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** — Embryonic period begins
- **Day 1** — Embryo is spherically shaped with 12 to 16 cells
- **Day 1 - Day 1** — Fertilization - development begins with a single-cell embryo!!!
- **Day 2** — Zygote divides into two blastomeres (24 â€“ 30 hours from start of fertilization)
- **Day 4** — Free floating blastocyst
- Inner cell mass
- See where the back and chest will be
- **Day 6** — Embryo attaches to wall of uterus
- **1 week** — Placenta begins to form

Unit 2: 1 to 2 Weeks

- **1 week, 1 day** — Positive pregnancy test
- **1 week, 2 days** — Cells in womb engorged with nutrients
- **1 week, 5 days** — Implantation complete
- Yolk sac

Unit 3: 2 to 3 Weeks

- **2 weeks, 1 day** — Rostral-caudal orientation
- **2 weeks, 2 days** — Three types of blood-forming cells in yolk sac
- **2 weeks, 4 days** — Foregut, midgut, and hindgut
- Brain is first organ to appear
- **2 weeks, 6 days** — Beginnings of the heart can be seen
- Forebrain, midbrain, and hindbrain
- Three main divisions of brain
- **3 weeks** — Blood and blood vessels

Unit 4: 3 to 4 Weeks

- **3 weeks, 1 day** — 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** — Liver
- Membrane between future mouth and throat may begin to rupture
- **3 weeks, 5 days** — 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	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	Brain: Cerebral hemispheres appear and begin rapid growth
4 weeks, 5 days	Blood vessels penetrate diencephalon
	Brain with five main sections
	First nerve fibers
5 weeks	Lobar pattern mimics adult pattern
	Pacemaker cells
	Head is one third of entire embryo
Unit 6: 5 to 6 Weeks	
5 weeks, 2 days	All cranial nerves identifiable
5½ weeks	Initial tooth formation
5½ weeks - 6 weeks	Subtle movement begins
5 weeks, 6 days	Primordial vermiform appendix
6 weeks	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	
6 weeks, 2 days	Elbow regions sometimes identifiable
	Humerus, radius, and ulna
	Submandibular gland primordia
	Brainwave activity has begun
6½ weeks	The hands begin to move

	Bones first form in the collar bones and lower jaw
6 weeks, 5 days	Arms point forward
	Beginnings of occipital and sphenoid bones
6 weeks, 6 days	Cloacal membrane ruptures
7 weeks	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	Upper limbs with slightly flexed elbows
	Sacrocaudal spinal cord formation (secondary neurulation) complete
7 weeks, 1 day - 8 weeks	Stomach: Folds in stomach wall
7 weeks, 2 days	Arteries and veins of heart complete
7 weeks, 3 days	The knee joints have arrived
7½ weeks	Fingertips thicken
	EKG pattern similar to adult
7 weeks, 4 days	The fingers are free
7 weeks, 5 days	Bone-forming cells emerge
	Hands can reach one another and fingers can overlap
8 weeks	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	
9 weeks	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
	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	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	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	Teeth are growing
	Most of body sensitive to touch
14 weeks	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	Body fat emerges throughout the body
16 weeks	Quickening
	Fat deposits upper & lower limbs
Unit 14: 4 to 5 Months	
18 weeks	Cream-like substance protects skin
	Sweat glands
19 weeks	Melanin production
	Daily cycles in biological rhythms
20 weeks	All skin layers and structures
	Hearing and responding to sound begins
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	Head circumference 20 cm
Unit 15: 5 to 6 Months	
21 weeks - 22 weeks	If born prematurely from this point on, survival is possible
23 weeks	Brain weight 100 grams
Unit 16: 6 to 7 Months	
25 weeks	Intestinal lining contains all adult cell types

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