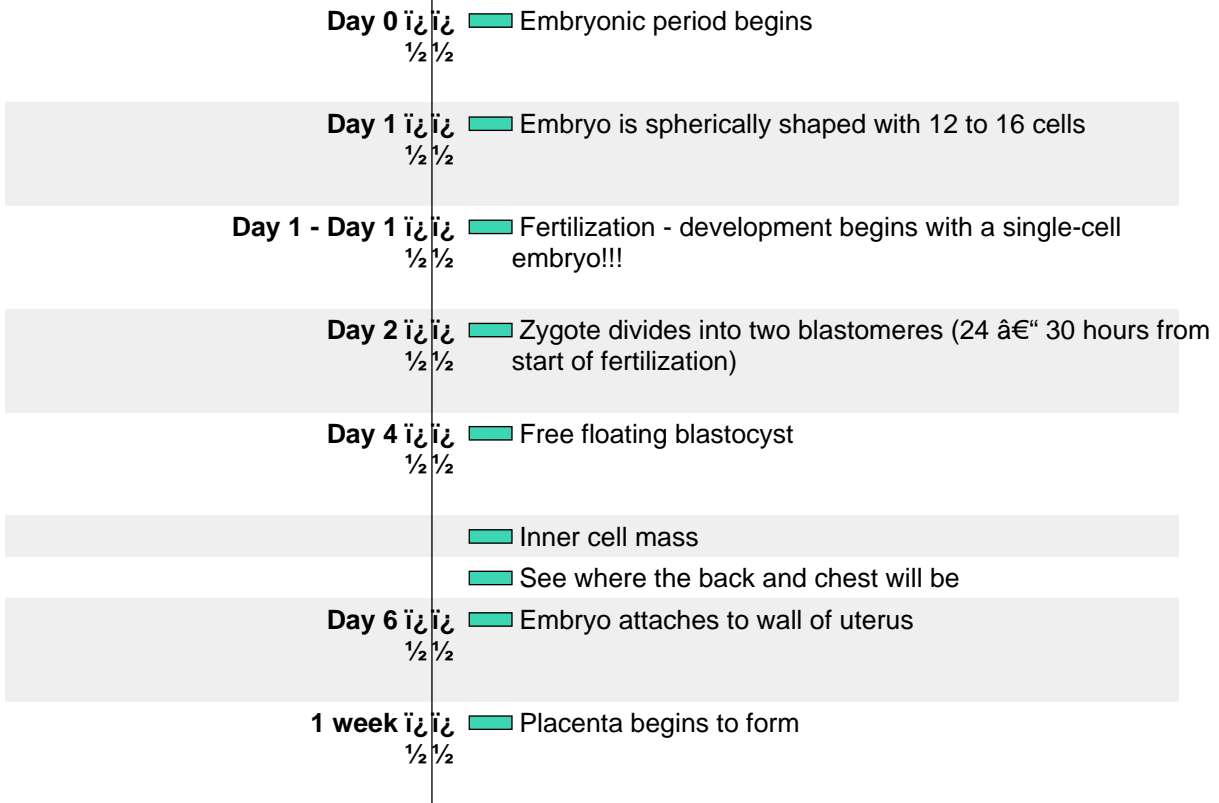


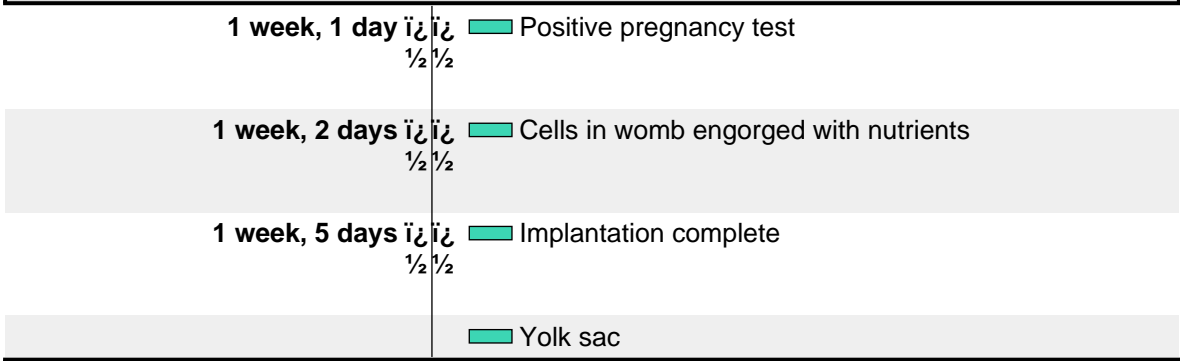
Prenatal Development Timeline

- | | | | |
|---|--|--|---|
| ■ Nervous | ■ Cardiovascular | ■ Muscular | ■ Early Events |
| ■ Special Senses | ■ Respiratory | ■ Skeletal | ■ Growth Parameters |
| ■ Blood & Immune | ■ Gastrointestinal | ■ Endocrine | ■ General |
| ■ Skin/Integument | ■ Renal/Urinary | ■ Reproductive | ■ Movement |

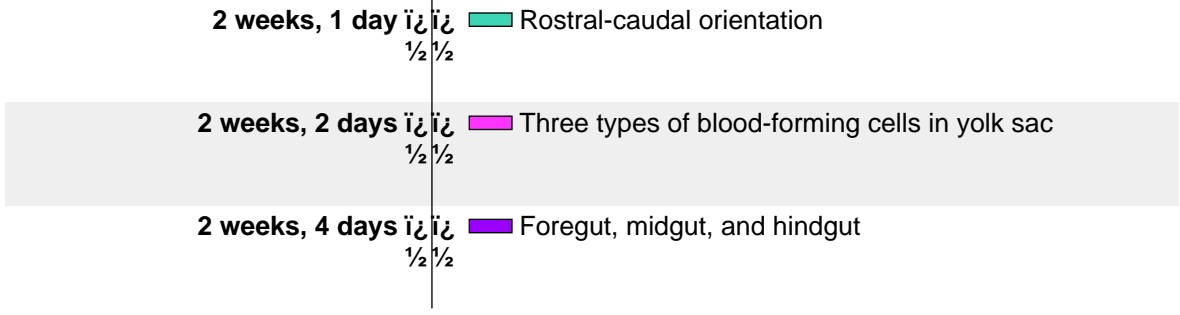
Unit 1: The First Week










































Unit 2: 1 to 2 Weeks



Unit 3: 2 to 3 Weeks



<p>2 weeks, 6 days  1/2 1/2</p>	<ul style="list-style-type: none">  Brain is first organ to appear  Beginnings of the heart can be seen
<p>3 weeks  1/2 1/2</p>	<ul style="list-style-type: none">  Forebrain, midbrain, and hindbrain  Three main divisions of brain  Blood and blood vessels
Unit 4: 3 to 4 Weeks	
<p>3 weeks, 1 day  1/2 1/2</p>	<ul style="list-style-type: none">  Respiratory outgrowth
	<ul style="list-style-type: none">  Circulatory system function begins
	<ul style="list-style-type: none">  Heart begins beating
	<ul style="list-style-type: none">  Tubular heart begins folding
	<ul style="list-style-type: none">  Umbilical arteries
	<ul style="list-style-type: none">  Umbilical veins (right and left)  Body cavities
<p>3 weeks, 3 days  1/2 1/2</p>	<ul style="list-style-type: none">  Liver
