

# Prenatal Development Timeline

- |   |  |  |   |
|---|--|--|---|
| <span style="color: blue;">■</span> Nervous           | <span style="color: red;">■</span> Cardiovascular      | <span style="color: darkred;">■</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: gold;">■</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: green;">■</span> Renal/Urinary     | <span style="color: lightgreen;">■</span> Reproductive | <span style="color: limegreen;">■</span> Movement     |

## Unit 1: The First Week

Day 0	—	<span style="color: teal;">■</span> Embryonic period begins
		<span style="color: teal;">■</span> Fertilization resulting in zygote formation
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: cyan;">■</span> Early pregnancy factor (EPF)
		<span style="color: teal;">■</span> Activation of the genome
		<span style="color: teal;">■</span> Zygote divides into two blastomeres (24 - 30 hours from start of fertilization)
Day 4	—	<span style="color: teal;">■</span> Embryonic disc
		<span style="color: teal;">■</span> Free floating blastocyst
		<span style="color: teal;">■</span> Hypoblast & epiblast
		<span style="color: teal;">■</span> Inner cell mass
		<span style="color: teal;">■</span> See where the back and chest will be
Day 5	—	<span style="color: teal;">■</span> Hatching blastocyst
Day 6	—	<span style="color: teal;">■</span> Embryo attaches to wall of uterus
1 week	—	<span style="color: teal;">■</span> Chorion
		<span style="color: teal;">■</span> Placenta begins to form
























## Unit 2: 1 to 2 Weeks

1 week, 1 day	—	<span style="color: teal;">■</span> Amnioblasts present; amnion and amniotic cavity formation begins
		<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, 4 days	—	<span style="color: teal;">■</span> Longitudinal axis
1 week, 5 days	—	<span style="color: teal;">■</span> Implantation complete
		<span style="color: teal;">■</span> Yolk sac
1 week, 6 days	—	<span style="color: red;">■</span> Primordial blood vessels
		<span style="color: teal;">■</span> Amnion with single cell layer
		<span style="color: teal;">■</span> Chorionic villi
2 weeks	—	<span style="color: teal;">■</span> Yolk sac
		<span style="color: teal;">■</span> Yolk sac















## Unit 3: 2 to 3 Weeks
















2 weeks, 1 day	—	<span style="color: teal;">■</span> 3 germ layers
		<span style="color: teal;">■</span> Rostral-caudal orientation
2 weeks, 2 days	—	<span style="color: magenta;">■</span> Erythroblasts in yolk sac
		<span style="color: magenta;">■</span> Three types of blood-forming cells in yolk sac
		<span style="color: teal;">■</span> Amnion with two cell layers
		<span style="color: teal;">■</span> Secondary villi

<b>2 weeks, 4 days</b>	Foregut, midgut, and hindgut
	Brain is first organ to appear
	Neural plate induced by notochordal process
<b>2 weeks, 6 days</b>	Connecting stalk
	Numerous blood islands in umbilical vesicle
	Foregut
	Stomodeum forming
	Beginnings of the heart can be seen
	Blood vessels emerge simultaneously in umbilical vesicle, embryo proper, amnion, and connecting stalk
	Dorsal aortae (paired)
	Paired tubular heart
	Forebrain, midbrain, and hindbrain
	Neural groove deepens substantially
<b>3 weeks</b>	Three main divisions of brain
	Neural crest: Rostral and facial
	Blood and blood vessels
<b>Unit 4: 3 to 4 Weeks</b>	
<b>3 weeks, 1 day</b>	Midgut emerging
	Respiratory outgrowth
	Atria (right and left) far apart
	Circulatory system function begins
	Endocardial tubes fuse forming tubular heart
	Heart begins beating
	Pericardium
	Primary head vein
	Sinus venosus
	Tubular heart begins folding
	Umbilical arteries
	Umbilical veins (right and left)
	Neural tube
	Body cavities
	Hyoid arch
<b>3 weeks, 3 days</b>	Thyroid complete
	Cystic primordium
	Liver
	Membrane between future mouth and throat may begin to rupture
	Internal carotid arteries
	Neuropore (near brain) closes
	Notochord
<b>3 weeks, 5 days</b>	First part of pancreas
	Pharyngeal arch 3
	Lung bud
	Descending aorta



























