



Photosynthesis

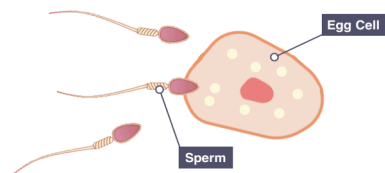
Photosynthesis is a chemical reaction that takes place inside the leaves of a plant, producing food for the plant to survive.

Processes

carbon dioxide + water $\xrightarrow{\text{sunlight}}$ glucose + oxygen

Fertilisation

If an egg cell meets a sperm cell in an oviduct, fertilisation can occur (the nuclei from the two cells fuse). The fertilised egg cell divides to form a ball of cells (an embryo). The cells continue to multiply into a fetus and the baby will continue to grow until it is ready to be born nine months later.



Significant Scientists

Robert Hook refined the design of the compound microscope around 1665 and published a book titled *Micrographia* which illustrated his findings using the instrument. The discovery of the cell would not have been possible if not for advancements he created in microscopes. His microscope used three lenses and a stage light, which illuminated and enlarged the specimens.



Careers

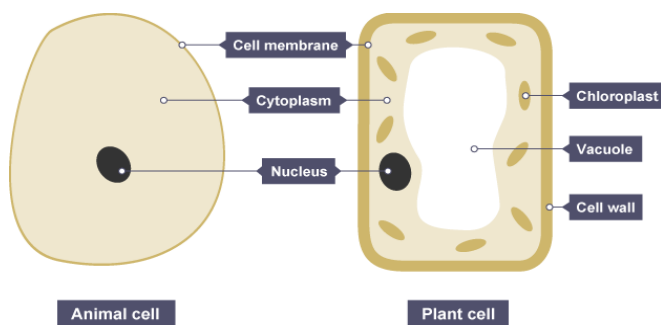
Cellular scientists, also known as cell biologists or microbiologists, use laboratory equipment to study living cellular systems. These scientists research the structure and interaction of cells including their uses, development and life cycles. The work of cellular scientists can be focused in several areas including immunology, virology, cellular physiology, food microbiology, industrial microbiology and environmental microbiology. Cellular scientists usually have completed an advanced degree program in cell biology or related studies.



Cells and their properties

Animal cells usually have an irregular shape, and plant cells usually have a regular shape. Cells are made up of different parts.

Properties



There are three main differences between animal and plant cells:

- Plant cells have a cell wall, but animal cells do not.
- Plant cells have chloroplasts, but animal cells do not.
- Plant cells usually have one or more large vacuole(s), while animal cells have smaller vacuoles, if any are present.

RSHE

- **Sexual Intercourse** - The process where the male and female reproductive organs meet so that fertilisation can take place.
- **Fertilisation** - The process where the sperm cell and egg cell fuse (join together) to form an embryo.
- **Egg cells** are designed for purpose as they are large and can carry a lot of food for the embryo.
- **Sperm cells** are designed for purpose as they are small and have long tails to help them swim to the egg.
- **Birth Control** refers to things you can do to reduce the chances of pregnancy. This can include abstinence and the use of contraception.
- **Abstinence** - not take part in something, typically drinking alcohol or having sex.
- **Contraception** can also be a way of reducing the chance of getting STIs.
- The cleaning of genitals is a very important part of washing as infections can occur if neglected.

Key vocabulary and meanings

*Cells - Basic unit of life. Unicellular organisms only have one cell. Multicellular organisms have many cells.

*Nucleus - This controls what happens inside the cell.

Cell membrane - A selectively permeable membrane surrounding the cell and controlling the entry and exit of materials.

Cell wall - Outer structure which provides support and prevents the cell from bursting from the uptake of water by osmosis.

Chloroplast - Contains the green pigment chlorophyll; the site of photosynthesis.

Mitochondria - Structures in the cytoplasm of all cells where aerobic respiration takes place (singular is mitochondrion).

RSHE Vocabulary

Contraception (often referred to as *birth control*) prevents pregnancy by interfering with the normal process of ovulation, fertilization, and implantation.

Pregnancy is the term used to describe the period in which a foetus develops inside a woman's womb or uterus. Pregnancy usually lasts about 40 weeks, or just over 9 months.



Scientific
vocabulary