	<ul style="list-style-type: none">  Membrane between future mouth and throat may begin to rupture
<p>3 weeks, 5 days  1/2 1/2</p>	<ul style="list-style-type: none">  First part of pancreas
	<ul style="list-style-type: none">  Lung bud
	<ul style="list-style-type: none">  Descending aorta
	<ul style="list-style-type: none">  Lowermost spinal cord formation begins
	<ul style="list-style-type: none">  Neural tube closes (lower back)
	<ul style="list-style-type: none">  Upper limb primordium at level of somites 8 to 10
<p>4 weeks  1/2 1/2</p>	<ul style="list-style-type: none">  Skin is so thin, you can see through it!
	<ul style="list-style-type: none">  Esophagus primordia
	<ul style="list-style-type: none">  Pancreas: Ventral pancreas
	<ul style="list-style-type: none">  Pharynx
	<ul style="list-style-type: none">  Small & large intestines
	<ul style="list-style-type: none">  Lungs begin filling chest cavity
	<ul style="list-style-type: none">  Trachea
	<ul style="list-style-type: none">  Circulatory system "well established"
	<ul style="list-style-type: none">  Functioning two-chamber heart
	<ul style="list-style-type: none">  Heart rate (about) 113 beats/min
	<ul style="list-style-type: none">  Fourth ventricle
	<ul style="list-style-type: none">  Cervical flexure
	<ul style="list-style-type: none">  Limb buds - the first sign of arms and legs