	 Unidirectional circulation
	 Brain involves 40% of neural tube
	 Lowermost spinal cord formation begins
	 Neural tube closes (lower back)
	 Somites: Pairs 21 through 29
	 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
	 Intestines growing in length
	 Pancreas: Ventral pancreas
	 Pharynx
	 Small & large intestines
	 Bronchial buds
	 Lungs begin filling chest cavity
	 Trachea
	 Circulatory system "well established"
	 Functioning two-chamber heart
	 Heart chambers bulging with fluid
	 Heart now functions as two parallel pumps
	 Heart rate (about) 113 beats/min
	 Most cranial nerve ganglia
	 Cerebellum
	 Fourth ventricle
	 Amnion surrounds embryo
	 Limb buds - the first sign of arms and legs
	 Lower limb buds
	 Umbilical cord emerging
	 Upper and lower limb buds

**Unit 5: 4 to 5 Weeks**

<b>4 weeks, 3 days</b>	 Early eyes
<b>4 weeks, 3 days - 5 weeks</b>	 Germ cells migrate to gonads
<b>4 weeks, 4 days</b>	 Lungs: Right and left primary (or main stem) bronchi
	 Sinu-atrial (SA) node
	 Eyes located on sides of head
	 Lens pits
	 Nose: Nasal pits
	 Brain enlarges 50% since Carnegie Stage 13
	 Brain: Cerebral hemispheres appear and begin rapid growth
	 Brain: Lateral ventricles
	 Hypothalamus
<b>4 weeks, 5 days</b>	 Caecum
	 Blood vessels penetrate diencephalon
	 Coronary arteries (terminal end)

	 Optic chiasm
	 Brain with five main sections
	 First nerve fibers
	 Most cranial nerves seen
	 Synapses among motor neurons in spinal cord
	 Third ventricle
<b>5 weeks</b>	 ACTH [adrenocorticotropin hormone]
	 Growth hormone
	 Pituitary gland
	 Limb buds form hand plates
	 Permanent kidneys
	 Bronchial tree branching accelerates
	 Lobar pattern mimics adult pattern
	 Pacemaker cells
	 Head is one third of entire embryo

**Unit 6: 5 to 6 Weeks**

<b>5 weeks, 1 day</b>	 Wrist joints are forming
<b>5 weeks, 2 days</b>	 Thyroid detaches from pharynx
	 Atrioventricular (AV) node
	 Circle of Willis almost complete
	 Cochlear nerve present
	 Musculocutaneous, radial, ulna, and median nerves enter upper limb bud
	 All cranial nerves identifiable
<b>5½ weeks</b>	 Initial tooth formation
<b>5½ weeks - 6 weeks</b>	 Subtle movement begins
<b>5 weeks, 4 days</b>	 Cartilage formation
<b>5 weeks, 5 days</b>	 Nerve cells differentiating
<b>5 weeks, 5 days - 7 weeks, 1 day</b>	 Melanocytes in epidermis
<b>5 weeks, 6 days</b>	 Cartilage in occipital sclerotomes (1-4)
	 Primordial vermiform appendix
	 All spinal nerves present
	 Dura begins forming in basal area
	 Frontal and temporal poles of cerebral hemispheres
	 Somites: Pairs 38 and 39
	 Synapses in spinal cord between interneurons and primary afferent neurons
<b>6 weeks</b>	 Face withdraws from light touch around mouth
	 Blood forming in liver
	 Nipples along side of trunk
	 Adrenal glands
	 Glucagon in pancreas
	 Handplates develop subtle flattening
	 Joints

	Tooth buds (primary teeth)
	Diaphragm is largely formed
	Intestines fill base of umbilical cord
	External ears
	Synapses form in spinal cord
	Crown-heel length 1.6 cm

