24 HR

STRUCTURE	FORERUNNER	IMMEDIATE FORERUNNER	IMMEDIATE FATE	ADULT FATE	EMBRYONIC FUNCTION	ADULT FUNCTION
I. Level of Anterior Neuropore						
Anterior Neuropore	Neural tube	unfused neural tube	Will close	None	marks region were neural folds have not yet fused	
Foregut	Primitive gut	Pocketing of endoderm within head fold	Separates into the foregut and midgut?	*Pharyngeal Arches*	No functional use but will become passageway of ingested material	Passageway of materials to be digested/undergoing digestion
Oral Plate	Ectoderm + endoderm thickening below foregut	Ectoderm + endoderm thickening below foregut	Ruptures	Mouth / Stomodeum	No functional use but marks beginning of digestive pathway	Mechanical digestion and chemical digestion through salivary enzymes
Subcephalic Pocket	Ectoderm + mesoderm	Folding of somatopleure	*Degenerates caudad*		Separates head and neck from the underlying yolk	
Mesoderm	Epiblast	Ingressing epiblast cells	Epimere, mesomere, hypomere	Mesodermal derivatives	Undergo cell specification and morphogenetic movements through selective gene expression to develop into their respective fates	Line coelom, circulation of nutrients through circulatory system, movement through muscular system, support and framework of body through skeletal system, regulation through excreteroy system
Endoderm	Hypoblast	Secondary/definitive hypoblast	Lining of foregut, midgut, hindgut	Epithelial lining of digestive tract	No functional use yet	Lines digestive tract except mouth, lines respiratory tract including alveoli, produces hormones through the thymus and thyroid gland, excretion through urinary bladder
II. Level of Amnio-Cardiac Vesicle						

Neural Tube	Neural ectoderm	Dorsolateral hinge point cells, Medial hinge point cells	Prosencephalon, Mesencephalon, Rhombencephalon	Telencephalon, Diencephalon Midbrain Metencephalon, Myelencephalon Spinal Cord	For sensation and muscle control	For sensation and muscle control
Head Mesenchyme	Prechordal mesoderm	Migrating cranial neural crest		Facial connective tissue	Embryonic connective tissue	
Notochord	Epiblast cells migrating through Hensen's node	Mesodermal rod	Persists until replaced	Pulpy nucleus	Induces development of the neural plate	Support
Amnio-Cardiac Vesicle	Somatic mesoderm; ectoderm	Thickened splanchnic mesoderm	amnion (dorsal wall), cardiac primordium (thickened proximal wall)	Pericardial coelom	Amnion - protective	Surrounds heart
Splanchnopleure	Splanchnic mesoderm and endoderm	Splanchnic mesoderm and endoderm	Still the splanchnopleure	Visceral pleura, parts of spleen, mesenteries	Nothing really	contracts digestive tract (muscles)
III. Level of Anterior Intestinal Portal						
Anterior Intestinal Portal	Floor of the foregut fused to entoderm of blastoderm	Disappearance of posterior sections of foregut floow		Duodenum	Entry of nutrients from yolk	Digestion and absorption
Pharyngeal Pouches	Foregut	Pharyngeal chamber of embryo	Pharyngeal pouches I-V which push laterally through head mesenchyme	Pharynx, cavities in the middle ear, Eustachian tubes, palatine tonsil, thymus, inferior parathyroid gland		
Head Fold	Somatopleure	Pinched-off somatopleure from extraembryonic blastoderm		Ventral surface of head and foregut	Undercuts head to distinguish it from body	
IV. Level of Midgut						
Midgut	Primitive gut	Foregut	Still the midgut?	Small intestine	Nothing yet	Digestion and absorption

Somatic Mesoderm	Hypomere / lateral-plate mesoderm	Upper layer adjacent to ectoderm after splitting	Somites, somatopleure	Body muscles, dermis, vertebrae, chorion, amnion, limbs, peritoneal cavity, gonads	Lines coelom	(functions of derivatives)
Cardiac Primordia	Thickened splanchnic mesoderm	Endocardial tube	Merges with other cardiac primordia to form primordial heart	Heart	Nothing yet	Muscular propulsion of blood
V. Level of Somite						
Neural Groove	Neural ectoderm	Folding through DLHPC and MHPC	Neural Tube	Brain and spinal cord	Undergoes complete fusion	Transmission of neural messages
Somites	Mesoderm	Paraxial mesoderm	Dermatome, sclerotome, myotome	Dermis, skeletal muscle, vertebrae	Differentiates	
Intermediate Mesoderm	Mesoderm	Mesoderm	Nephrotomes	urogenital system	Nothing yet	excretion and gamete production
Lateral Plate Mesoderm	Mesoderm	Mesoderm	Somatic and splanchnic layers of mesoderm	Splanchnopleure Somatopleure, outlying regions become extraembryonic	Assimilates with ectoderm (somatic splanchnopleure) and endoderm (splanchnic mesoderm)	protection, absorption, digestion, respiration
Coelom	Splitting of lateral plate mesoderm	Splitting of lateral plate mesoderm	Embryonic and extraembryonic body cavities	Pleural and peritoneal body cavities	Surrounds gut	Surrounds visceral organs
VI. Level of Primitive Pit/Groove						
Primitve Pit	Epiblast	Epiblast	notochordal canal, which quickly becomes the neurenteric canal	pulpy nucleus	Allows migration of prospective pharyngeal endoderm, prechordal plate mesoderm and chordamesoderm cells	support
Area Opaca Vasculosa	Posterior half of blastoderm	Splanchnopleuric cells and endoderm	Where blood islands form; Extends until it eventually surrounds the entire yolk mass; Yolk Sac	Through blood islands - blood vessels and blood cells	Represents extent of lateral mesodermal migration/Site of embryonic circulation	Forms portion of adult circulatory system (?)
Blood Islands	splanchnic mesoderm of yolk sac (lateral plate mesoderm)	Hemangioblasts	primitive blood vessels and blood cells	blood vessels and blood cells	Aid in providing nourishment to the developing embryo	Circulation of blood (Circulatory System)

Area Opaca Vitellina	Blastoderm	Area Opaca	Area Vitellina Externa - Area Vitellina Interna - -	Yolk sac (?) yolk sac parenchyma?	Nourishment of Embryo	