

S1 Biology Unit 1 – Healthy Body

- Cells are the basic unit of the body. They are organised together into tissue. Different tissues come together to make organs. Organs work together in body systems.
- An example of a body system is the respiratory system. The organs in this system are lungs, diaphragm, trachea. The respiratory system allows us to breathe.
- The cardiovascular system involves the heart and blood vessels. This system transports nutrients around the body.
- When we measure pulse rate we are measuring the rate that our heart beats. The unit is beats per minute (bpm).
- Heart rate increases during exercise.
- A fit person will have a lower resting heart rate than an unfit person.
- Normal human body temperature is 37°C.
- There are changes which happen in mammals to keep the body at the same temperature.
- The human body responds to heat by sweating, skin going red as blood moves to the surface.
- The human body responds to cold by shivering, hairs on body standing on end to trap air.
- We can use technology to measure the health of our body – blood pressure is measured by a sphygmomanometer, pulse rate by a pulsometer, temperature by a clinical thermometer.
- Animal cells contain a nucleus, cell membrane, and cytoplasm. The nucleus contains DNA organised in chromosomes. The cell membrane controls what goes in and out of the cell. The cytoplasm is where the chemical reactions happen.
- A microscope can be used to view and identify cells. The main parts are the eyepiece, focussing wheel, stage, objective lenses, mirror/light source.
- The magnification is calculated by multiplying the magnification of the eyepiece by the magnification of the objective lens.
- Egg cells and sperm cells are examples of animal cells. They have half the number of chromosomes of normal cells. (23 in humans).
- Fertilisation is the joining of the egg and the sperm to form a zygote (fertilised egg). In humans the zygote will have 46 chromosomes. $23+23=46$.
- Fertilisation occurs when the nucleus of a sperm fuses (joins) with the nucleus of an egg. This happens in the oviduct (fallopian tube).
- The placenta is an organ which develops in the uterus during pregnancy. Oxygen and glucose are passed from the mother's blood to the foetal blood, and carbon dioxide and other wastes are passed from the foetal blood to the mother's blood. The foetus is connected to the placenta by the umbilical cord. The foetus is protected from harm by the amniotic fluid.
- When pregnant, women should not take illegal drugs, smoke, drink alcohol, eat certain foods (shellfish, some cheeses).
- Ultrasound is used to create a picture of the baby in the womb. 3D and 4D (moving pictures) ultrasound scans are now available. The heart rate of the foetus is monitored.
- When a mother goes into labour, her waters break and contractions start.
- Babies born before 40 weeks are considered premature. Premature babies as young as 22 weeks can survive using technology. Lung machines help babies breathe, incubators keep them warm.
- Living things need warmth, water, food and shelter to survive.
- The health triangle shows the three aspects of health – physical, mental and social.