Prenatal Development Timeline

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

Unit 1: The First Week

Day 0 ï¿½ï¿½½½ — Embryonic period begins

Day 1 ï¿½ï¿½½½ — Embryo is spherically shaped with 12 to 16 cells

Day 1 - Day 1 ï¿½ï¿½½½ — Fertilization - development begins with a single-cell embryo!!!

Day 2 ï¿½ï¿½½½ — Zygote divides into two blastomeres (24 â€“ 30 hours from start of fertilization)

Day 4 ï¿½ï¿½½½ — Free floating blastocyst

- Inner cell mass
- See where the back and chest will be

Day 6 ï¿½ï¿½½½ — Embryo attaches to wall of uterus

1 week ï¿½ï¿½½½ — Placenta begins to form

Unit 2: 1 to 2 Weeks

1 week, 1 day ï¿½ï¿½½½ — Positive pregnancy test

1 week, 2 days ï¿½ï¿½½½ — Cells in womb engorged with nutrients

1 week, 5 days ï¿½ï¿½½½ — Implantation complete

- Yolk sac

Unit 3: 2 to 3 Weeks

2 weeks, 1 day ï¿½ï¿½½½ — Rostral-caudal orientation

2 weeks, 2 days ï¿½ï¿½½½ — Three types of blood-forming cells in yolk sac

2 weeks, 4 days ï¿½ï¿½½½ — Foregut, midgut, and hindgut

	Brain is first organ to appear
2 weeks, 6 days ï¿½ï¿½	Beginnings of the heart can be seen
	Forebrain, midbrain, and hindbrain
	Three main divisions of brain
3 weeks ï¿½ï¿½	Blood and blood vessels
Unit 4: 3 to 4 Weeks	
3 weeks, 1 day ï¿½ï¿½	Respiratory outgrowth
	Circulatory system function begins
	Heart begins beating
	Tubular heart begins folding
	Umbilical arteries
	Umbilical veins (right and left)
	Body cavities
3 weeks, 3 days ï¿½ï¿½	Liver
	Membrane between future mouth and throat may begin to rupture
3 weeks, 5 days ï¿½ï¿½	First part of pancreas
	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
4 weeks ï¿½ï¿½	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	
4 weeks, 4 days ï¿½ï¿½	Nose: Nasal pits
	Brain: Cerebral hemispheres appear and begin rapid growth
4 weeks, 5 days ï¿½ï¿½	Blood vessels penetrate diencephalon
	Brain with five main sections
	First nerve fibers
5 weeks ï¿½ï¿½	Lobar pattern mimics adult pattern
	Pacemaker cells
	Head is one third of entire embryo
Unit 6: 5 to 6 Weeks	
5 weeks, 2 days ï¿½ï¿½	All cranial nerves identifiable
5ï¿½ weeks ï¿½ï¿½	Initial tooth formation
5ï¿½ weeks - 6 weeks ï¿½ï¿½	Subtle movement begins
5 weeks, 6 days ï¿½ï¿½	Primordial vermiform appendix
6 weeks ï¿½ï¿½	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 ï¿½ï¿½	Elbow regions sometimes identifiable
	Humerus, radius, and ulna
	Submandibular gland primordia
	Brainwave activity has begun
6ï¿½ weeks ï¿½ï¿½	The hands begin to move
	Bones first form in the collar bones and lower jaw

6 weeks, 5 days ï¿½ï¿½	Arms point forward
	Beginnings of occipital and sphenoid bones
6 weeks, 6 days ï¿½ï¿½	Cloacal membrane ruptures
7 weeks ï¿½ï¿½	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 ï¿½ï¿½	Upper limbs with slightly flexed elbows
	Sacrocaudal spinal cord formation (secondary neurulation) complete
7 weeks, 1 day - 8 weeks ï¿½ï¿½	Stomach: Folds in stomach wall
7 weeks, 2 days ï¿½ï¿½	Arteries and veins of heart complete
7 weeks, 3 days ï¿½ï¿½	The knee joints have arrived
	Eyelids growing rapidly
7ï¿½ weeks ï¿½ï¿½	Fingertips thicken
	EKG pattern similar to adult
7 weeks, 4 days ï¿½ï¿½	The fingers are free
7 weeks, 5 days ï¿½ï¿½	Bone-forming cells emerge
	Hands can reach one another and fingers can overlap
8 weeks ï¿½ï¿½	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

	"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	
8ï¿½ weeks ï¿ï¿½½	Eyelids completely fused
9 weeks ï¿ï¿½½	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 ï¿ï¿½½	My weight will rise more than 75% this week
9 weeks, 4 days ï¿ï¿½½	Yawns
10 weeks ï¿ï¿½½	Palatine tonsils
	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	
10ï¿½ weeks ï¿ï¿½½	Volar and plantar pads regress
11 weeks ï¿ï¿½½	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 ï¿ï¿½½	Many different hormones are present in pituitary gland
	Upper limbs reach final proportion
	Bowel movements

	Liver: Bile production begins
	There are taste buds all over the mouth
	Head circumference 10 cm
Unit 13: 3 to 4 Months	
13 weeks ï¿½ï¿½	Teeth are growing
	Most of body sensitive to touch
14 weeks ï¿½ï¿½	Girls move their jaws more than the boys do
	Light touch to mouth evokes turn toward stimulus
	Cerebellum resembles adult structure
	Fat deposits in cheeks
15 weeks ï¿½ï¿½	Body fat emerges throughout the body
16 weeks ï¿½ï¿½	Quickening
	Fat deposits upper & lower limbs
Unit 14: 4 to 5 Months	
18 weeks ï¿½ï¿½	Cream-like substance protects skin
	Sweat glands
19 weeks ï¿½ï¿½	Melanin production
	Daily cycles in biological rhythms
20 weeks ï¿½ï¿½	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	
20 weeks - 24 weeks ï¿½ï¿½	Eyelids separate, eyes open and close
21 weeks - 22 weeks ï¿½ï¿½	If born prematurely from this point on, survival is possible
23 weeks ï¿½ï¿½	Brain weight 100 grams
Unit 16: 6 to 7 Months	
25 weeks ï¿½ï¿½	Intestinal lining contains all adult cell types

	The ability to taste
26 weeks ï¿½ï¿½	Additional fat deposits decrease wrinkles
	The ability to smell has arrived
26 weeks - 38 weeks ï¿½ï¿½	Brain weight increases 400% to 500%
27 weeks ï¿½ï¿½	Pupils react to light

Unit 17: 7 to 8 Months

30 weeks ï¿½ï¿½	Breathing motions are common even though there is no air in the womb
	Head circumference 30 cm
32 weeks ï¿½ï¿½	Esophagus: Lower esophagus muscles functional

Unit 18: 8 to 9 Months

32 weeks - 36 weeks ï¿½ï¿½	Prenatal food affects newborn taste preferences
35 weeks ï¿½ï¿½	Firm grip
36 weeks ï¿½ï¿½	Brain weight 300 grams

Unit 19: 9 Months to Birth

37 weeks ï¿½ï¿½	Fetus drinks an estimated 15 oz (or 450cc) of amniotic fluid/day
38 weeks ï¿½ï¿½	Heart beats 54 million times before birth
	Brain weight 350 grams
	Fetus initiates labor
	Head circumference 35 cm
	Time to be born!