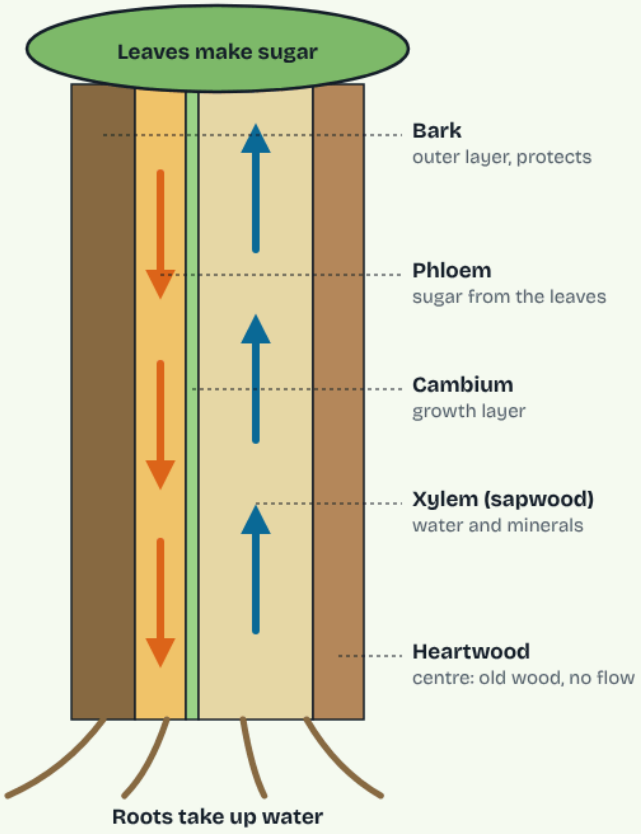
That is why

# Why do trees make sap?

Sap is a tree's transport fluid: water rises in the xylem, sugar travels in the phloem. Resin is something else.

## A The two-lane highway




## B Two kinds of sap

### Xylem sap: flows up

Mostly water, with dissolved minerals. Pulled up from the roots as water evaporates from the leaves. Thin, clear and watery.

### Phloem sap: sugar delivery

Rich in sugar made in the leaves. Carried to where it is needed: roots, buds, fruit and new growth. Thicker and sweeter.

### Maple syrup in numbers

In spring, maple xylem sap carries sugar stored over winter: only about 2% sugar.

**40 litres of sap → 1 litre of syrup**

## C Sap is not resin

| Sap | Resin |
|---|---|
| Watery | Thick and sticky |
| Flows in the pipes | Stored in resin ducts |
| Feeds and waters the tree | Seals wounds, traps insects |
| Washes off with water | Needs alcohol or oil to remove |

### Resin can become amber

Hardened resin buried for millions of years turns into amber, sometimes with an insect still trapped inside.

**Sap keeps the tree running. Resin protects it.**

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