**Osmosis in Plants**

*Label the diagram below*

*Fill in the blanks in the notes below*

Around the plant cell is a tough cellulose \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_. This outer structure maintains the \_\_\_\_\_\_\_\_\_\_ of the cell, and can resist changes in pressure inside the \_\_\_\_\_\_\_\_. This is very important, and critical in explaining the way that plants are \_\_\_\_\_\_\_\_\_\_\_\_. The cell contents, including the \_\_\_\_\_\_\_ vacuole, contain many \_\_\_\_\_\_\_\_\_\_\_\_\_ solutes, such as sugars and ions.

If a plant cell is put in pure \_\_\_\_\_\_\_\_\_\_ or a dilute \_\_\_\_\_\_\_\_\_\_\_\_, the contents of the cell have a \_\_\_\_\_\_\_\_\_\_\_ water potential than the external solution, so the cell will absorb water by \_\_\_\_\_\_\_\_\_\_\_\_. The cell then \_\_\_\_\_\_\_\_\_\_\_ up and the cytoplasm pushes against the \_\_\_\_\_\_\_\_\_\_\_ wall. A plant cell that has developed an internal pressure like this is called \_\_\_\_\_\_\_\_\_\_\_\_\_.

On the other \_\_\_\_\_\_\_\_\_\_\_\_, if the cell is placed in a concentrated sucrose \_\_\_\_\_\_\_\_\_\_\_\_ that has a lower water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_than the cell contents, it will *lose* \_\_\_\_\_\_\_\_\_\_\_\_ by osmosis. The cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in volume and the \_\_\_\_\_\_\_\_\_\_\_\_\_ no longer pushes against the cell wall. In this state, we say that the cell is \_\_\_\_\_\_\_\_\_\_\_\_.

Eventually the cell contents \_\_\_\_\_\_\_\_\_\_ so much that the membrane and \_\_\_\_\_\_\_\_\_\_\_\_ split away from the cell wall and gaps appear between the \_\_\_\_\_\_\_\_ and the membrane . A cell like this is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

*Turgor* (the state a plant is in when the cells are \_\_\_\_\_\_\_\_\_\_\_\_) is very important to plants.

The \_\_\_\_\_\_\_\_\_\_\_\_ inside cells pushes neighbouring cells against each other. This supports the non-\_\_\_\_\_\_\_\_\_\_\_ parts of the plant like young \_\_\_\_\_\_\_\_\_\_ and leaves, and holds the stems \_\_\_\_\_\_\_\_\_\_\_\_\_ so the leaves can carry on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ properly. If a plant loses too much water from its cells so that they become \_\_\_\_\_\_\_\_\_\_\_, this makes the plant \_\_\_\_\_\_\_\_\_. You can see this in a pot plant which has been left for too long without \_\_\_\_\_\_\_\_\_\_.

Inside the plant, water moves from cell to cell by \_\_\_\_\_\_\_\_\_\_\_\_\_. If a cell has a \_\_\_\_\_\_\_\_\_\_\_\_ water potential than the cell next to it, water will move from the first cell to the second. In turn, this will \_\_\_\_\_\_\_\_\_\_\_\_\_ the contents of the cell, so it has a higher \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ than the next cell. In this way, \_\_\_\_\_\_\_\_\_\_ can move across a plant tissue, down a \_\_\_\_\_\_\_\_\_\_\_\_\_ of water potential.