Pregnancy

Section 1: Conception

• What is sexual reproduction?

Sexual reproduction is the production of offspring through sexual means. This typically involves the genetic material from a male and female of a species combining to produce a new individual. In humans the males' genetic material is carried in sperm and the females' in eggs. The male produces sperm in the testes, and the female produces eggs in the ovaries.

- **Suggested Films**
  - **Sperm**
  - **Egg**
  - **Contraception: History of the Pill**
  - **Chemical Contraception**
  - **Contraception: Barrier Methods**

DIAGRAM 01:

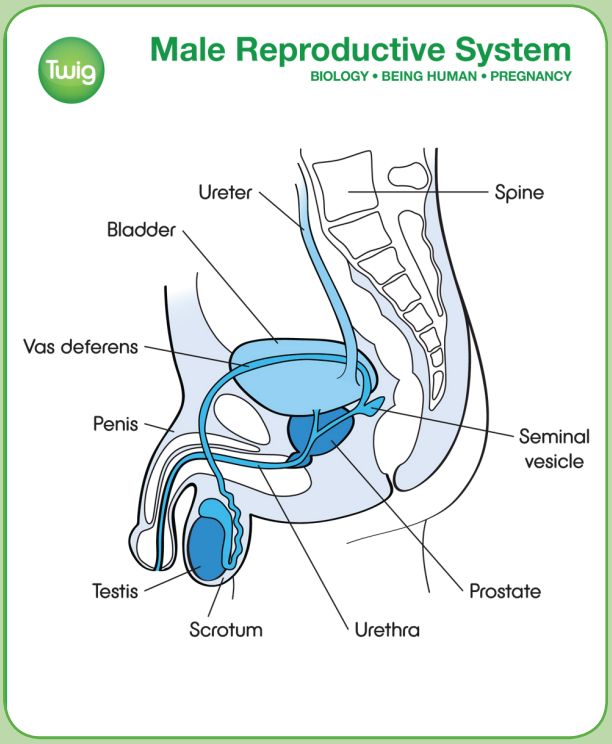
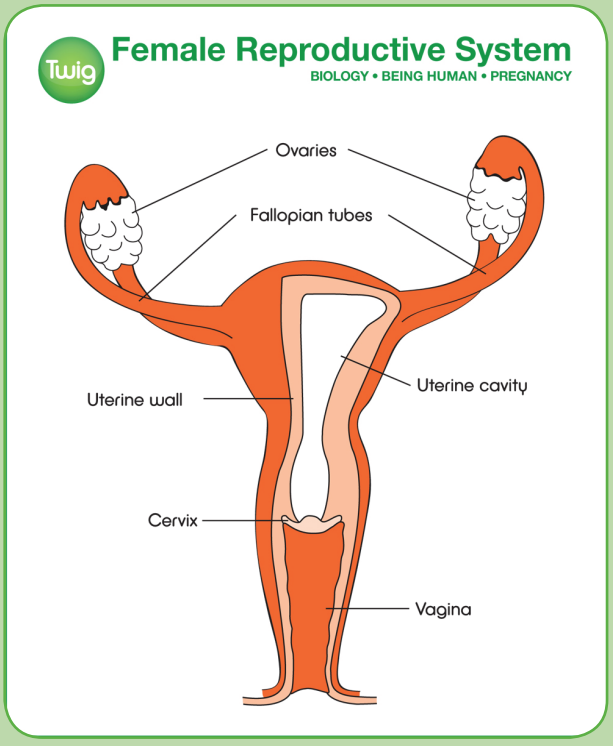


DIAGRAM 02:



Extension Questions

Q1. What is asexual reproduction?

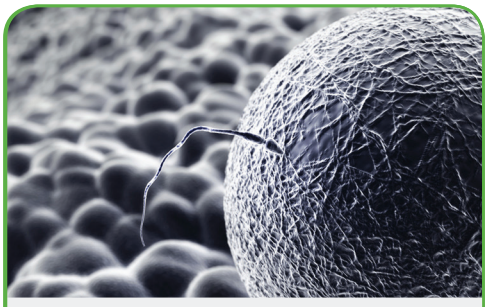
Asexual reproduction is the production of offspring without fertilisation. It involves only one parent and the offspring have an identical genetic make-up to the parent. Many unicellular organisms, such as plants and fungi, use asexual reproduction.