**Unit 7: 6 to 7 Weeks**

<b>6 weeks, 2 days</b>	Elbow regions sometimes identifiable
	Hands polygon-shaped
	Humerus, radius, and ulna
	Toe rays sometimes present
	Deltoid muscle
	Submandibular gland primordia
	Inferior vena cava
	Left coronary artery arises from aorta
	Optic fibers
	Eyelid folds sometimes present
	Brainwave activity has begun
	Cerebrospinal fluid production begins
<b>6½ weeks</b>	The hands begin to move
	Volar pads on palms
	Bones first form in the collar bones and lower jaw
<b>6 weeks, 5 days</b>	Beginnings of occipital and sphenoid bones
	Cartilaginous styloid process
	Limbs point forward (ventrally)
	Anal membrane
	Lung, left: Oblique fissure defines upper and lower lobes
	Circulus arteriosus (Circle of Willis) complete
	Right coronary artery arises from aorta
	Tricuspid and mitral valves
	Primitive nasal cavity
	Eyelids: Upper and lower lids present and growing
	Occipital pole of cerebral hemispheres
<b>6 weeks, 6 days</b>	Feet polygon-shaped
	Cloacal membrane ruptures
<b>7 weeks</b>	Head rotates
	Leg movements
	B lymphocytes in liver
	Ovaries
	Testes begin to differentiate
	Insulin in pancreas
	Foot plates notched
	Hiccups
	Tendons attach muscle to bone

	<ul style="list-style-type: none"> <li><span style="color: red;">■</span> The heart has four chambers and is nearly complete.</li> <li><span style="color: red;">■</span> The heart rate peaks at 165 to 170 beats per minute.</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Crown-heel length 2.2 cm</li> </ul>
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<b>Unit 8: 7 to 8 Weeks</b>
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<b>7 weeks, 1 day</b>	<ul style="list-style-type: none"> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Upper limbs with slightly flexed elbows</li> <li><span style="color: blue;">■</span> Sacrocaudal spinal cord formation (secondary neurulation) complete</li> </ul>
<b>7 weeks, 1 day - 8 weeks</b>	<ul style="list-style-type: none"> <li><span style="color: purple;">■</span> Stomach: Folds in stomach wall</li> </ul>
<b>7 weeks, 2 days</b>	<ul style="list-style-type: none"> <li><span style="color: red;">■</span> Arteries and veins of heart complete</li> </ul>
<b>7 weeks, 3 days</b>	<ul style="list-style-type: none"> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> The knee joints have arrived</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Wrists slightly flexed</li> <li><span style="color: yellow;">■</span> Eyelids growing rapidly</li> <li><span style="color: blue;">■</span> Cerebral hemispheres cover more than half of diencephalon</li> </ul>
<b>7½ weeks</b>	<ul style="list-style-type: none"> <li><span style="color: green;">■</span> Hands begin to touch face</li> <li><span style="color: green;">■</span> The hands touch each other as do the feet!</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Fingertips thicken</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Plantar pads toes</li> <li><span style="color: red;">■</span> EKG pattern similar to adult</li> </ul>
<b>7 weeks, 4 days</b>	<ul style="list-style-type: none"> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> The fingers are free</li> </ul>
<b>7 weeks, 5 days</b>	<ul style="list-style-type: none"> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Bone-forming cells called osteoblasts emerge</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Hands can reach one another and fingers can overlap</li> <li><span style="color: blue;">■</span> Brain: Internal capsule with connections to epithalamus, dorsal thalamus, and mesencephalon</li> <li><span style="color: blue;">■</span> Cerebral hemispheres cover 75% of diencephalon</li> <li><span style="color: blue;">■</span> Cortical plate expanding rapidly</li> </ul>
<b>7 weeks, 6 days</b>	<ul style="list-style-type: none"> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> The toes are free</li> </ul>
<b>8 weeks</b>	<ul style="list-style-type: none"> <li><span style="color: green;">■</span> Complex response to touch</li> <li><span style="color: green;">■</span> More frequent hand-to-face contact</li> <li><span style="color: green;">■</span> Mouth opens &amp; closes</li> <li><span style="color: green;">■</span> Squinting</li> <li><span style="color: green;">■</span> The embryo floats and rolls over in the womb</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Hairs first appear in eyebrows &amp; around mouth</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Skin multi-layered, loses transparency</li> <li><span style="color: cyan;">■</span> Male embryos are making testosterone already!</li> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> The embryo's joints are similar to adult joints</li> <li><span style="color: magenta;">■</span> Diaphragm complete</li> <li><span style="color: magenta;">■</span> Esophagus: Longitudinal muscles</li> <li><span style="color: olive;">■</span> Urethra</li> <li><span style="color: olive;">■</span> Urine production and release</li> <li><span style="color: purple;">■</span> Peristalsis in large intestine</li> <li><span style="color: orange;">■</span> Occasional breathing motions begin</li> <li><span style="color: red;">■</span> Blood supply to the brain closely resembles adult pattern</li> <li><span style="color: yellow;">■</span> Cranial nerve distribution mimics adult pattern</li> </ul>

