Animals Found in a Temperate Deciduous Forest

**Raccoon**
Raccoons are nocturnal animals with a masked face and a ringed tail. Raccoons have five fingers and five toes and great sense of touch. They are omnivores and will eat just about anything, including your trash. Their long, slender fingers make it easy for them to open garbage cans and containers storing food. Raccoons can weigh between 6 to 15 pounds, but due to the fact that they are often overfed by humans, raccoons that exceed 60 pounds have been found. To prepare for the winter, they gorge in spring and summer. During the winter, they will sleep for several days at a time, but they do not hibernate. Raccoons tend to live in areas, such as a fallen log, a tree hole, storm sewers, or crawl spaces under buildings, but they never live far from a water source.

**Raccoon Activity**
- Have the children make eye masks out of black construction paper.
- Since raccoons are very sneaky and curious have the children wear their raccoon masks and take them somewhere to investigate life as a raccoon.

**Follow-up:**
- Review with the children the places they found that they think a raccoon would live. Why would a raccoon live there?
- Did they find anything a raccoon would eat?
- What other things did they notice in the area that would interest a raccoon?
- Have the children investigate a wooded area and then also an urban setting (example: around the outside of the school) and discuss why raccoons may have adapted to human development so well.

**Opossum**
Opossums are the only marsupials in North America. Marsupials are pouched mammals. Infant marsupials are born in an immature state and are carried and nursed in the female’s pouch until they are ready to fend for themselves. Opossums have opposable thumbs on their rear feet and a hairless tail for grasping branches, but they do not use their tail for hanging upside down, which is a common misconception about opossums.

In the wild, opossums only live about 1 to 2 years, because they have many predators. In order to escape a predator, a opossum may “play possum.” When “playing possum” a opossum will pretend to be dead by becoming stiff, drooling, and by breathing slow and shallow. This behavior can last up to 4 hours. Eventually, a predator will lose interest in the seemingly dead prey and not eat it.
Opossum Activity:
- Designate one child in the class as the coyote.
- Have the rest of the children dance around in a circle to music.
- When the music stops have the children drop to the floor and “play ‘possum”.
- Then, have the coyote go up the children who are “playing ‘possum” and act silly trying to get
  them to laugh.
- If a child laughs then the fox “eats” them and they become the coyote for the next.

Follow-up:
- Discuss with the children why being able to “play ‘possum” is an important part of a opossum's
  life.
- Discuss with the children why pretending to be dead is an effective defense mechanism and
  why animals aren’t interested in eating already dead food.
- Do they think that “playing ‘possum” always works? Why or Why not?

Chipmunk
This small mammal is about the size of a teacup and a member of the squirrel family. Even though
chipmunks are related to squirrels, they are not quite as agile in trees. Therefore, they prefer
foraging on the ground. Chipmunks have cheek pouches which can expand to the size of their
head and are used for carrying nuts, which come in handy for gathering nuts, seeds, and grains.
Chipmunks hibernate from late fall to early spring, but they do not store fat. Instead they wake up
about every 2 weeks during their hibernation period to eat.

Chipmunk Relay Race

Materials Needed:
- Large plastic bins or buckets
- Tennis balls (maybe about 8 per child)
- An open space for running

Introduction:
- Tell the children that a chipmunk can carry 9 nuts at a time (4 in each cheek pouch and one in
  its mouth).
- Ask the class how many they think they can carry.

Procedure:
- Divide the class into two or more even teams.
- Line up each group behind the starting line and place an empty bucket in front of each team. The
  bucket represents their home or nest.
- Place the other bucket at the end of the playing field or open room.
- Divide the tennis balls between the buckets that are the furthest away from the children.
- Explain the rules: One child or “chipmunk” from each team will run to the bucket at the other
  end of the field and try to pick up as many tennis balls or “nuts” as possible. The “chipmunk”
  then returns to the starting line and places all the “nuts” in the bucket. Repeat until all of the
children have had a chance to collect tennis balls. Remind the children that they cannot carry any of the tennis balls in their mouths or in their pockets.

- If the “chipmunk” drops any of their “nuts” on the way back to their home, then they must return all of their “nuts” to the far bin and return to their group empty handed.
- After all the children have had one turn count the tennis balls in their home bin. The group of “chipmunks” with the most “nuts” will survive the winter.

Follow-up:
- Discuss with the children why chipmunks may be able to carry so many nuts at one time.
- If they had cheek pouches they would have been able to carry more tennis balls?
- Why is it important to for chipmunks to be able to carry so many nuts at one time?
- Explain that chipmunks usually do not work together in groups. What are the advantages or disadvantages of surviving alone?
Wildlife Feeder

Materials:
Bagels (1/2 a bagel per child)
Vegetable shortening or lard
Peanut Butter
Bird seed
String
Popsicle sticks

Procedure:
• Mix together the vegetable shortening or lard with the peanut butter. If you are concerned about peanut allergies, omit the peanut butter.
• Tie the piece of string around the bagel.
• Using a popsicle stick, smear a thick layer of the peanut butter mixture on the bagel.
• Dip the bagel, peanut butter mixture side down, in the bird seed.
• Hang the wildlife feeder outside and wait to see what comes to eat!

Follow-up:
• The next day revisit the feeder and observe what remains. Was some or all of it eaten?
• Which animals do they think ate the wildlife feeder?
• Why do they think the animals ate the feeder as opposed to the food they normally eat?

Wildlife Feeder for the Kids
Since the kids always want to eat the bagel used for the wildlife feeder, here is a snack idea that will keep them satisfied.

