Plant cells contain all the above – but they also have some other structures



- The cell wall is made out of tough **cellulose** (gives fruit and vegetables their 'crunchy feel') which keeps the cell in a rigid shape.
- The vacuole is a large hole filled with water (sap) and also supports the cells shape
- Chloroplasts organelles that contain chlorophyll organical where photosynthesis takes place. (much more aten)



- **Plasmid DNA** a small loop of DNA containing extra information (maybe more than one)
- The cell wall is not rigid like that of plant

Cell specialisation

• In the kidneys

As part of our normal body functions, cells produce a toxic substance called **urea** This diffuses from the cell into our blood plasma

One of the functions of the **kidney** is to **excrete** (remove) the urea. The kidney removes the urea from the blood. The waste liquid containing urea is called urine – and ends up in the toilet.

Factors Affecting Diffusion

The difference in concentration



At high temperature, the particles move faster and diffuse faster

• The surface area of the membrane

If a person is cold, she'll curl herself up If a person is hot, she'll spread herself out



Small surface area



Large surface area

Comparing Processes

| | Diffusion | Osmosis | Active Transport |
|--------------------------|--------------|--------------|------------------|
| Allows molecules to move | \checkmark | \checkmark | \checkmark |
| Movement is down a | | | * |
| concentration gradient | V | V | ~ |
| Always involves the | ~ | | ~ |
| movement of water | ~ | V | ~ |
| Needs energy from | ~ | ~ | |
| respiration | ~ | ► ► | • |

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