	<ul style="list-style-type: none"> <li><span style="color: yellow;">■</span> Retina: Four of the ten adult layers present</li> <li><span style="color: yellow;">■</span> Tympanic membrane</li> </ul>
	<ul style="list-style-type: none"> <li><span style="color: blue;">■</span> "The hindbrain "presents striking resemblance to that of the newborn."</li> <li><span style="color: blue;">■</span> Brain represents 43% of embryo</li> <li><span style="color: blue;">■</span> Grey and white matter</li> <li><span style="color: blue;">■</span> Right- and left-handedness emerges</li> </ul>
	<ul style="list-style-type: none"> <li><span style="color: grey;">□</span> Crown-heel length 4.3 cm</li> <li><span style="color: grey;">□</span> Embryo contains approximately 1 billion (10<sup>9</sup>) cells</li> <li><span style="color: grey;">□</span> Embryonic Period Ends</li> <li><span style="color: grey;">□</span> The 8-week embryo has formed more than 4,000 permanent body parts.</li> </ul>

**Unit 9: 8 to 9 Weeks**

<b>8½ weeks</b>	<ul style="list-style-type: none"> <li><span style="color: yellow;">■</span> Eyelids completely fused</li> <li><span style="color: blue;">■</span> Neurons synapse in cerebral cortex (marginal zone)</li> </ul>
<b>9 weeks</b>	<ul style="list-style-type: none"> <li><span style="color: green;">■</span> Bends hip &amp; knee if sole of foot touched</li> <li><span style="color: green;">■</span> Drinking fluid is becoming routine</li> <li><span style="color: green;">■</span> Sucking the thumb</li> <li><span style="color: green;">■</span> The young fetus now sighs, stretches, moves the head, opens the mouth, and moves the tongue</li> <li><span style="color: green;">■</span> Tongue movement</li> <li><span style="color: lightgreen;">■</span> Female fetuses have early reproductive cells in their ovaries</li> <li><span style="color: cyan;">■</span> Thyroid gland weighs 2 grams</li> <li><span style="color: purple;">■</span> Small intestine peristalsis</li> <li><span style="color: blue;">■</span> 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><span style="color: orange;">■</span> Early vocal cords</li> <li><span style="color: grey;">□</span> My weight will rise more than 75% this week</li> </ul>
<b>9½ weeks</b>	<ul style="list-style-type: none"> <li><span style="color: green;">■</span> I yawn when I want</li> </ul>
<b>9 weeks, 4 days</b>	<ul style="list-style-type: none"> <li><span style="color: blue;">■</span> Yawns</li> </ul>
<b>10 weeks</b>	<ul style="list-style-type: none"> <li><span style="color: green;">■</span> Eyes roll downward reflexively</li> <li><span style="color: magenta;">■</span> Palatine tonsils</li> <li><span style="color: pink;">■</span> Fingernails and toenails begin to grow!</li> <li><span style="color: pink;">■</span> Three-layered epidermis</li> <li><span style="color: pink;">■</span> Tiny unique fingerprints have arrived!</li> <li><span style="color: grey;">□</span> Now, all the bones are getting harder</li> <li><span style="color: grey;">□</span> Tooth buds (secondary teeth)</li> <li><span style="color: darkgreen;">■</span> Glomeruli formation begins</li> <li><span style="color: purple;">■</span> Physiologic herniation ends</li> <li><span style="color: blue;">■</span> Corpus callosum begins</li> <li><span style="color: grey;">□</span> Crown-heel length 7.5 cm</li> </ul>

