Grade 01

ACTIVITY IDEAS
DAILY AND SEASONAL CHANGES

SUPPLEMENTARY RESOURCE FOR VIDEO 2: SMALL STEPS TO A PLAYFUL CLASSROOM

Index of learning opportunities:

About this guide:

This document is a companion guide to the Ontario Science Centre's video series on play-based learning, produced in partnership with the Ontario Ministry of Education.

"Play is a vehicle for learning and lies at the core of innovation and creativity."

- Ontario Ministry of Education

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LEARNING OPPORTUNITY:
DESIGN A DEN

What it's about:

- Students use materials provided to construct a shelter for a toy animal.
- Students test their shelter by blowing on it (like the Big Bad Wolf). Will it be able to withstand a strong wind?

Materials:

- Placemats to mark workspace
- Plastic animals (give each student/ group 2-3 to choose from)
- Building materials (such as rubber bands, feathers, cotton balls, stones, shells, burlap and popsicle sticks) in containers

Try it outside:

- Visit a park, meadow, ravine or forest, and challenge students to construct shelters from natural materials.
- Before heading outside, discuss respect for living things (e.g., picking dead leaves from the ground instead of living leaves from a tree, etc.).

- For an added challenge, have students incorporate camouflage to help the animal avoid predators.
- The Eden Project gives great instructions for a similar outdoor investigation.

Connections/Extensions:

- How would the characteristics of the shelter change with the seasons (e.g., how could it block the strong sun, provide waterproof shelter from the rain or be insulated from the cold, etc.)?
- How do animals in Ontario adapt to changing seasons and colder weather (e.g., growing a thicker coat, migrating, hibernating, storing food, etc.)?

Observations from prototyping:

- This activity had a calm and relaxing feel to it.
- The original version also used moss, but it was harder to clean up (it would work outdoors, though).
- One creative innovation: bundling popsicle sticks and elastic bands into "logs."
- Students sometimes needed assistance wrapping elastics around other materials.

See next page for sample instructions and prompts.

Optional: Print the instructions and place them in a T-stand.

DESIGN A DEN

Build a shelter to keep your animal warm in the winter

How strong is your shelter?

Blow on your structure as hard as you can to see if it will hold up against a strong wind.

Modify your shelter!

Modify your shelter for another season. What does your shelter need to protect your animal from strong sun, or from a rainstorm?

Don't forget to put everything away when you're done!

LEARNING OPPORTUNITY:
TEST A NEST

What it's about:

- Students weave a nest around a wire frame.
- Students can test the nest's strength by adding marble "eggs." How many eggs will the nest hold?

Materials:

- Placemats to mark workspace
- Wire nest frames, such as garden wire from the dollar store; frame instructions are on the next page
- Building materials (strips of fabric or paper, twine, sticks, straws, real or plastic plants) in containers
- Marble "eggs" in containers

Try it outside:

- Visit a park, meadow, ravine or forest, and challenge students to construct nests from natural materials.
- Have students incorporate camouflage in their nests to help animals avoid predators.
- Get messy! Instead of weaving around a frame, have students use a combination of grasses, twigs and mud "glue."

- Challenge students to look for nests in urban settings. Bird and squirrel nests are common in city trees, while wasp and swallow nests can often be seen on human-made structures. Nests in trees are easy to spot in winter when trees are bare.
- Have students construct nests from natural materials and leave the nests outside, then see how long the nests can withstand the elements. Students can track progress by taking a photo of their nests each day.

Connections/Extensions:

- The book *Nests: Fifty Nests and the Birds that Built Them* (available at the Toronto Public Library) contains beautiful images of nests all over the world, built from a variety of materials.
- What other creatures build nests, and what materials do they use?

Observations from prototyping:

- It was fairly easy for students to make a sturdy nest with the materials provided. For an extra challenge, use fewer loops in the nest frame, or provide more string-like materials for weaving.
- The popsicle sticks were awkward for nest-making. A collection of small flexible twigs would provide more opportunities for weaving.
- Students enjoyed adding marbles one by one and counting how many marbles the nest could hold.