Q2. What is a gamete?

A gamete is the scientific name for a sex cell – sperm or egg. Gametes contain half the genetic information as a normal body cell and have been formed by a special type of cell division called meiosis.

• What is fertilisation?

Fertilisation is the point at which the male sperm fuses with the female egg to produce a cell called a zygote; this consists of genes from both the mother and the father. This process occurs inside the fallopian tube of the female following sexual intercourse. The zygote then divides and develops into an embryo, which implants in the uterine wall of the female. At this point we say the female has become pregnant.



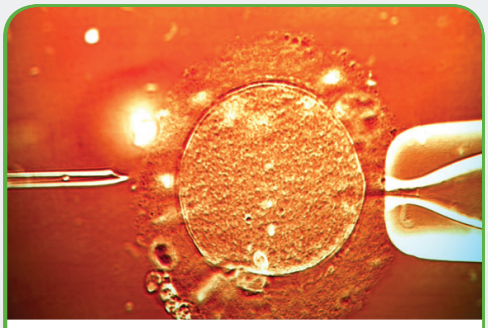
The moment of conception

- **Suggested Films**
  - **Fertilisation**
  - **Medical Marvels: IVF**

Extension Question

Q3. What is IVF?

IVF stands for In Vitro Fertilisation, meaning 'fertilisation in glass'. Today many couples who have difficulty conceiving are offered IVF treatment. The male and female gametes are collected and mixed in a Petri dish. If a zygote is formed, it can be collected and transferred to the mother's uterus for implantation and, hopefully, a successful pregnancy. Children born following this procedure used to be called 'test-tube' babies!



In Vitro Fertilisation (IVF)

Section 2: Pregnancy

• What happens in the first trimester?

Typically a woman is pregnant for nine months (or about 40 weeks). This period is also known as gestation, and is often divided into three month sections, called trimesters.

The first trimester is associated with the development of key organs, such as the brain, heart and kidneys. The arms and legs also develop from tiny buds, and facial features start to emerge. The placenta and umbilical cord also start to form. By the end of the first trimester the embryo is about 7cm in length and is called a foetus.

Human embryo at 6 weeks

Extension Question

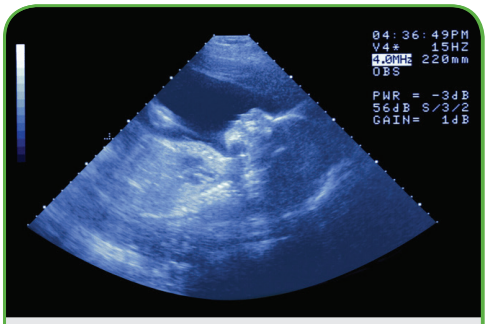
Q4. What is a miscarriage?

A miscarriage is the sudden ending of a pregnancy in which the foetus does not survive. It can be due to genetic abnormalities in the foetus, health issues in the mother (obesity, high blood pressure and diabetes), and substance abuse by the mother (nicotine, alcohol and other drugs).

- **Suggested Films**
  - **Pregnancy: First Trimester**
  - **FactPack: Pregnancy Timeline**

• What happens in the second trimester?

The second trimester is associated with growth of the foetus, which begins to move more inside the uterus. The placenta has become fully formed, and is critical in exchanging the nutrients, hormones and waste substances between the foetal and maternal blood. The sex organs also develop during the second trimester, and it becomes possible to identify the sex of a foetus at this stage.



Ultrasound scan of foetus

- **Suggested Films**
  - **Pregnancy: Second Trimester**
  - **Medical Marvels: Ultrasound**

Extension Question

Q5. How can you tell what sex the baby is before it's born?

A scanning technique called ultrasound can be used to 'see' what is going on inside the mother's womb. High frequency sound waves are transmitted into the mother's abdomen and the reflections (echoes) are received and interpreted by a computer to create an image. The technique can be used to check the development of the foetus as well as to determine the sex.

• What happens in the third trimester?


Woman in the late stages of pregnancy

The final three months of pregnancy is called the third trimester. Growth of the foetus becomes very rapid, the abdomen of the mother becoming very distended and uncomfortable as a result. The foetus becomes stronger, kicking more forcefully and frequently. The organ systems become fully developed, and a baby born prematurely during the third trimester is typically capable of surviving. Although often this is not possible without the intervention of intensive medical care. Ideally, the foetus 'turns' during the third trimester so that its head is pointing down into the mother's pelvic area.

