <li><input type="checkbox"/> Yawns</li> </ul>                                       |

|                                |   |
|--------------------------------|---|
| <b>10 weeks</b>                | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FF00FF; border: 1px solid black; margin-right: 5px;"></span> Palatine tonsils</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Fingernails and toenails begin to grow!</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Three-layered epidermis</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Tiny unique fingerprints have arrived!</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #D3D3D3; border: 1px solid black; margin-right: 5px;"></span> Now, all the bones are getting harder</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #D3D3D3; border: 1px solid black; margin-right: 5px;"></span> Tooth buds (secondary teeth)</li> </ul>               |
| <b>Unit 11: 10 to 11 Weeks</b> |   |
| <b>10½ weeks</b>               | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Volar and plantar pads regress</li> </ul>   |
| <b>11 weeks</b>                | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Nose &amp; lips completely formed</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Now you can tell if your baby is a girl or a boy!</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #00FFFF; border: 1px solid black; margin-right: 5px;"></span> Thyroid gland weighs 12 grams</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #800080; border: 1px solid black; margin-right: 5px;"></span> Intestines absorb water &amp; glucose</li> </ul>  |
| <b>Unit 12: 11 to 12 Weeks</b> |   |
| <b>12 weeks</b>                | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #00FFFF; border: 1px solid black; margin-right: 5px;"></span> Many different hormones are present in pituitary gland</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #D3D3D3; border: 1px solid black; margin-right: 5px;"></span> Upper limbs reach final proportion</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #800080; border: 1px solid black; margin-right: 5px;"></span> Bowel movements</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #800080; border: 1px solid black; margin-right: 5px;"></span> Liver: Bile production begins</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFF00; border: 1px solid black; margin-right: 5px;"></span> There are taste buds all over the mouth</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFFFF; border: 1px solid black; margin-right: 5px;"></span> Head circumference 10 cm</li> </ul> |
| <b>Unit 13: 3 to 4 Months</b>  |   |
| <b>13 weeks</b>                | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #D3D3D3; border: 1px solid black; margin-right: 5px;"></span> Teeth are growing</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #0000FF; border: 1px solid black; margin-right: 5px;"></span> Most of body sensitive to touch</li> </ul>  |
| <b>14 weeks</b>                | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #00FF00; border: 1px solid black; margin-right: 5px;"></span> Girls move their jaws more than the boys do</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #00FF00; border: 1px solid black; margin-right: 5px;"></span> Light touch to mouth evokes turn toward stimulus</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #0000FF; border: 1px solid black; margin-right: 5px;"></span> Cerebellum resembles adult structure</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFFFF; border: 1px solid black; margin-right: 5px;"></span> Fat deposits in cheeks</li> </ul>   |
| <b>15 weeks</b>                | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Body fat emerges throughout the body</li> </ul>   |
| <b>16 weeks</b>                | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #00FF00; border: 1px solid black; margin-right: 5px;"></span> Quickening</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Fat deposits upper &amp; lower limbs</li> </ul>  |
| <b>Unit 14: 4 to 5 Months</b>  |   |
| <b>18 weeks</b>                | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Cream-like substance protects skin</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Sweat glands</li> </ul>  |
| <b>19 weeks</b>                | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Melanin production</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #0000FF; border: 1px solid black; margin-right: 5px;"></span> Daily cycles in biological rhythms</li> </ul>  |
| <b>20 weeks</b>                | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> All skin layers and structures</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFF00; border: 1px solid black; margin-right: 5px;"></span> Hearing and responding to sound begins</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFF00; border: 1px solid black; margin-right: 5px;"></span> Hearing and responding to sound begins</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFFFF; border: 1px solid black; margin-right: 5px;"></span> Head circumference 20 cm</li> </ul>  |
| <b>Unit 15: 5 to 6 Months</b>  |   |
| <b>21 weeks - 22 weeks</b>     | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFFFF; border: 1px solid black; margin-right: 5px;"></span> If born prematurely from this point on, survival is possible</li> </ul>   |
| <b>23 weeks</b>                | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFFFF; border: 1px solid black; margin-right: 5px;"></span> Brain weight 100 grams</li> </ul>   |
| <b>Unit 16: 6 to 7 Months</b>  |   |
| <b>25 weeks</b>                | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #800080; border: 1px solid black; margin-right: 5px;"></span> Intestinal lining contains all adult cell types</li> </ul>  |

|                                   |   |
|-----------------------------------|---|
|                                   | <input type="checkbox"/> The ability to taste   |
| <b>26 weeks</b>                   | <input type="checkbox"/> Additional fat deposits decrease wrinkles                            |
|                                   | <input type="checkbox"/> The ability to smell has arrived                                     |
| <b>26 weeks - 38 weeks</b>        | <input type="checkbox"/> Brain weight increases 400% to 500%                                  |
| <b>27 weeks</b>                   | <input type="checkbox"/> Pupils react to light  |
| <b>Unit 17: 7 to 8 Months</b>     |   |
| <b>30 weeks</b>                   | <input type="checkbox"/> Breathing motions are common even though there is no air in the womb |
|                                   | <input type="checkbox"/> Head circumference 30 cm   |
| <b>32 weeks</b>                   | <input type="checkbox"/> Esophagus: Lower esophagus muscles functional                        |
| <b>Unit 18: 8 to 9 Months</b>     |   |
| <b>32 weeks - 36 weeks</b>        | <input type="checkbox"/> Prenatal food affects newborn taste preferences                      |
| <b>35 weeks</b>                   | <input type="checkbox"/> Firm grip  |
| <b>36 weeks</b>                   | <input type="checkbox"/> Brain weight 300 grams   |
| <b>Unit 19: 9 Months to Birth</b> |   |
| <b>37 weeks</b>                   | <input type="checkbox"/> Fetus drinks an estimated 15 oz (or 450cc) of amniotic fluid/day     |
| <b>38 weeks</b>                   | <input type="checkbox"/> Heart beats 54 million times before birth                            |
|                                   | <input type="checkbox"/> Brain weight 350 grams   |
|                                   | <input type="checkbox"/> Fetus initiates labor  |
|                                   | <input type="checkbox"/> Head circumference 35 cm   |
|                                   | <input type="checkbox"/> Time to be born!   |