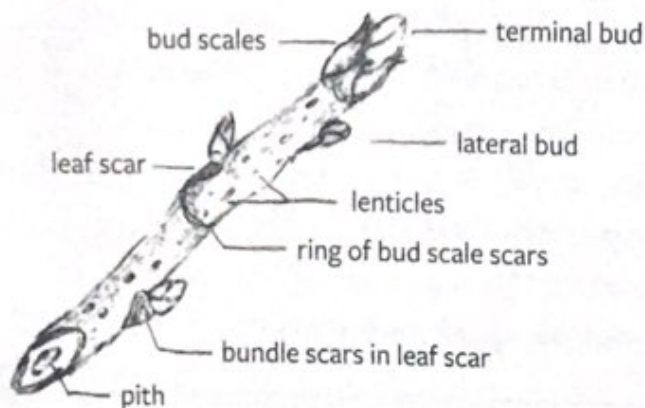


Activity
28**Hey, Bud!**

- **You'll learn:** To identify the deciduous trees by their buds, leaf scars and twigs.
- **You'll need:** Hand lens, twigs from a variety of deciduous trees.
- **Background:** Like meeting old friends while you are out strolling around town, walking through the woods—even in winter—is more enjoyable if you can recognize at least some of the trees and shrubs you see. Buds, twigs and even leaf scars can help us. Let's begin with buds. They are located on twigs, which are the part of the branch that grew the previous summer. At the point where a twig begins, you will see two to five rows of narrow grooves that appear jammed together. Twigs have a different color, texture and patterning from the older branches. Contrary to popular belief, buds don't suddenly appear in the spring but have actually been present on the twig since the late summer. Hidden inside are the beginnings of next spring's leaves, stems and, sometimes, flowers. Thick, overlapping scales protect the buds from the cold, snow and ice. (See color lilac photo, figure 24.)



Twigs usually have buds growing from the side (lateral buds) and a bud or buds growing at the end (terminal bud), where most of the new growth will come from. Each bud also has a leaf scar right below it. This is where last summer's leaf was attached. Leaf scars are visible to the naked eye but are best appreciated by using a hand lens. If you look carefully inside the scar, you will see tiny markings known as bundle scars where veins passed from the stem of the leaf into the twig. These veins carried water into the leaf and food—made through photosynthesis—back out into the twig and to the rest of the tree. The bundle scars often make the leaf scar look like a little face. Because buds almost always form in the angle between the stem and the stalk of the leaf, both leaves and buds have the same arrangement on the twig. This arrangement is usually alternate (staggered) or opposite. Most species are alternate. Honeysuckle, ash, maple, lilac, viburnum, elderberry and dogwood are the principal tree and shrub genera with opposite leaves and buds. The following mnemonic—which unintentionally sounds like a rallying call for animal rights—may be helpful in remembering these seven genera: HAM LIVED! (each genus except lilac corresponds to one letter in the mnemonic; Lilac corresponds to LI). Start by learning the opposite buds, especially maple, ash and dogwood, and then move on to some of the common and distinctive alternate species like poplar, elm and willow.

• **Procedure:**

1. See what's inside a bud? Try opening some buds to see what's inside. Lilac and horse chestnut buds work especially well. Using your fingers and/or pins, try peeling back the scales and unfolding the contents. Count the tiny leaves inside. A hand lens will come in handy. Can you already see the shape of the leaves? Children are often amazed to see so many tiny leaves hidden inside such a small object. Horse chestnut buds may have flowers in them. For small children, try cutting open some Brussel sprouts, which are actually large, immature leaf buds containing tightly overlapping leaves.

2. Make a twig collection: Collect the twigs of the most common trees and shrubs of your area. Attach these to a piece of cardboard with a glue gun, grouping them by opposite and alternate. Make sure you include twigs with both side and terminal buds. Cutting the twigs at an angle will expose the pith (the inside of the twig), which can also help in identification. Label each species.

3. Twinkle (a combination of a twig and a wrinkle): Find a big deciduous tree (one that loses its leaves in the winter). Get comfortable and sit with your back against its trunk. Look up. Your tree has a shape and a character that is completely unique. That's partially because of the kind of tree it is and partially because of the particular soil, and the amount of water and sunlight that have nurtured it. It is perfectly suited to be in this spot at right this time. There will never be another tree exactly like this

one, just like there will never be another person just like you! Observe the intricate patterning of branches and twigs of your tree. Now study the wrinkles on the palm of your hands. Notice how they branch just like the twigs of a tree. Can you find a branching pattern in the tree that exactly matches these wrinkles? Somewhere on that tree is a close match! (See color section, figure 24.)



Fungi

Activity 29

Like Lichens!

- **You'll learn:** To identify and appreciate the diversity of lichens.
- **You'll need:** Hand lens, natural area with lots of lichens.
- **Background:** Of all the conspicuous organisms, lichens are probably the most overlooked. However, with fewer plants and mushrooms around to compete for your eye's attention, winter can be a good time to get to know this interesting division of the fungi kingdom. Lichens are actually "dual organisms" consisting of an alga and a fungus living together as a single unit for mutual benefit. The fungus—the visible portion of the lichen—provides the alga with protection and a "house" to live in. It also supplies the alga with mineral nutrients and water, both of which the fungus absorbs from the



24. (L to R) Honeysuckle, ash, maple, lilac, viburnum, elderberry, dogwood (see p. 184)