- **Suggested Film**
  - **Pregnancy: Third Trimester**

Extension Question

Q6. What is the function of the amniotic sac?

The amniotic sac is a membrane which surrounds the foetus during pregnancy. It is full of fluid and protects the baby from knocks and bumps. It also helps to dilute any urine the foetus excretes.

Section 3: Birth

• What happens at birth?

Labour is the term used to describe the birth process. It can be divided into three parts: the 'breaking of the waters', the delivery of the baby and the 'afterbirth'.

Labour begins with contractions of the uterine wall becoming increasingly forceful and regular. During this time the cervix dilates and the amniotic sac often breaks, allowing the fluid inside to leak out ('breaking of the waters'). Eventually the cervix widens enough to allow the contractions to force the baby out of the mother's body. At this point the umbilical cord is clamped and cut, and the baby begins to breathe for itself. Soon afterwards, the uterine contractions force the placenta out ('the afterbirth').

• Suggested Films

– Birth

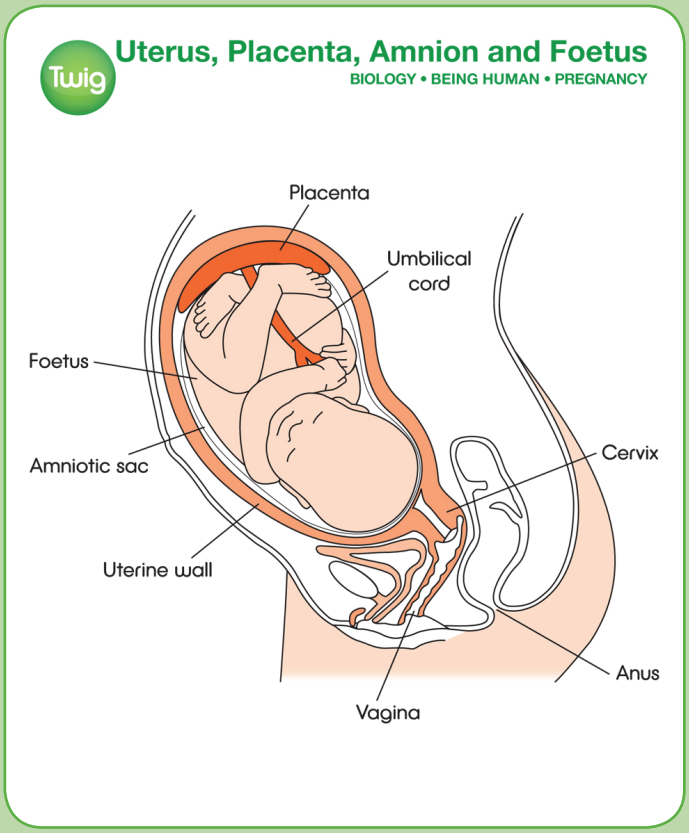
– Why Are We Born So Helpless?

Extension Question

Q7. What is the cervix?

The cervix is a thick ring of muscle at the base of the uterus. During pregnancy it serves to hold the developing foetus in the womb, so at birth it needs to widen (dilate) sufficiently for the baby to pass out through the birth canal.

DIAGRAM 03:



• What does the placenta do?

The placenta is the key exchange organ of pregnancy, allowing substances to move from the mother's blood to the foetal blood and vice versa. At one end the placenta is imbedded in the uterine wall where it is bathed in maternal blood, and at the other it is connected to the umbilical cord, which is linked to the foetus. Nutrients, such as sugars and amino acids, diffuse into the foetal blood, while wastes, like carbon dioxide and urea, travel the other way. The placenta can also produce important hormones during pregnancy and protect the baby from certain diseases.

• Suggested Films

– Placenta

– War in the Womb

Human foetus inside the womb

Extension Questions

Q8. How is the placenta adapted to its function?

The placenta is an exchange organ, so has a large surface area created by chorionic villi and a rich blood supply from both mother and foetus. Furthermore, the two blood supplies are brought very close to each other to allow for rapid exchange of substances.