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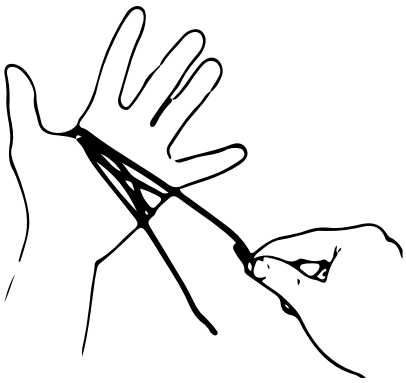
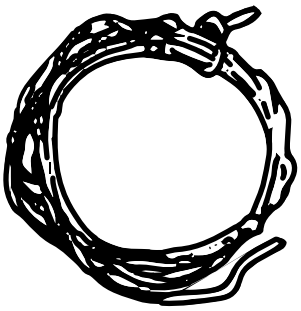
HOW TO MAKE A NEST FRAME



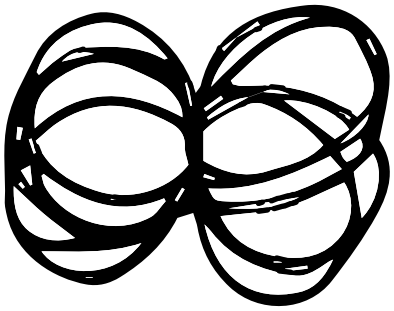
Step 1:

Cut a two-metre length of wire, and coil it into a circle with the same diameter as your hand.



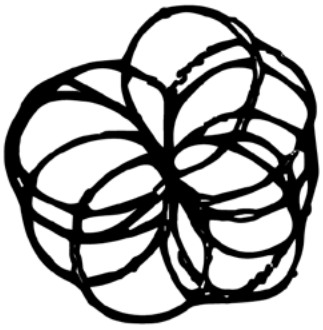
Step 2:

Take one loose end of the coiled wire, and wrap it tightly around the coil.



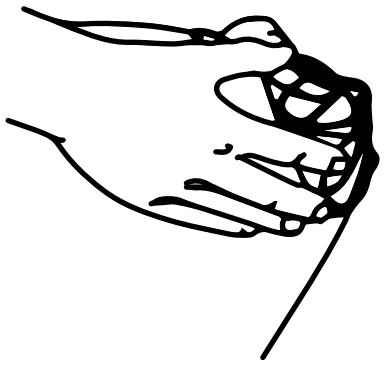
Step 3:

Separate the coil into two circles, forming a figure eight.



Step 4:

Spread the coil into a flat flower shape.



Step 5:

Mould the frame into a nest shape by bending it around a curved object (like a bent knee).

See next two pages for sample instructions and prompts.

Optional: Print the instructions and place them in a T-stand.

ADAPTED FROM "BIRD NESTS," OUTDOOR BIOLOGY INSTRUCTIONAL STRATEGIES, BY THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

TEST A NEST

Use the materials to weave a nest

How strong is your nest?

Ask a friend to hold your nest by the edges as you add some marble eggs, one by one. How many eggs do you think your nest will hold?

Don't forget to put everything away when you're done!

LEARNING OPPORTUNITY:
TANGRAMS AND NATURE MATH

What it's about:

Tangrams:

- Students arrange the pieces into various shapes. These can be representational or abstract compositions. How many shapes can be created?

Nature math:

- Students sort objects into groups of 1, 2, 3, 5, etc., and compose/decompose numbers into 20.
- Students make repeating patterns with objects. How many repeating patterns can be created?

Materials:

- Placemats to mark workspace
- Trays to hold materials
- Ice cube trays for nature math sorting
- Seasonal objects for nature math, such as pine needles, pussy willows, pine cone willow galls, pine cones, pebbles, shells, etc.
- Translucent tangrams, e.g., cut from plastic index dividers from the dollar store (see template on next page)

Try it outside:

- Re-imagine nature math as an outdoor scavenger hunt. Ask students to find 20 seeds and arrange them in groups of 5, find a stick that is as wide as their hand, find 10 leaves and sort them into categories, etc.
- Have students gather materials for nature math from outside.

Connections/Extensions:

- Translucent tangram pieces look great on an overhead projector.
- If using an overhead projector, try combining tangram pieces with other natural seasonal objects that have interesting silhouettes (dried seeds or twigs in winter, leaves in summer/fall, etc.).
- The math prompts in this activity were taken from the Grade 1 mathematics curriculum. For an added challenge, use math prompts from a more senior curriculum.

