The Human Life Cycle

20.3
To view the human life cycle stages, visit the google slides we made in class by following this link:

https://docs.google.com/presentation/d/1tVlG3CZWiq6_bDlE1Xa_TKGNsZUZOwEFkaOBeFbMbUw/edit?usp=sharing
Development Before Birth

• Includes stages from fertilization to birth:
  – Zygote
  – Embryo
  – Fetus
• The zygote develops into an embryo and then into a fetus.
• The zygote will divide soon after fertilization and continue until it is a hollow ball of cells.
• The ball of cells will attached to the uterine wall and develop into a embryo.
• The embryo will begin to develop organs and continue growing until finally the fetal stage is reached.
Fetal Development

- Fetus (9wk-birth)
- Early- (9wk- 3rd months) about the size of a walnut, developing internal organs, head is about half the size of the total size, has eye spots, and fingers by the end of the 3\textsuperscript{rd} month the fetus is about 9 cm long and weighs 26 grams.
- Middle- (4th-6th months) bone development, heart beat, hair and skin, arms and legs develop completely, movement, kicking, by end of 6\textsuperscript{th} month the fetus is 30 cm long and weighs 700 grams.
- Late- (7\textsuperscript{th} month-birth) lots of growing! brain development, lung development, fetus doubles in length and weighs about 3kg.
Protection and Nourishment

- The membranes and other structures that form during development protect and nourish the embryo, and later the fetus.

- Placenta - the link between the embryo and the mother. The embryo and mother blood vessels lay next to each other. Nutrients, oxygen, wastes and carbon dioxide diffuse between the blood vessels. The blood from the mother and embryo do not mix.

- Amniotic Sac - membrane that surrounds the embryo after implantation, develops into a fluid filled sac. The fluid sac cushions and protects the developing baby.

- Umbilical cord - ropelike structure that connects the fetus to the placenta. Contains blood vessels that link the fetus to the placenta. The blood stays separated by a thin barrier that keeps diseases and some substances out. Other substances are not kept out and should be avoided by pregnant women, such as, tobacco, drugs, and alcohol.
Birth

• The birth of a baby takes place in three stages:
• Labor- strong muscular contractions of the uterus. Contractions cause the cervix to enlarge. May last 2-20 hours.
• Delivery- baby is pushed out of the uterus through the vagina. Head first. The baby is still connected by the umbilical cord. Takes several minutes to an hour. The cord is clamped about 5 cm from the baby. After it is cut it will dry up and fall off leaving a scar called the belly button.
• Afterbirth- about 15 minutes after birth, the uterine contractions push the placenta out of the uterus.
Birth and the Baby

• Birth is a stressful process for the baby and the mother.

• The muscle contractions of labor decrease the oxygen supply to the baby. In response to this adrenaline is released causing the baby’s heart rate to increase.

• Once the baby begins breathing and coughing the fluid that fills the lungs is replaced with air.

• This slows the baby’s heart rate and normal gas exchange begins.
Multiple Births

• Delivery of more than one baby from a single pregnancy. Also know as twins.
• 1 out of every 30 born each year is a multiple birth.
• Identical twins- develop from a single fertilized egg. Twins have identical genetics. Will always be the same sex.
• Fraternal twins- develop from two fertilized eggs. Twins have no more genes in common than siblings. Can be two different sexes.
Growth and Development

• The changes that take place in between infancy and adulthood include physical changes, such as an increase in size and coordination. They also include mental changes, such as the ability to communicate and solve complex problems.

• Includes stages from birth to death:
  – Infancy
  – Toddler
  – Childhood
  – Adolescence
  – Young adulthood
  – Middle adulthood
  – Older adulthood
Development from Birth to Death

• Infancy- characterized by changes in size and shape, coordination of nervous and muscular systems, crawling and walking, smiling and laughing, early speech.
• Childhood- continued growth, coordination, curiosity, language skills. Most children can carry on conversation, and make friends.
• Adolescence- physical and sexual maturity, puberty, hormonal changes. Ovulation and menstruation. Secondary sex characteristics develop (deep voice or breast). Sperm production begins.
• Adulthood-begins after puberty. Around the age of 30 aging begins. Reproductive processes end, hair loses color, skin wrinkles, eyes lose ability to focus.