

Hello Trees Resource Sheet



KS1 Y1 Science Diary Item

Tree Twigs



I want you to give your pupils a gift they will thank you for all their lives: knowing what to look for on trees.

There are masses of things to look for on every tree twig. Take your pick.

OBJECTIVE: learn that

1. Buds are a clue to a tree's identity
2. Each year, new twigs grow out of the buds on a twig.
3. Each year, each twig gets wider until it becomes a branch.

WHAT YOU NEED

1. Twigs from different trees: showing the tip, some buds & a fork.
2. Magnifying glasses (or camera to zoom in with)



WORKING SCIENTIFICALLY

✓ Experience and observe ✓ Use a magnifying glass

Examine:

twigs shape [zigzag or straight, knobby or smooth]; width [each year this twig will get thicker and thicker and thicker until it becomes a branch; so too will the twigs that will grow out of some of its buds]; colour [dark brown, light brown, green, beige ...];

girdle scars [wrinkly rings around the twig that mark the start of this year's growth. The distance from girdle scar to twig tip is the *length* this twig grew last year]

buds shape [egg, pointed, triangular]; colour; distance apart; position on the twig [e.g. a bud at the tip of the twig; a cluster of buds near the tip; buds along the twig opposite each other in pairs; single buds on one side of the twig then the other; a spiral of single buds along the twigs]; casing [use a magnifying glass, or take a photo and zoom in, to see that each bud is protected by scales. The scales are waterproof and frost-proof. Sometimes the scales have a sticky coating. Horsechestnut buds are called 'sticky buds'.]

thorns: length, sharpness, colour

lenticels: [tiny pale dots or rough patches on the surface of the twig. These are lenticels, miniscule openings that allow cells in the twig to breathe (*not* photosynthesis as in leaves, but *respiration*: oxygen in, carbon dioxide out)]

leaf scars [There is one below each bud. Buds develop in the axil between petiole (leaf stalk) and twig. When the leaf falls away, the end of the petiole leaves a scar where it broke away. Use a magnifying glass to see the spots within leaf scars. These spots show where the tubes through the petiole were. They carried water up from the roots and sap down from the leaf. Horsechestnut leaf scars are like horseshoes, the spots like horseshoe nails!]

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✓ **Curiosity and questioning** (all suggestions acceptable):

What will come out of the buds? [depending on the tree and the bud, whole new shoots with leaves and flowers come out of one bud, flowers only, leaves only, or leaves & flowers]

Do you think the shape of a tree (its branching) will be affected by the position of buds? [Yes. Shoots that come out of buds will become twigs. Twigs will become branches. If buds are on every side of the twig, shoots will come out in every direction and branches will be in every direction. If buds are opposite each other, branching will be in U shapes. If buds are close together, branching will be dense.]

Do you think there could be too many new shoots so that a tree becomes a hopeless tangle? [Yes, there would be a hopeless tangle!]

How could a hopeless tangle be avoided? [Some buds and new twigs drop off. Some buds lie dormant and are used hundreds of years later, when they are needed]

✓ **Tests to answer questions:** (all suggestions welcome):

1. How can we find out what comes out of the buds on our twigs?

We can try putting the twigs in water and see if anything comes out of the buds (I don't think it will work but you could try?)

We can observe the trees over the next few weeks to see what comes out of its buds.

2. How can we be sure that bud arrangements affect branching?

We can have another look at our trees, their buds and branching.

Tip: look at the newest growth. Remember, over the years, many twigs are discarded.

3. How can we identify the trees by their buds?

✓ Use secondary sources of information:

We could look at books or on the Internet to try to match buds, bark and branching (3 winter clues to a tree's identity)

Hello Trees books are excellent for 4-7-year olds. They have clear photographs of all clues to the identity of 10 common trees.

The Readers' Digest Field Guide to the Trees and Shrubs of Britain, 1981, is user friendly (ISBN 0 276 42507 3). Used copies are available and inexpensive on line.

Search 'Tree identification in Winter' and see if any of your twigs are shown.

✓ school locality: location of the trees in relation to the school.

x grow our own: you could grow a tree from a cutting but it is complicated.

✓ observe changes over time: We are going to observe what comes out of the buds.

✓ notice patterns, **compare:** comparing the buds gives us a clue to the tree's identity.

X group and **classify:** tree identification is classification

✓ SEASONAL CHANGES In Winter, trees have no leaves, flowers or fruit.

POSSIBLE SCIENCE DIARY ENTRY

Today we looked at tree twigs.

We could see how much the trees grew last year.

Different trees have different looking buds.

New twigs will grow out of the buds.