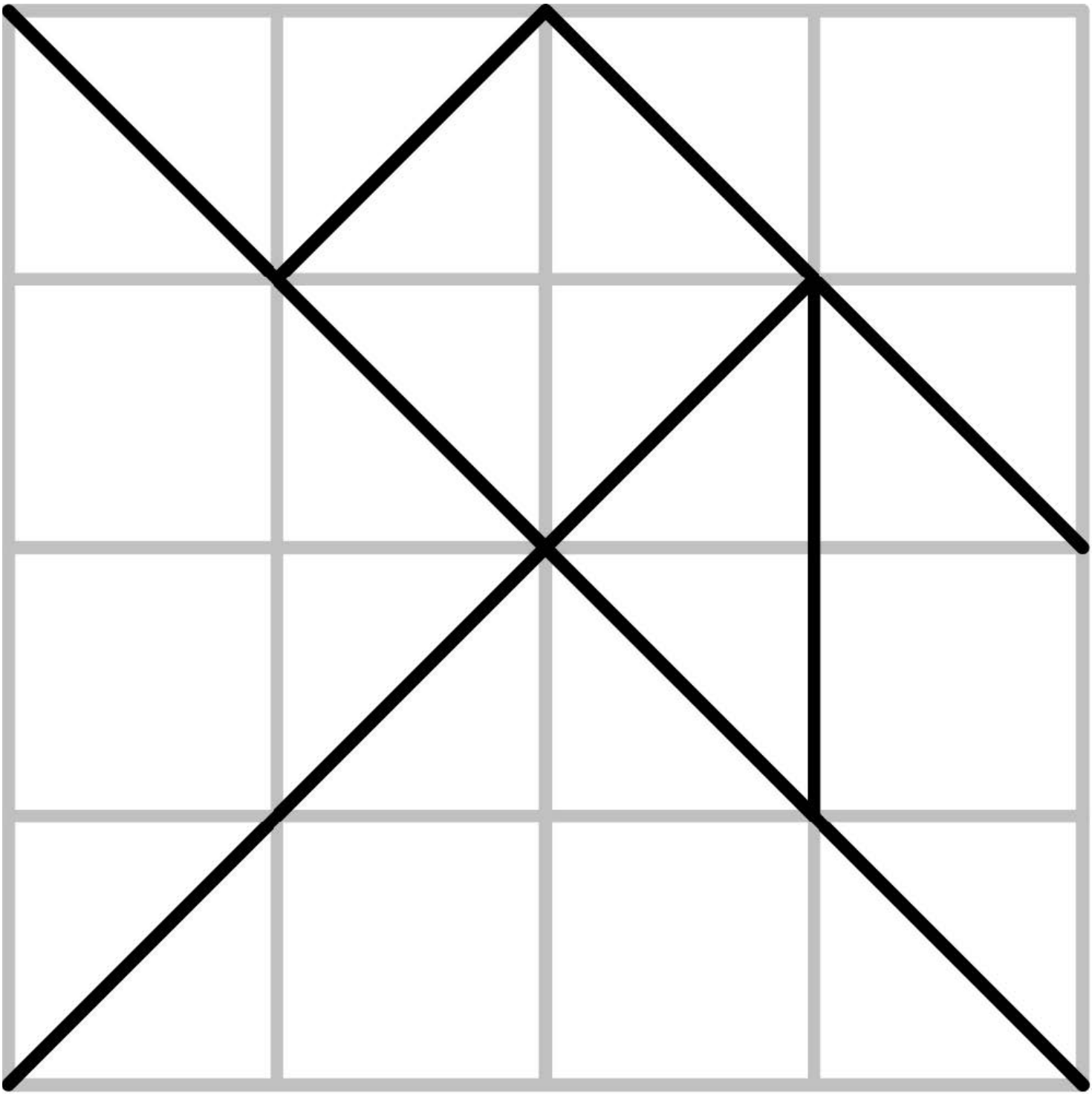
Observations from prototyping:

- It would be interesting if students could photograph their results.

See next page for tangram template.

TANGRAM TEMPLATE

Cut on black lines and outer grey lines:



See next two pages for sample instructions and prompts.
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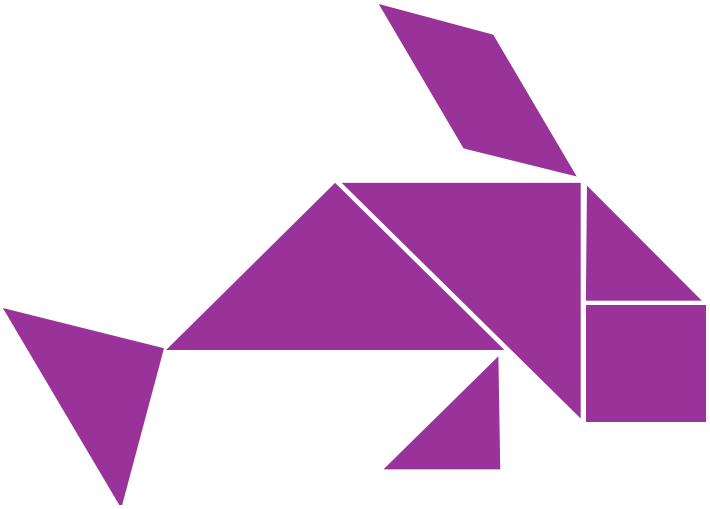
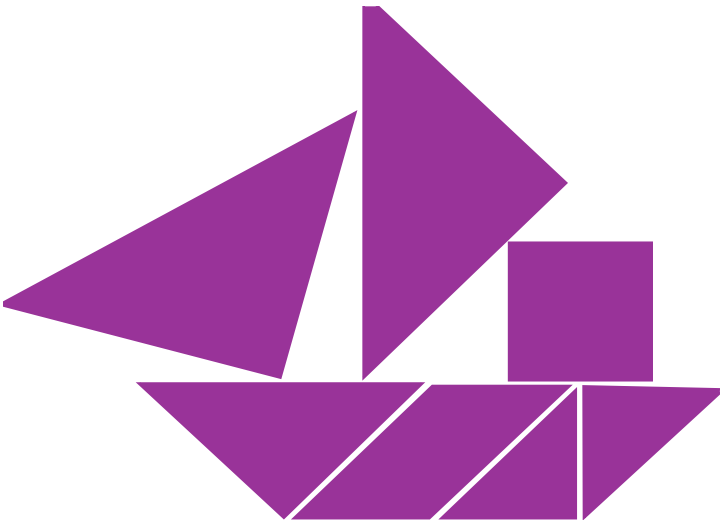
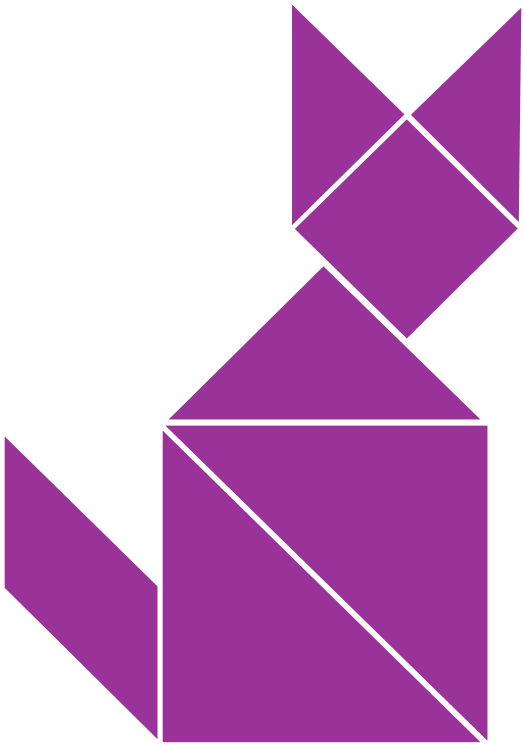
TANGRAMS

Can you make . . .







Try making something else!

NATURE MATH

Sort the objects into . . .

Groups of 1
Groups of 2
Groups of 3
Groups of 5

How many ways can you make 20?

Try . . .

19 + 1
15 + 5
10 + 10

How many other ways can you try?

What patterns do you see?

Make a repeating pattern with the objects.

LEARNING OPPORTUNITY:
SEASONAL SCAVENGER HUNT

What it's about:

- Students look outside the window to observe living and non-living things. Using binoculars gives students an opportunity to use a tool.
- Students record their observations using pencil crayons and sticky notes. What can they observe with their senses?

Materials:

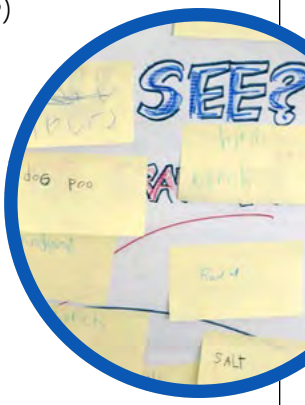
- A window
- Sticky notes and writing materials to record observations
- Chart paper (for posting observations on wall)
- Binoculars
- Birdseed (optional)

Try it outside:

- Spend a full morning outdoors once per month or season. Have students record observations or draw/photograph/collect interesting objects. If collecting, co-develop a set of guidelines.
- Observe a bird feeder once a week, and have students record their observations. What birds appear/disappear as the seasons change? Why could this be?
- Have students create edible "tree decorations" for birds. Hang these outside and observe. Finding ideas for appropriate bird food is an opportunity for research.
- Look for citizen science opportunities (will require research to find an appropriate project).