	<ul style="list-style-type: none"> Umbilical cord emerging Upper and lower limb buds
Unit 5: 4 to 5 Weeks	
4 weeks, 4 days $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> Nose: Nasal pits
4 weeks, 5 days $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> Brain: Cerebral hemispheres appear and begin rapid growth Blood vessels penetrate diencephalon
5 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> Brain with five main sections First nerve fibers Lobar pattern mimics adult pattern Pacemaker cells Head is one third of entire embryo
Unit 6: 5 to 6 Weeks	
5 weeks, 2 days $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> All cranial nerves identifiable
5 $\frac{1}{2}$ weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> Initial tooth formation
5 $\frac{1}{2}$ weeks - 6 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> Subtle movement begins
5 weeks, 6 days $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> Primordial vermiform appendix
6 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> Face withdraws from light touch around mouth Blood forming in liver Tooth buds (primary teeth) Intestines fill base of umbilical cord External ears
Unit 7: 6 to 7 Weeks	
6 weeks, 2 days $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> Elbow regions sometimes identifiable Humerus, radius, and ulna Submandibular gland primordia Brainwave activity has begun
6 $\frac{1}{2}$ weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> The hands begin to move Bones first form in the collar bones and lower jaw

6 weeks, 5 days $\frac{1}{2}$ $\frac{1}{2}$	Arms point forward
	Beginnings of occipital and sphenoid bones
6 weeks, 6 days $\frac{1}{2}$ $\frac{1}{2}$	Cloacal membrane ruptures
7 weeks $\frac{1}{2}$ $\frac{1}{2}$	Head rotates
	Leg movements
	Ovaries
	Hiccups
	The heart has four chambers and is nearly complete.
	The heart rate peaks at 165 to 170 beats per minute.
Unit 8: 7 to 8 Weeks	
7 weeks, 1 day $\frac{1}{2}$ $\frac{1}{2}$	Upper limbs with slightly flexed elbows
	Sacrocaudal spinal cord formation (secondary neurulation) complete
7 weeks, 1 day - 8 weeks $\frac{1}{2}$ $\frac{1}{2}$	Stomach: Folds in stomach wall
7 weeks, 2 days $\frac{1}{2}$ $\frac{1}{2}$	Arteries and veins of heart complete
7 weeks, 3 days $\frac{1}{2}$ $\frac{1}{2}$	The knee joints have arrived
	Eyelids growing rapidly
7 $\frac{1}{2}$ weeks $\frac{1}{2}$ $\frac{1}{2}$	Fingertips thicken
	EKG pattern similar to adult
7 weeks, 4 days $\frac{1}{2}$ $\frac{1}{2}$	The fingers are free
7 weeks, 5 days $\frac{1}{2}$ $\frac{1}{2}$	Bone-forming cells emerge
	Hands can reach one another and fingers can overlap
8 weeks $\frac{1}{2}$ $\frac{1}{2}$	Complex response to touch
	More frequent hand-to-face contact
	Urine production and release
	Occasional breathing motions begin
	Blood supply to the brain closely resembles adult pattern
	Ear drum

	<ul style="list-style-type: none"> "The hindbrain "presents striking resemblance to that of the newborn." Brain represents 43% of embryo Right- and left-handedness emerges Embryonic Period Ends
--	---

Unit 9: 8 to 9 Weeks

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

Unit 10: 9 to 10 Weeks

9 weeks - 10 weeks	My weight will rise more than 75% this week
9 weeks, 4 days	Yawns
10 weeks	Palatine tonsils
	<ul style="list-style-type: none"> Fingernails and toenails begin to grow! Three-layered epidermis Tiny unique fingerprints have arrived! Now, all the bones are getting harder Tooth buds (secondary teeth)

Unit 11: 10 to 11 Weeks

10½ weeks	Volar and plantar pads regress
11 weeks	<ul style="list-style-type: none"> Nose & lips completely formed Now you can tell if your baby is a girl or a boy! Thyroid gland weighs 12 grams Intestines absorb water & glucose

