

4.3-4.4. Pregnancy, Stem Cells, and Gender Determination

Pregnancy begins with _____. Everyone in here started life as a single cell, approx. 0.1 mm in diameter.

In humans, a woman is pregnant for approx. ___ weeks (about ___ months). This time is usually broken down into 3 equal parts

(about ___ months each) which we call _____.

_____:

- Egg fertilized and implants in the uterus by end of the 1st week
- Hormones are secreted to stop menstruation
- A fluid filled sac forms around the baby (amniotic fluid)
- Week 4: brain and nervous system developing, heart is beating
- Eyes, ears, nose, limb buds, and tail are visible (TAIL!)
- Week 8: has all the beginnings of organs and receiving nutrition through placenta
- End of 3rd month (End of 1st Trimester) muscle and bone forming. Gender can be determined

_____:

- Time of intense growth lengthwise (from 8 cm at the start to 30 cm long by the end)
- Heartbeat can be heard with a stethoscope
- Mother can feel the baby moving, kicking, etc
- Fetus practices breathing (but nothing to breathe yet)
- Fetus is now covered with a fine hair

_____:

- Fetus puts on most of its mass
- Fetus sleeps and wakes, reacts to outside stimuli
- Fetus turns so the head is pointing down to prepare for birth

A “blank” cell is called a _____. _____ have not yet developed into a particular type of cell. When it does, this is called _____. _____ are something scientists are studying very closely as there would be many possible medical uses for them.

The _____ pair of chromosomes in humans are sometimes called the _____ chromosomes since they determine the sex of the individual.

Females have _____ chromosomes while males have _____ and _____ chromosome. But there are more genes in those chromosomes other than just ones determining gender. Some characteristics appear more frequently in males than in females (like _____, hemophilia, or _____). These are called _____ traits since they show up more frequently in males than females.)

Please note, the world is a bit more complicated than just this. Sometimes when gametes are being created there are mistakes during meiosis. This could result in one gamete getting _____ of the same chromosome, or be missing an entire chromosome. This is called _____ and occurs when _____ chromosomes fail to separate during meiosis. This can lead to various medical conditions depending on which chromosomes failed to separate.

Some Nondisjunction Conditions:

_____ (extra chromosome #21)

Effects: mild to severe mental disabilities, a variety of physical disorders

_____ (females missing an X chromosome)

Effects: because there is only 1 X chromosome, the reproductive system does not mature at puberty. As a result, women with Turner Syndrome do not menstruate and cannot reproduce.

_____ (males born with two X chromosomes and one Y)

Effects: males with _____ Syndrome produce less testosterone and therefore cannot father any children.

_____ (females born with three X chromosomes)

Effects: _____ do develop properly at puberty and can reproduce. They tend to be taller and thinner than average.