Connections/Extensions:

- It would be interesting to chart observations of the moon over longer periods (weeks, months) to see patterns. (I.e., Each day, look for the moon. If you can see it, draw it.)
- Students could record the location of the sun at the same time each day and potentially see long-term patterns (e.g., the sun rises higher in the sky in summer compared to winter). These patterns could also be connected to outdoor exploration of shadows. (E.g., How does the length of a shadow change over the course of a day? What about at the same time of day during different months?) This could be combined with weather observations over the course of a day/week/month/year.
- Categorize observations (biotic/abiotic, human-made/natural, types of animals observed, etc.) and organize data into a chart/graph.



Observations from prototyping:

- The binoculars were appealing to students.
- We only had time to try this once, and we wanted to make sure there were animals for students to observe. We scattered a bit of black sunflower seed outside to attract birds and squirrels. (However, if you choose to scatter seed regularly in fall/winter, be aware that birds can become dependent on it, so you must continue to do so throughout the winter.)

See next page for sample instructions and prompts.

Optional: Print the instructions and place them in a T-stand.

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SPRING SCAVENGER HUNT

Can you see outside? Use the binoculars for a closer look!

Can you find . . .

- ✓ A puddle
- ✓ Wind in the trees
- ✓ Three trees with different leaves
- ✓ A bird
- ✓ A nest
- ✓ Clouds in the sky
- ✓ The moon in the daytime
- ✓ Damp soil

Draw or write what you see!

Did you know?

Squirrels build nests. Can you find a nest outside that looks like this?

LEARNING OPPORTUNITY:
SEASONAL PLAYSCAPE

What it's about:

- Students create playscapes from simple materials, including recycled items, and engage in open-ended fantasy play.

Materials:

- A green floor mat or a large piece of felt
- Plastic "grass"
- Baskets with building materials, such as pebbles and seashells
- White felt or quilt batting for "snow" (felt may last longer)
- Plastic animals
- Shelters constructed from yogurt containers with fabric glued on
- Blue and white felt to represent water and ice

Try it outside:

- Have students create a habitat for their play animals using natural materials found outdoors.
- Encourage students to photograph a variety of scenes while playing outdoors, then have them create a story afterwards from the photos.

Connections/Extensions:

- We made "shelters" from empty yogurt containers, fabric and glue. Students could create and decorate their own.
- Students could plan and create their own playscapes over the long term, e.g., by drawing the plan on paper, deciding which features to include and how to make them, then constructing the playscape.

Observations from prototyping:

- We were delighted that students enjoyed this simple activity. Some students spent a long time playing with it.
- We used a green mat and white felt so that the scene could be switched from "summer" to "winter."
- This activity was originally conceived as a complement to the quiet reading corner of a classroom. It would likely work well in this context.

LEARNING OPPORTUNITY:
NATURE BOX

What it's about:

- Students use magnifying glasses to examine objects in a tackle box filled with a variety of seasonally available materials.

Materials:

- A tackle box
- Magnifying glasses and black felt cloth (for placing and observing specimens)
- Interesting materials gathered from outdoors, e.g., goldenrod galls; evergreen needles and cones; a variety of twigs with buds, rose hips, burrs, pussy willows and milkweed husks; a wasp nest; etc.

Try it outside:

- Bring magnifying glasses (or, for older students, a botanist's hand lens) outside to observe nature up close.
- Discuss guidelines, then take students on an outdoor excursion to gather materials for the box. Different habitats may produce unique materials (e.g., a park vs. schoolyard vs. meadow).

Connections/Extensions:

- Students can help gather materials for the boxes. In an average classroom, if each person brings one object, the box should be full or nearly full.
- For added variety, try adding acrylic-preserved insects to the box.

Observations from prototyping:

- It was surprisingly easy to find enough specimens to populate the box. All the materials were gathered on a short walk through the Don Valley, and the variety of colour and texture was attractive.
- Burrs tended to stick to the black felt, making it challenging to re-use.
- Fluffy seeds can easily travel throughout the classroom. We enclosed ours in small containers from the craft section of the dollar store.

See next page for sample instructions and prompts.

Optional: Print the instructions and place them in a T-stand.

NATURE BOX

Use the magnifying glass to study the objects

Can you find . . .

- ✓ A seed that travels in the wind
- ✓ A seed that an animal might eat
- ✓ Something prickly
- ✓ Something fuzzy
- ✓ A bud from a tree
- ✓ A home for an insect
- ✓ A leaf that stays green in the winter
- ✓ Three types of seeds
- ✓ Two types of leaves
- ✓ Something that reminds you of springtime

Don't forget to put everything away when you're done!