Unit 12: 11 to 12 Weeks

12 weeks	<ul style="list-style-type: none"> Many different hormones are present in pituitary gland Upper limbs reach final proportion Bowel movements
----------	---

	<ul style="list-style-type: none"> Liver: Bile production begins There are taste buds all over the mouth Head circumference 10 cm
--	--

Unit 13: 3 to 4 Months

<p>13 weeks $\frac{1}{2}$ $\frac{1}{2}$</p>	<ul style="list-style-type: none"> Teeth are growing
<p>14 weeks $\frac{1}{2}$ $\frac{1}{2}$</p>	<ul style="list-style-type: none"> Most of body sensitive to touch Girls move their jaws more than the boys do
<p>15 weeks $\frac{1}{2}$ $\frac{1}{2}$</p>	<ul style="list-style-type: none"> Light touch to mouth evokes turn toward stimulus Cerebellum resembles adult structure Fat deposits in cheeks Body fat emerges throughout the body
<p>16 weeks $\frac{1}{2}$ $\frac{1}{2}$</p>	<ul style="list-style-type: none"> Quickening Fat deposits upper & lower limbs

Unit 14: 4 to 5 Months

<p>18 weeks $\frac{1}{2}$ $\frac{1}{2}$</p>	<ul style="list-style-type: none"> Cream-like substance protects skin Sweat glands
<p>19 weeks $\frac{1}{2}$ $\frac{1}{2}$</p>	<ul style="list-style-type: none"> Melanin production
<p>20 weeks $\frac{1}{2}$ $\frac{1}{2}$</p>	<ul style="list-style-type: none"> Daily cycles in biological rhythms All skin layers and structures Hearing and responding to sound begins Hearing and responding to sound begins Head circumference 20 cm

Unit 15: 5 to 6 Months

<p>20 weeks - 24 weeks $\frac{1}{2}$ $\frac{1}{2}$</p>	<ul style="list-style-type: none"> Eyelids separate, eyes open and close
<p>21 weeks - 22 weeks $\frac{1}{2}$ $\frac{1}{2}$</p>	<ul style="list-style-type: none"> If born prematurely from this point on, survival is possible
<p>23 weeks $\frac{1}{2}$ $\frac{1}{2}$</p>	<ul style="list-style-type: none"> Brain weight 100 grams

Unit 16: 6 to 7 Months

<p>25 weeks $\frac{1}{2}$ $\frac{1}{2}$</p>	<ul style="list-style-type: none"> Intestinal lining contains all adult cell types
--	--

	<ul style="list-style-type: none"> <input type="checkbox"/> The ability to taste
26 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> <input type="checkbox"/> Additional fat deposits decrease wrinkles
26 weeks - 38 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> <input type="checkbox"/> The ability to smell has arrived <input type="checkbox"/> Brain weight increases 400% to 500%
27 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> <input type="checkbox"/> Pupils react to light
Unit 17: 7 to 8 Months	
30 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> <input type="checkbox"/> Breathing motions are common even though there is no air in the womb
	<ul style="list-style-type: none"> <input type="checkbox"/> Head circumference 30 cm
32 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> <input type="checkbox"/> Esophagus: Lower esophagus muscles functional
Unit 18: 8 to 9 Months	
32 weeks - 36 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> <input type="checkbox"/> Prenatal food affects newborn taste preferences
35 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> <input type="checkbox"/> Firm grip
36 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> <input type="checkbox"/> Brain weight 300 grams
Unit 19: 9 Months to Birth	
37 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> <input type="checkbox"/> Fetus drinks an estimated 15 oz (or 450cc) of amniotic fluid/day
38 weeks $\frac{1}{2}$ $\frac{1}{2}$	<ul style="list-style-type: none"> <input type="checkbox"/> Heart beats 54 million times before birth
	<ul style="list-style-type: none"> <input type="checkbox"/> Brain weight 350 grams
	<ul style="list-style-type: none"> <input type="checkbox"/> Fetus initiates labor
	<ul style="list-style-type: none"> <input type="checkbox"/> Head circumference 35 cm
	<ul style="list-style-type: none"> <input type="checkbox"/> Time to be born!