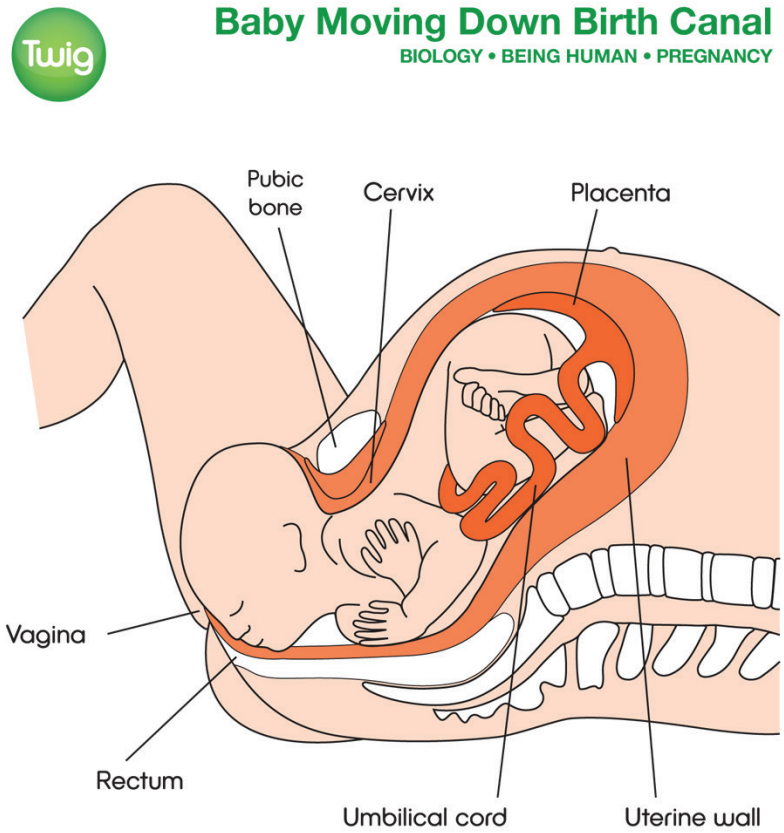
Q9. What is a breech birth?

A breech birth is the term used to describe the birth of a baby that is not head down. The child is born feet or buttocks first, creating medical complications for mother and child.

Q10. What is a caesarean section?

A caesarean section is a medical procedure in which the doctor cuts through the abdominal and uterine walls in order to remove a baby. It is used in emergency situations and also when a normal birth is regarded as risky for medical reasons.

DIAGRAM 04:



• Quizzes

Fertilisation

Basic

• How often does a woman release an egg?

A – every day
B – every week
C – every month
D – every year

• What organ produces eggs?

A – fallopian tube
B – uterus
C – vagina
D – ovary

• Where does fertilisation usually take place?

A – fallopian tube
B – uterus
C – vagina
D – ovary

• What is the scientific name for a fertilised egg?

A – an ovum
B – an oocyte
C – a zygote
D – an embryo

Advanced

• For how long can the egg survive unfertilised before it dies?

A – 1 month
B – 1 week
C – 1 day
D – 2 days

• Where does fertilisation usually take place?

A – fallopian tube
B – uterus
C – vagina
D – ovary

• What does the sperm need to produce in order to penetrate the egg?

A – a nucleus
B – an enzyme
C – a tail
D – a shell

• What is the scientific name for a fertilised egg?

A – an ovum
B – an oocyte
C – a zygote
D – an embryo

Pregnancy

Basic

• How long does a typical pregnancy last?

A – 1 month

B – 28 days

C – 1 year

D – 9 months

• What role does the placenta play during pregnancy?

A – an exchange organ

B – a growth regulator

C – a shock absorber

D – site of respiration for foetus

• What happens to the foetus during the last three months of pregnancy?

A – its arm and legs appear

B – it grows

C – its sex is determined

D – its brain begins to develop

• Ideally, what position should the foetus be in just before birth?

A – head up

B – head down

C – cross-legged

D – back to front

Advanced

• How long does a typical pregnancy last?

A – 1 month

B – 28 days

C – 1 year

D – 9 months

• What is a trimester?

A – a stage of the menstrual cycle

B – the name given for birth

C – another name for puberty

D – a three month period during pregnancy

• What has to happen to a zygote before it is called an embryo?