**Unit 11: 10 to 11 Weeks**

<b>10 weeks - 12 weeks</b>	<ul style="list-style-type: none"> <li><span style="color: magenta;">■</span> Langerhans cells enter epidermis</li> </ul>
<b>10½ weeks</b>	<ul style="list-style-type: none"> <li><span style="color: pink;">■</span> Volar and plantar pads regress</li> </ul>

<b>11 weeks</b>	<ul style="list-style-type: none"> <li>■ The face now makes complex expressions</li> <li>■ Immunological competence</li> <li>■ Intermediate layer</li> <li>■ Nose &amp; lips completely formed</li> <li>■ Now you can tell if your baby is a girl or a boy!</li> <li>■ Thyroid gland weighs 12 grams</li> <li>■ Intestines absorb water &amp; glucose</li> <li>■ Auditory cells: inner &amp; outer hair cells</li> <li>□ Crown-heel length</li> </ul>
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**Unit 12: 11 to 12 Weeks**

<b>11 weeks - 12 weeks</b>	□ Weight increases by 60% this week
<b>12 weeks</b>	<ul style="list-style-type: none"> <li>■ Hands touch the mouth up to 50 times per hour</li> <li>■ T lymphocytes leave thymus</li> <li>■ Many different hormones are present in pituitary gland</li> <li>■ Thyroid gland produces hormone</li> <li>■ Palate fuses</li> <li>■ Upper limbs reach final proportion</li> <li>■ Bladder resembles smooth muscle</li> <li>■ Bowel movements</li> <li>■ Liver: Bile production begins</li> <li>■ There are taste buds all over the mouth</li> <li>■ Corpus callosum</li> <li>□ Crown-heel length 12 cm</li> <li>□ Head circumference 10 cm</li> </ul>

**Unit 13: 3 to 4 Months**

<b>13 weeks</b>	<ul style="list-style-type: none"> <li>■ Teeth are growing</li> <li>■ Cilia lining airways</li> <li>■ Most of body sensitive to touch</li> <li>□ Crown-heel length 15 cm</li> </ul>
<b>14 weeks</b>	<ul style="list-style-type: none"> <li>■ Girls move their jaws more than the boys do</li> <li>■ Light touch to mouth evokes turn toward stimulus</li> <li>■ 4-lobed cerebral cortex</li> <li>■ Cerebellum resembles adult structure</li> <li>□ Crown-heel length 17 cm</li> <li>□ Fat deposits in cheeks</li> </ul>
<b>15 weeks</b>	<ul style="list-style-type: none"> <li>■ Stem cells arrive in bone marrow</li> <li>■ Body fat emerges throughout the body</li> <li>■ Glucagon in fetal bloodstream</li> <li>■ Digestive enzymes</li> <li>□ Crown-heel length 19.5 cm</li> </ul>
<b>16 weeks</b>	<ul style="list-style-type: none"> <li>■ Quickening</li> <li>■ Fat deposits upper &amp; lower limbs</li> <li>■ Tooth enamel</li> <li>■ Bronchial tree nearly complete</li> </ul>



