


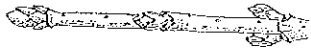
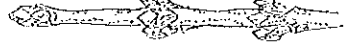
# Nature Kids: Winter Bud Hunt

It may look like the trees are bare, but take a closer look... next spring's leaves and flowers are already in place, just waiting for the right weather to burst out!







Check it out! How many different patterns can you find?

Fill in the charts below by tallying or naming the plants you find under each bud and pith pattern.

## Lateral Bud Patterns

Opposite 	Alternate 	Whorled 

## Pith Patterns

See the **Teacher's Corner** for more information  
about winter buds.

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# Teacher's Corner: Hey, Bud ... What's Happening?

Winter can appear to be a dull and uninteresting time for nature watchers. The majority of migratory birds have already passed through and the squirrels have settled into their cold weather routine, having stored a supply of nuts for the winter. What is there outside to attract our young scientists? Winter buds. Hidden among summer's green foliage, overshadowed by fall's bright colors, winter buds come into their own at this time of year. They are unmasked and on display if only we take the time to look.

Winter buds have a number of qualities appreciated by nature instructors: they can be found virtually everywhere that plants grow; they stay put even for the loudest child; and they lend themselves to several avenues of study. A hand lens and a good pocket knife are all you need to begin your investigation. Winter buds are the resting stage in the growth cycle of a tree or bush. They contain the embryonic leaves and flowers for the coming year. To get started, try to pick an area that has several kinds of trees or bushes for comparisons.

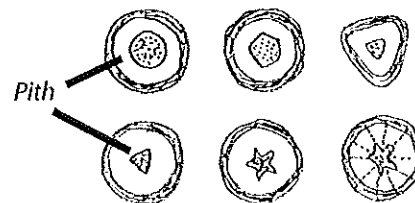
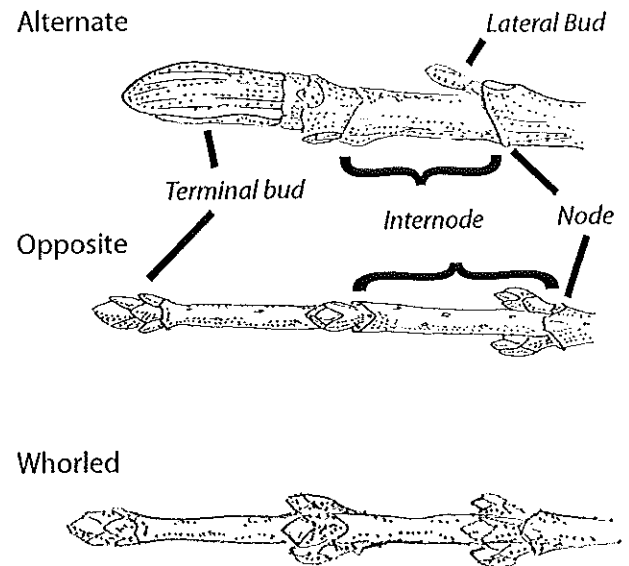
Using a hand lens, or just your eyes, look at a bare twig. Can you find small bumps along the sides, and possibly at the end? (See illustration). These are the **buds**. The ones along the sides are called **axillary or lateral buds**. The one at the tip of the branch (if there is one) is called a **terminal bud**. Once a terminal bud is formed, the branch stops growing in length for that season.

Most buds are covered with scales of some kind, some are even hairy or sticky. These coverings help to protect the leaves or flowers within from drying out or being eaten. You can investigate the pattern of the buds along the twig. Do they **alternate**, or take turns, or are they **opposite** each other, in pairs? Sometimes you may even find sets of three or more buds in a circle or **whorl** around the branch. With a hand lens, you can even check out the pattern and design of the scales themselves on each bud. Do the axillary buds have the same scale pattern as the terminal bud? The places where the buds attach to the branch are called **nodes**. The spaces in between attachments are called **internodes**.

As you investigate, you can compare the sizes, shapes, and scale pattern of the buds on different plants as well as the arrangement along the branch. Is the length of the internodes consistent among trees? Which arrangement is the most common? Check to see if any leaves remain. Do bigger buds result in bigger leaves? Can you discover any other patterns?

If you are in your own yard or have permission from the owners, you can cut off a twig or two to take home (or back to school) for further study. Cut open the buds either lengthwise or across, and find the pattern of the leaves or flowers inside. Try peeling back the scales and unfolding the contents. Can you see the shape of the full-grown leaf or flower in miniature? For small children who want to share in the discovery take a closer look at Brussels sprouts or artichokes which are large, easy to handle examples for small hands.

You can even check out the pattern of the **pith** (central core) of the twigs you have brought in. The very middle of the twig (the pith) may be round, triangular, star-shaped or even rayed (see illustrations).



To finish up (and get a jump on spring) try sprouting some of the twigs. Just place a freshly cut twig end in water, then wait and watch. Twigs from different trees or bushes may take different lengths of time to sprout. You can also compare the patterns of sprouting (do the lateral buds or terminal buds open first?), and the colors of the new leaves or flowers. Can you tell which bud will contain flowers and which leaves? There are all sorts of mysteries to uncover. Happy exploring!

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See the "Nature Kids" page for an investigation of winter buds you can do in your yard or neighborhood.

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