**Discuss the second week of development**

Three events take place in the second week of development, they include;

1. Completion of implantation
2. Formation of bilamina germ disk
3. Development of extra embryonic structure.

**Day 8**

- The blastocyst is partially embedded in the endometrium
- As the synctitiotrophoblast continues to erodes the endometrium, the cell of the cytotrophoblast will continue to divide and migrate to the region of the synctitiotrophoblast
- The embryoblast will differentiate into two layers of cells. The first layer of columnar cells of called the epiblast and the second layer of cuboidal cells is called the hypoblast.
- The cells adjacent to the cytotrophoblast are known as the amnioblast and these cells surround the amniotic cavity.

**Day 9**

- The blastocyst is deeply embedded in the endometrium and the surface of the is covered by a fibrin coagulum
- A membrane is formed and it lies adjacent to the cytotrophoblast. The membrane is called the heuser's membrane or the exocoelomic membrane
- The cavity between the exocoelomic membrane and the hypoblast is called the exocoelomic cavity/ primary yolk sac/primary umbilical vesicle. Vacuoles develop at the region of the synctitiotrophoblast and become the large; they are called the trophoblastic lacunae.

**Day 11-12**

- The blastocyst is completely embedded in the endometrium.
- The synctitiotrophoblast will continue to erode the endometrium thereby rupturing some capillaries.
- Ruptured capillaries are called sinusoids.
- Sinusoids communicate with the lacunae and then blood oxygen and nutrients are transported from the mother to the conceptus.
- A primordial uteroplacental circulation is established.
- A space of mesoderm develops between the cytotrophoblast and the amnioblast and the cytotrophoblast and exocoelomic membrane( but this space does not cover the connecting stalk)
- The space of mesoderm is called the extra embryonic mesoderm
- Cavities begin to develop at the region of the extra embryonic mesoderm. The cavity is called the extra embryonic cavity or the coelom

- This cavity divides the mesoderm into two different parts; the extra embryonic somatic mesoderm and the extra embryonic splanchnic mesoderm
- As development occurs, a decidual reaction occurs. The endometrium swells from the accumulation of glycogen and lipid and are known as decidual cells. This is to provide nutrition for early embryo and an immunologically privileged site for the conceptus.

**Day 13**

- The cells of the cytotrophoblast will acquire a syncytium. The connecting stalk gives rise to the future umbilical cord. The extra embryonic cavity becomes enlarged to form the chorionic cavity. A portion of the primary yolk sac is pinched off to form a cyst called the exocoelomic cyst.