A – it has to divide

B – it has to grow

C – it has to implant in the uterine lining

D – it has to become a foetus

• What technique is used to allow a child to be sexed during pregnancy?

A – X-ray

B – NMR scan

C – ultrasound scan

D – a blood test

• What role does the placenta play during pregnancy?

A – an exchange organ

B – a growth regulator

C – a shock absorber

D – site of respiration for foetus

Birth

Basic

• What organ has to contract during birth?

A – cervix
B – uterus
C – vagina
D – ovary

• What has to dilate before birth can take place?

A – cervix
B – uterus
C – vagina
D – ovary

• What connects the baby to the placenta?

A – cervix
B – amnion
C – umbilical cord
D – artery

• What is clamped and cut immediately after birth of the baby?

A – cervix
B – amnion
C – umbilical cord
D – artery

Advanced

• What word is used to describe the birth process?

A – gestation
B – trimester
C – labour
D – contractions

• What is the first sign that the birth process might be starting?

A – loosening of the pelvis
B – movements of the baby
C – dilation of the cervix
D – contractions of the uterus

• What has to dilate before the baby can be born?

A – cervix
B – uterus
C – vagina
D – ovary

• What connects the baby to the placenta?

A – cervix
B – amnion
C – umbilical cord
D – artery

• Answers

Fertilisation

Basic

• How often does a woman release an egg?

A – every day
B – every week
C – every month
D – every year

• What organ produces eggs?

A – fallopian tube
B – uterus
C – vagina
D – ovary

• Where does fertilisation usually take place?

A – fallopian tube
B – uterus
C – vagina
D – ovary

• What is the scientific name for a fertilised egg?

A – an ovum
B – an oocyte
C – a zygote
D – an embryo

Advanced

• For how long can the egg survive unfertilised before it dies?

A – 1 month
B – 1 week
C – 1 day
D – 2 days

• Where does fertilisation usually take place?

A – fallopian tube
B – uterus
C – vagina
D – ovary

• What does the sperm need to produce in order to penetrate the egg?

A – a nucleus
B – an enzyme
C – a tail
D – a shell

• What is the scientific name for a fertilised egg?

A – an ovum
B – an oocyte
C – a zygote
D – an embryo

Pregnancy

Basic

• How long does a typical pregnancy last?

A – 1 month
B – 28 days
C – 1 year
D – 9 months

• What role does the placenta play during pregnancy?

A – an exchange organ
B – a growth regulator
C – a shock absorber
D – site of respiration for foetus

• What happens to the foetus during the last three months of pregnancy?

A – its arm and legs appear
B – it grows
C – its sex is determined
D – its brain begins to develop

• Ideally, what position should the foetus be in just before birth?

A – head up
B – head down
C – cross-legged
D – back to front

Advanced

• How long does a typical pregnancy last?

A – 1 month
B – 28 days
C – 1 year
D – 9 months

• What is a trimester?

A – a stage of the menstrual cycle
B – the name given for birth
C – another name for puberty
D – a three month period during pregnancy

• What has to happen to a zygote before it is called an embryo?

A – it has to divide
B – it has to grow
C – it has to implant in the uterine lining
D – it has to become a foetus

• What technique is used to allow a child to be sexed during pregnancy?

A – X-ray
B – NMR scan
C – ultrasound scan
D – a blood test

• What role does the placenta play during pregnancy?

A – an exchange organ
B – a growth regulator
C – a shock absorber
D – site of respiration for foetus

Birth

Basic

• What organ has to contract during birth?

A – cervix

B – uterus

C – vagina

D – ovary

• What has to dilate before birth can take place?

A – cervix

B – uterus

C – vagina

D – ovary

• What connects the baby to the placenta?

A – cervix

B – amnion

C – umbilical cord

D – artery

• What is clamped and cut immediately after birth of the baby?

A – cervix

B – amnion

C – umbilical cord

D – artery

Advanced

• What word is used to describe the birth process?

A – gestation

B – trimester

C – labour

D – contractions

• What is the first sign that the birth process might be starting?

A – loosening of the pelvis

B – movements of the baby

C – dilation of the cervix

D – contractions of the uterus

• What has to dilate before the baby can be born?

A – cervix

B – uterus

C – vagina

D – ovary

• What connects the baby to the placenta?

A – cervix

B – amnion

C – umbilical cord

D – artery