Having some basic knowledge and understanding about the physical aspects of how bodies function in terms of pregnancy and human reproduction will provide students with a foundation for good decision-making about their current and/or future sexual health behaviours. Students may also be generally interested to learn about the creation of human life.

Conception

Conception is the moment of fertilisation and the associated changes that take place in a femaleâ??s body which lead to the embedding of the embryo and its growth within the uterus. The following steps explain the process of fertilisation:

- Ovulation is the release of an egg from the ovaries and is most likely to occur about the middle of the menstrual cycle though this timing differs among females.
- Testicles are where the sperm are made and epididymis is where sperm mature.
- Vas deferens is the narrow tube that the mature sperm travel along to get to the prostate gland.
- The prostate gland makes a fluid which combines with the sperm to create semen during sexual arousal.
- In the female, arousal causes the vagina to become moist, making it easier to accept the erect penis.
- In the male, arousal causes the penis to fill with blood and become firm, making it easier to enter the vagina.
- When vaginal sexual intercourse occurs, many sperm are released.
- Fertilisation occurs if one sperm enters the egg in the outer portion of the fallopian tube.
- The fertilised egg travels down the fallopian tube, enters the uterus and then embeds itself in the lining of the uterus where it is nourished and grows.

- The fertilised egg is called a zygote and after about 30 hours, the single-celled fertilised egg divides into 2 cells, then 4, 8 and so on.
- Over the next 4 days the multi-celled organism will travel down the fallopian tube and enter the uterus, then a few days later the fertilised egg (now an embryo) will attach to the rich, thickened endometrial uterine tissue.
- The entire process of implantation is usually complete a week after fertilisation.
- Pregnancy begins with the implantation of the fertilised egg to the wall of the uterus and once the fertilised egg is anchored, growth and development rapidly accelerate.
- It takes nine months from fertilisation to birth.

Developmental stages during pregnancy

Stage	Month	Approximate size	Development
Embryonic	1st	1.5cm	Backbone and spinal cord begin to develop
Basic organ systems form	2nd	3cm	Eyes have developed but no eyelids First tiny movements occur; not felt by mother
Foetal	3rd	7.5cm	Limbs, fingers and toes develop
	4th	13cm	Foetal movements are felt, heartbeat heard Fine down hair grows on body Eyebrows and eyelashes, fingernails and toenails are present
	5th	20cm	Fat begins to collect under the skin Hair develops on head of the foetus
	6th	28cm	Eyes open for the first time Body is covered with a cheese-like substance Some babies have survived at this stage if born prematurely
	7th	33cm	Testes descend into scrotum of male foetus
	8th	38cm	Hair covering body begins to disappear
	9th	43cm	Full development attained

Teaching tips

- Explain how the uterus stretches as the baby grows. This can be demonstrated by having students make a fist with their hands to illustrate the approximate size of a baby.
- Use the Magno-mate Reproductive Kit from SRHWA (or other resources listed below) for additional support to explain conception, pregnancy and birth.

Health of the mother during pregnancy

It is very important that an embryo is given the best possible environment in which to develop and this means good pre-natal care of the mother including:

- Regular visits to a doctor to monitor foetal growth and check the motherâ??s health
- Sleep, rest and exercise

- Nutrition

Drugs are potentially dangerous during pregnancy because most chemicals pass through the placental barrier and affect the foetus. Alcohol, cigarettes and other drugs may adversely affect the babyâ??s health.

Labour and birth

Labour

Labour is the process of childbirth. Factors that control the onset of labour are not fully understood.

Two weeks or so before actual labour, the infant â??engagesâ??; that is, the head settles into the pelvis ready for birth.

The length of labour varies from over 20 hours to just a few minutes, and can be affected by the type of childbirth, motherâ??s age, health and the number of births the mother has had previously.

Stages of labour

Stage 1- The longest period of labour. Contractions of the uterus cause the cervix to progressively dilate until fully open. When the cervix has opened fully the amniotic sac that protects the baby breaks.

Stage 2- This period may last from a few minutes to approximately two hours. The foetus passes through the birth canal. This stage lasts until the birth of the baby and the cutting of the umbilical cord.

Stage 3- Usually completed within 10 minutes after the birth of the baby. The placenta and foetal membranes are expelled after the baby has been born. These structures are called the â??afterbirthâ??.

Birth

Types of childbirth

Spontaneous â?? no artificial support during birth, spontaneous labour, no drugs.

Assisted â?? labour may be induced by breaking of waters, intravenous drip or gel placed on the cervix, pain killing drug may be administered during labour, instruments such as forceps or ventouse (vacuum device) may be used to help delivery.

Caesarean â?? when the baby cannot be born vaginally, which may be due to a variety of reasons to do with the baby or the mother, an incision is made in the lower abdominal wall and uterus. The baby is removed through the incision. This procedure is conducted under general or regional anaesthetic (epidural or spinal).

Maternal (identical) twins are always the same sex and develop from one fertilised egg that divides early in its development into two halves.

Fraternal (non-identical) twins develop from two separate fertilised eggs and are no more alike than single birth brothers and sisters.

Fertility

Most couples who wish to conceive do so within 12 months of regular (timed at ovulation) vaginal intercourse. If conception does not occur as a second year goes by, it may be an indication of impaired fertility.

Causes of infertility

- Age (male and female)
- Low sperm count
- Poor sperm motility
- Infrequent ovulation
- Endometriosis
- Blockage of fallopian tubes
- Pelvic adhesions due to previous STIs such as chlamydia.

Treatments available for infertility

- Surgery (rarely)
- Ovulation induction
- Superovulation and intrauterine insemination
- In vitro fertilisation

- Sperm or embryo donation.

Relevant resources

Illustrations

Genetics

Pregnancy

Pregnancy teaching sheets

Fact sheets/booklets/videos

The facts on pregnancy, Get the facts

Reproductive cycle animated slide show, Queensland Health

Baby Center videos

Classroom resources

Magno-mate Reproductive Kit, SHQ

This kit has a magnetic board upon which male and female reproductive systems can be displayed (parts depicted almost life size). There are 30 magnetic overlays which are used to demonstrate menstruation, ejaculation, contraception, conception and pregnancy. The kits may be available for hire or purchase from regional health centres and are available to purchase from SHQ. Magno-mate Reproductive Kits are fairly detailed and, therefore, more appropriate for year 7 and up.

This Background Note relates to the following Learning Activities:

- Pregnancy and birth
