**Light microscopy**

- used to view animal and plant cells
- has restrictions in maximum magnification

**Total magnification**

- total magnification = power of the eyepiece lens × power of the objective lenses

**Biological staining**

- allows more detail of the cell to be seen

**Electron microscopy**

- has greater magnification than light microscopy
- can only be used to view dead tissue

**Specialised cells**

- the differentiation of cells in multicellular organisms to become adapted for specific functions
- more efficient in performing specific functions than non-specialised cells

**Levels of organisation**

- cells
- tissues (groups of similar cells with a similar function)
- organs (groups of several tissues performing specific functions)
- organ systems
- organisms
The structure of an alveolus

The adaptations of alveoli for gas exchange
- large surface area
- thin wall
- moist lining
- rich blood supply

The percentage composition of inspired air
- oxygen: 21%
- carbon dioxide: 0.04%
- nitrogen: 79%
- water vapour: varies

The percentage composition of expired air
- oxygen: 16%
- carbon dioxide: 4%
- nitrogen: 79%
- water vapour: saturated

The use of lime water to indicate the presence of carbon dioxide
- uses a simple ‘huff and puff’ apparatus
- Lime water goes cloudy in the presence of carbon dioxide.

Cigarettes
- increase the risk of disease in the respiratory system
- contain nicotine, which is addictive
- (smoke) have chemicals that paralyse cilia and have particles that clog mucus, which prevents their function
- (smoke) destroy lung tissue, leading to emphysema
- (tobacco smoke) has tar, which contains carcinogens, which lead to lung cancer
The digestive system

Mouth
• begins starch digestion by carbohydrase/amylase in saliva

Stomach
• secretes protease

Pancreas
• secretes lipase, protease and carbohydrase into the small intestine

Small intestine
• continues digestion of fat, protein and starch
• absorbs digested molecules

Large intestine
• absorbs water

Liver
• secretes bile