AGES 8–11 · TEACHER PAGE

How water travels through a plant

A celery stalk in coloured water reveals the plant's water vessels, which pupils compare with the MAVA's water circuit.



2 sessions of 45 min, 24 h apart | MAVA : HYDRO SLIM OLLA COMPOST

KEY QUESTION How does water get from the roots to the leaves?

OBJECTIVES

1. Show that water is carried up the stem.
2. Describe the role of the roots, stem and leaves.
3. Compare the plant with the MAVA's water circuit.

MATERIALS

- Celery stalks with leaves, or white flowers
- Blue or red food colouring, glasses
- A knife (adult only), magnifiers
- A clear plastic bag and a rubber band
- The pupil sheet

CURRICULUM LINKS

NATIONAL CURRICULUM	**Year 3 · Plants**: investigate the way in which water is transported within plants; identify and describe the functions of roots, stem, leaves and flowers.
NGSS	**4-LS1-1**: plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
IB PYP	**How the world works**

LESSON STEPS

1 **Ask** 10 min	In the MAVA HYDRO, a pump lifts the water. 'In a plant, what does the pumping?' Pupils note their ideas.
2 **Test** 15 min	Stand celery stalks in coloured water. The next day, an adult cuts a stalk across: coloured dots appear.
3 **Explain** 15 min	The dots are vessels. Water enters through the roots, rises up the stem and evaporates from the leaves: this transpiration pulls water upwards.
4 **Compare** 20 min	Seal a few leaves of a MAVA plant in a bag for an hour: mist appears. Complete the 'plant / MAVA' table.

ASSESS

The pupil describes water's journey from roots to leaves and names the vessels.

VOCABULARY

root, stem, vessel, leaf, evaporation, transpiration

EXTENSION

Split a white flower's stem in two, each half in a different colour: the flower turns two-toned.

⚠ **Safety :** Only an adult handles the knife.

AGES 8–11 · PUPIL SHEET

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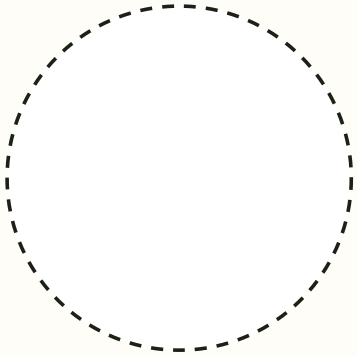
NAME _____ CLASS _____ DATE _____

1 **My hypothesis: how does water rise in a plant?**

_____

_____

2 **After 24 h, draw the cut end of the celery stalk. Colour what you see.**



The coloured dots are called:

_____

Have the leaves changed colour?

_____

3 **Complete the table: the plant and the MAVA.**

In the plant	In the MAVA HYDRO
Roots take up water from the soil.	The pump takes up water from the _____.
_____ carry water up the stem.	The central tube lifts the water.
Water evaporates from the _____.	Water trickles down and returns to the _____.

4 **Why does mist appear inside the bag?**

_____

_____