OBJECTIVE
To learn about different raptor (bird of prey) nests, their location, construction and size by using hands-on activities for all ages.

TEACHER BACKGROUND
Understanding the different raptor nests begins with background information on habitat and needs. HawkQuest has compiled some basic questions and answers to help your students understand about raptor nests.

Do all raptors build nests?
Most raptors build their own nests, but owls usually don’t. Instead, owls primarily occupy nests built by other animals or use natural or man-made structures. The Barn Owl makes its home in barns, lofts, haystacks and other farm outbuildings. Burrowing Owls use prairie dog burrows and live underground. Barred Owls often nest in hollows of dead trees. Snowy Owls don’t use a nest at all. They lay their eggs on a rocky ledge. Once the baby chicks hatch and are ready to fledge, the young birds simply walk away.

Are all nests built in trees?
Not all raptors build nests in trees. Raptor nests can be found in some surprising places. The Harris Hawk lives in the desert southwest and builds its nest between the prickly barrels of the Saguaro cactus. Peregrine Falcons and owls do not construct stick nests, but sometimes use old nests of hawks and ravens. Some Peregrine Falcons live on the ledges of high-rise buildings, and will create a depression in a pothole or ledge on a cliff. Since Ferruginous Hawks hunt prairie dogs on the ground, they often nest on the ground to be close to their food source.

Thank you to Xcel Energy Foundation and their Environmental Partnership Program.
Where do small raptors nest?
The American Kestrel is the smallest of the North American falcons. They tend to nest in tree cavities that have been excavated by woodpeckers. These small birds stand only 9" tall and prefer a nest at least 20 feet above the ground. The Screech Owl is only 8 ½" tall and it, too, nests in dead tree cavities. When humans clear dead wood for firewood, for land development or to build new structures, these small raptors can have their nest locations restricted or taken away altogether.

Which raptor makes the biggest nest?
Eagles build nests out of sticks, twigs, leaves, mulch and other found materials. Every year, the eagle returns to the same nest and adds to it, so the size of the nest is one way to tell how long it has been there. If the tree holding the nest falls or if a strong wind blows the nest down eagles usually rebuild at or near the same site in just a few weeks, especially if the breeding season is near.

Eagle nests are often very large: nests four to six feet in diameter and three feet high are typical. Some enormous nests have been found that are 9 feet in diameter and weigh over 2 tons. Nests are usually located on cliffs or in high trees less than 100 feet high and within one mile of suitable hunting habitat.

Visit the Xcel Energy's Bird Cam Eagle Nesting site. Based on its size, can you guess how long the nest has been there? www.xcelenergy.com

Home is where you find it!
Raptors are quite adaptable and many species manage to nest, despite unexpected changes in their environment. Peregrine Falcons, which are now common throughout North America, were on the Endangered Species List primarily because of man's use of pesticides, until 1999. Today they can frequently be found in cities, often nesting on the ledges of high-rise buildings. The high nest gives them a clear view of prey such as pigeons, and plenty of room to unexpectedly swoop down upon them. People have started to build nest boxes on the balconies of tall buildings to encourage Peregrine Falcons to raise their young.

ACTIVITY 1 -- SIZE IT UP EXPERIMENT

GOAL
To visually demonstrate the size of an eagle's nest.

PROCEDURE
1. Measure the height of one student and have him lie on his back on the floor.
2. Measure the height of a second student and have him lie on his back on the floor, toe-to-toe (or with feet overlapping) with the first student to get an approximate 9 foot diameter.
3. Add more students, toe-to-toe, in a fanning shape to demonstrate the diameter.
4. After the nest is built, demonstrate the height of the nest sides by having all students raise their arms straight in the air.
ACTIVITY 2 -- BUILDING NESTS

GOAL
To create a variety of nest examples.

Natural Nests
Take students on a nature walk and have them collect various sized twigs, sticks, stems, leaves, feathers, hair, fur and mud. Since birds often find and use man-made materials, look for other items that could be used such as cotton, paper and string. Divide into teams and use the materials collected to build a nest that will provide safety and warmth for the raptor eggs. Remember, a bird wouldn't have scissors or glue or tape to help with the construction. Students will discover it's not easy for a bird to build a nest, or for students to build a nest the same way as a bird does!

Man-Made Nests
A sample of a man-made nest can be made out of heavy paper. A useable nest can be made out of wood and placed outside.
- Barn Owl, American Kestrel, Screech Owl and Barred Owl: http://www.theraptortrust.org/nestbox.html

ACTIVITY 3 -- VIEWING NESTS

GOAL
To use the Xcel Energy's Bird Cams to observe raptor nests. To encourage the safe viewing of nests using Xcel Energy's Bird Cams available on the Internet so that actual nests are not disturbed. It's important to teach students to respect the environment and all bird nests. If you see a nest, it is critical that you do not approach it or disturb it in any way. The well being of the birds and any eggs may be compromised if you disturb the nest.

Adult raptors protect their nests and will discourage predators, including humans, from coming near viable nests.

MATERIALS
Computer with Internet access.

PROCEDURE
Nests can be safely viewed using the Xcel Energy's Bird Cams. As early as 1989, Xcel Eney set up cameras to view raptor nests without disturbing the birds. The Xcel Energy's Bird Cams provide safe and easy viewing of Bald Eagles, Peregrine Falcons, Osprey and Great Horned Owls. The Xcel Energy's Bird Cams are operational during the nesting season at:

http://www.xcelenergy.com
ACTIVITY 4 -- NESTS FOR SALE

GOAL
To research and write descriptions of ideal nests and sites for raptors.

MATERIALS
Real estate ads from the local newspaper or from the Internet. Be sure to include the "Apartments for Rent" as well as the "Homes for Sale" section.
Bird Guides with descriptions of nest sizes, materials and locations.

PROCEDURE
1. Read aloud some of the ads. Let the class identify words from the ads that would also describe a raptor's nest (home).

2. Make a list of useful words. Consider geographic location, size, new/used, etc. Suggestions:
   - Like New
   - Top Floor
   - Great View
   - Bird's Eye View
   - Energy Efficient
   - Insulated
   - Room for a Growing Family
   - Lots of Sunlight
   - Solar Heated
   - Underground
   - Room for Expansion
   - Secure
   - No Cats Allowed
   - Previously Owned by Woodpeckers

3. Have each team of students choose a species and research nest size, material and location using bird guides and the Internet. Have students write their own real estate ad for the ideal nest for the raptor.