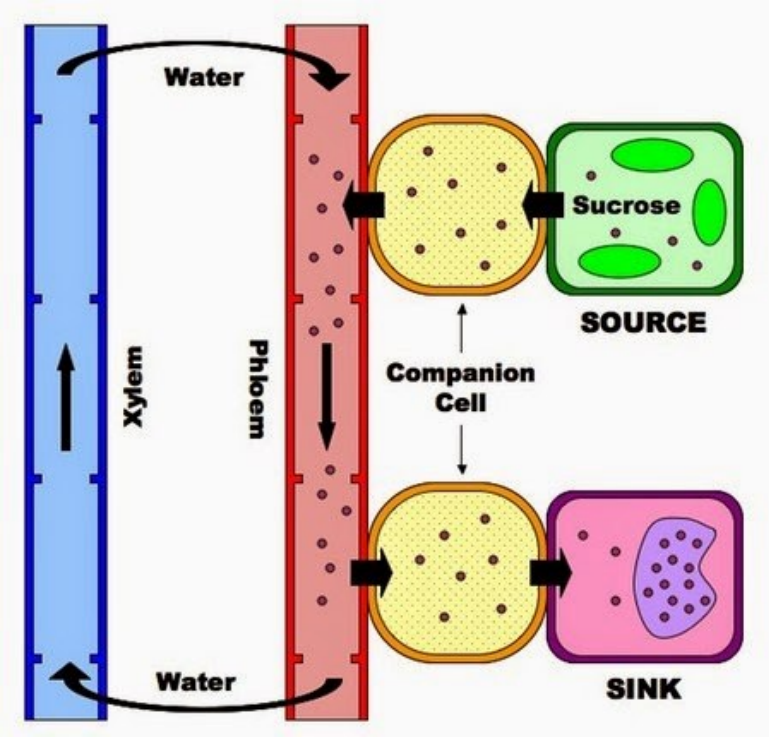
Even though mass flow is a passive process, it occurs as the result of the active transport of sugars. Therefore the process as a whole is active which is why its affected by temperature for example.

Transfer of sucrose from the sieve tube elements into storage or other sink cells:

The sucrose is actively transported by companion cells out of the sieve tubes and into the sink cells:



Evidence supporting mass flow:

There is a pressure within sieve tubes, as shown by sap being released when they are cut.

The concentration of sucrose is higher in leaves (source) than in roots (sink)

Downward flow in the phloem occurs in daylight but ceases when leaves are in shade or at night

Increases in sucrose levels in the leaf are followed by similar increases in sucrose levels in the phloem a little later

Metabolic poisons and/or lack of oxygen inhibit translocation of sucrose in the phloem

Companion cells possess many mitochondria and readily produce ATP

Evidence questioning mass flow:

The function of the sieve plates is unclear as they would seem to hinder mass flow (suggested they may have a structural function helping to prevent tubes from bursting under pressure)

Not all solutes move at the same speed—they should do so if movement is by mass flow

Sucrose is delivered at more or less the same rate to all regions rather than going quickest to those with the less sucrose concentration, which the mass flow theory would suggest