	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Hormonal stress response to invasive procedures</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: white; border: 1px solid black; margin-right: 5px;"></span> Crown-heel length 21 cm</li> </ul>
<b>Unit 14: 4 to 5 Months</b>	
<b>17 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Retina has discrete layers</li> </ul>
<b>18 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: pink; 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: pink; border: 1px solid black; margin-right: 5px;"></span> Sweat glands</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: cyan; border: 1px solid black; margin-right: 5px;"></span> Insulin secretion</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: orange; border: 1px solid black; margin-right: 5px;"></span> Speaking motion of larynx</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; border: 1px solid black; margin-right: 5px;"></span> Corpus callosum complete</li> </ul>
<b>19 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: pink; border: 1px solid black; margin-right: 5px;"></span> Melanin production</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: lightgreen; border: 1px solid black; margin-right: 5px;"></span> Number of oogonia peak (at about 7 million) within fetal ovaries</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; 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: pink; 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: orange; border: 1px solid black; margin-right: 5px;"></span> Surfactant production (low levels)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; 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: yellow; 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: white; border: 1px solid black; margin-right: 5px;"></span> Crown-heel length 28 cm</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: white; border: 1px solid black; margin-right: 5px;"></span> Head circumference 20 cm</li> </ul>
<b>Unit 15: 5 to 6 Months</b>	
<b>20 weeks - 24 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Eyelids separate, eyes open and close</li> </ul>
<b>21 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: pink; border: 1px solid black; margin-right: 5px;"></span> Stratum corneum</li> </ul>
<b>21 weeks - 22 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: white; border: 1px solid black; margin-right: 5px;"></span> If born prematurely from this point on, survival is possible</li> </ul>
<b>22 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Cornea structure</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; border: 1px solid black; margin-right: 5px;"></span> Behavioral states</li> </ul>
<b>23 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: white; border: 1px solid black; margin-right: 5px;"></span> Brain weight 100 grams</li> </ul>
<b>24 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Blink-startle response; females before males</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: white; border: 1px solid black; margin-right: 5px;"></span> Crown-heel length 34.5 cm</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: purple; border: 1px solid black; margin-right: 5px;"></span> Intestinal lining contains all adult cell types</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Rods &amp; cones</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> The ability to taste</li> </ul>
<b>26 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: pink; border: 1px solid black; margin-right: 5px;"></span> Additional fat deposits decrease wrinkles</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: pink; border: 1px solid black; margin-right: 5px;"></span> Tear production</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> The ability to smell has arrived</li> </ul>
<b>26 weeks - 38 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; border: 1px solid black; margin-right: 5px;"></span> Brain weight increases 400% to 500%</li> </ul>
<b>27 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Pupils react to light</li> </ul>
<b>28 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Distinguishes sounds of different frequencies</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: white; border: 1px solid black; margin-right: 5px;"></span> Crown-heel length 39.5 cm</li> </ul>
<b>Unit 17: 7 to 8 Months</b>	
<b>30 weeks</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: orange; border: 1px solid black; margin-right: 5px;"></span> Breathing motions are common even though there is no air in the womb</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; border: 1px solid black; margin-right: 5px;"></span> 6-layered cerebral cortex</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: white; border: 1px solid black; margin-right: 5px;"></span> Head circumference 30 cm</li> </ul>

<b>32 weeks</b>	<ul style="list-style-type: none"> <li><span style="color: magenta;">■</span> Esophagus: Lower esophagus muscles functional</li> <li><span style="color: green;">■</span> Glomeruli formation complete</li> <li><span style="color: orange;">■</span> Alveoli</li> <li><span style="color: blue;">■</span> Memory - music preferences</li> <li><input type="checkbox"/> Crown-heel length 45 cm</li> </ul>
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**Unit 18: 8 to 9 Months**

<b>32 weeks - 36 weeks</b>	<span style="color: yellow;">■</span> Prenatal food affects newborn taste preferences
<b>34 weeks</b>	<input type="checkbox"/> Rapid weight gain
<b>35 weeks</b>	<ul style="list-style-type: none"> <li><span style="color: magenta;">■</span> Firm grip</li> <li><input type="checkbox"/> Amniotic fluid volume peaks</li> </ul>
<b>36 weeks</b>	<ul style="list-style-type: none"> <li><span style="color: orange;">■</span> Surfactant production accelerates</li> <li><input type="checkbox"/> Brain weight 300 grams</li> <li><input type="checkbox"/> Crown-heel length 48.5 cm</li> </ul>

**Unit 19: 9 Months to Birth**

<b>37 weeks</b>	<span style="color: purple;">■</span> Fetus drinks an estimated 15 oz (or 450cc) of amniotic fluid/day
<b>38 weeks</b>	<ul style="list-style-type: none"> <li><span style="color: orange;">■</span> Air breathing begins</li> <li><span style="color: red;">■</span> By term, the typical umbilical cord measures 20 to 24 inches (50 to 60 cm)</li> <li><span style="color: red;">■</span> Heart beats 54 million times before birth</li> <li><span style="color: red;">■</span> Major circulatory changes</li> <li><span style="color: blue;">■</span> Spinal cord ends at third lumbar vertebrae</li> <li><input type="checkbox"/> Brain weight 350 grams</li> <li><input type="checkbox"/> Crown-heel length 50 cm</li> <li><input type="checkbox"/> Fetus initiates labor</li> <li><input type="checkbox"/> Head circumference 35 cm</li> <li><input type="checkbox"/> Time to be born!</li> </ul>