## A Sense of Wonder

## Activities for family exploration

You Can Tell a Dogwood (and other trees) By Its Bark!

By Elizabeth Gallaher

go into their dormant stage. Deciduous trees lose their leaves for the winter while evergreen trees gradually replace their needles so they stay green yearround. In their dormant stage, trees are still pretty interesting. Here's an outdoor activity to get a better appreciation of trees.

For this activity, you'll need:

1. White paper, wax paper or tracing paper

2. Crayons

Make sure that you bundle up before you head outside!

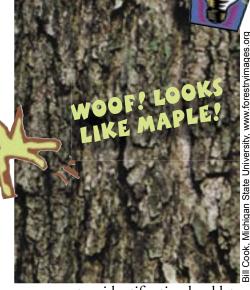
Head out and find a nice tree with interesting looking bark. It can be a dogwood, a large oak, or something in between. Look closely at the bark, noticing the ridges, knots and holes.

Once you've finished examining the bark, hold a piece of paper tight on the bark. If you have difficulty holding the paper, get someone to hold it while you do the rubbing or tie the paper to the tree with a piece of string, being careful not to disturb the bark! Rub a crayon on the paper until a pattern appears. It's easier and faster if you remove the paper wrapping on the crayon and rub it sideways.

Try different colored crayons and different trees to obtain unique pic-

tures. Do the rubbings look different if you use different trunk sizes or different types of trees? Collect bark rubbings from various types of trees, both deciduous and conifers. Come back inside and warm up over a cup of hot chocolate! Remember which tree you used or tie a ribbon lightly around it.

In the spring you can collect leaf rubbings from the same trees. Once you have matched the bark rubbings with the leaf rubbings, you can make



your own tree identification booklet.

Other suggestions for your tree bark rubbings are to use them as a journal cover, gift wrap, a colorful collage, or as a pattern for fabric. Hunters have been using tree and leaf bark patterns for their camouflage clothing for years!

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## NATURE NOTES Frosty Images On Glass

ave you ever wondered how frost on a windowpane forms such beautiful patterns on a cold winter morning?

Frost is formed when water vapor contacts a very cold surface and freezes. Freezing water vapor forms regular crystals, often hexagonal in shape, because of the molecular structure of water and the angle at which separate molecules become bound together during freezing. Once formed, an ice crystal may grow as more water molecules freeze onto it, extending outward on the windowpane in regular parallel rays,

spirals or branches.

The exact design formed depends on many factors. Some parts of ice crystal surfaces grow faster than others, perhaps because of very slight temperature differences. The window surface itself also

plays a role, since crystallization begins and gathers along abrasions on the glass.

Even tiny irregularities—such as those left by a cloth used to clean the window—can start and influence

crystal growth. Sometimes, the overlaying ice crystals will follow an invisible

line of silk spun on the windowpane by a spider. In addition, the amount of moisture present, the temperature of both the air and the glass, and the presence

and speed of air currents near the window can affect the resulting pattern.

While all of these explanations help determine the designs, it is still amazing just to gaze upon the intricate swirls of Jack Frost's creations.