Materials:
Bagels (1/2 per child)
Cream Cheese
Sunflower Seeds
Paper plates
Popsicle sticks

Procedure:
• Use a popsicle stick to smear cream cheese on the bagel
• Sprinkle sunflower seeds on top and enjoy!
Digging for Earthworms

**Materials:**
Small shovels
Gloves (if desired)
Bucket

**Background:**
Earthworms obtain their nutrients by eating soil and other organic material found in the soil. Earthworms burrow into the ground, where they eat and create tunnels. They prefer soft and moist soil that they can burrow through easily. Therefore, the best place to locate earthworms is in ground that is soft and moist. When the ground is dry you have to dig deeper into the ground to find worms.

Earthworms are important animals in the forest ecosystem, because they loosen and add nutrients to the soil. The tunnels created in the ground by earthworms allow rain water to enter the soil more easily and reduce surface erosion. Earthworms also loosen the soil so that is easily penetrated by roots, which helps the plants grow. Earthworms are considered decomposers which mean they eat dead plants and animals, and then redeposit them into the earth as waste, called casts, which are rich in nutrients.

**Fun Earthworm Facts:**
The smallest earthworm found was less than an inch long.  
The largest earthworm was found in South Africa, and was 22 feet long.  
Earthworms have no nose, no eyes, and no skeleton.  
Earthworms have 5 hearts.  
Earthworms are hermaphroditic, which means they are both male and female.  
Earthworms breathe through their skin.  
Earthworms hatch from a cocoon.  
Earthworms can burrow up to 15 feet deep  
Earthworms can produce up to their weight in casts (waste) everyday.

**Procedure:**
- Tell the children that good a place to look for earthworms is in a dark, damp area. Ask them where they could find a dark, damp area in the forest and start your search there. Hint: an excellent place to begin looking for earthworms is under a log, rock, or pile of leaves.  
- Have the children dig in the ground with a small shovel, and filter through the piles of dirt with their fingers to find worms. Time permitting: have the students dig in different locations (near a tree, under a rock, in a dry spot, near water, etc.) to determine which habitat is favored by earthworms.
Follow-up:

- Discuss where they found more earthworms and why they found them there.
- Ask the children why the forest may be a good place for earthworms to live. Discuss reasons such as: earthworms help create a healthy place for trees to grow and the leaf litter in the forest creates plenty of good food for the earthworms to decompose. Would a lot of earthworms like to live in a Desert habitat? Why or Why not?
- Ask the children what characteristics they notice about the earthworms. Then, discuss earthworm characteristics such as their lack of eyes, nose and skeleton, their texture, how they move, etc. Why do earthworms have those characteristics? How do these characteristics help an earthworm live underground?
- Allow the children to gently investigate their earthworm. Have them see how an earthworm interacts with a dead leaf or a piece of fruit. Then discuss the interaction.
- When you are done observing the earthworms, gently place them back in the soil close to where you originally found the earthworms.
How are Leaves Different?

Objective:
Students will understand that leaves have different shapes and they will be able to sort them into different groups based on those unique shapes.

Materials:
• Leaf Description Worksheet
• Pencil
• Notebook paper
• Different shaped leaves
• Green construction paper
• Scissors

Background:
Leaves can be found in a variety of shapes. Trees are often easily identified by the shape of their leaves. This activity will introduce students to different leaf vocabulary and different ways that leaves can be sorted. On the “Leaf Description” Worksheet, there is a list of simple leaf vocabulary and illustrated pictures that will assist the students in describing their leaves.

Procedure:
• Draw two different leaf shapes on the board. Ask the students how they are different. Continue to draw different pictures and as you discuss the differences between them, introduce the students to different terminology like lobbed vs. non-lobbed, broadleaf vs. conifer, palmate vs. pinnate, opposite vs. alternate leaf arrangement. Hand out the “Leaf Description” worksheet to each student. Review the different leaf vocabulary terms and illustrations. Make sure that each student understands definitions of the words.
• Give student some time to complete the worksheet. Each student will need to write one sentence describing how Leaf A is different from Leaf B. For example, “Leaf A is different from Leaf B because Leaf A is longer than Leaf B” or “Leaf A has a pinnate shape and Leaf B has a palmate shape”. Review the answers as a group using the vocabulary as much as possible.
• Give each student a pair scissors and a piece of green construction paper. Have the students create and cut out their very own leaf design. Make sure that the designs are unique. After they have created their leaf, have them write a detailed description its appearance on a separate sheet of paper using the new leaf vocabulary. Write a matching number on the back of each student’s leaf and description. Shuffle up the leaves and lay them out on a table (number side down). Give each student a description of someone else’s leaf and have them try to find the leaf in the pool of common leaves. Once they find the matching leaf, they will return to their desk with the leaf. Discuss with the students which leaves were difficult or easy to find and why. Discuss descriptions that were difficult to understand or easy to understand. How could some of them be re-written so that they are clearer? You can use those same leaves to decorate a class tree to educate others about the different shapes of leaves.
Name: _____________________________

Leaf Descriptions

Directions: Write one sentence to describe how the leaf in column A is different from the leaf in column B. Try to use the leaf vocabulary when necessary.

Leaf Vocabulary:
Alternate Leaf Arrangement: When the leaves are staggered or not placed directly across from each other on a twig
Broadleaf: A leaf that is wide and flat
Compound Leaf: A leaf with one or more blade or leaflets
Conifer: Needle like leaves found on cone bearing trees
Lobes: The pointy or rounded projections on a leaf. The lobed leaf in the picture has five lobes
Pinnate: When the leaf is arranged like the vanes of a feather
Palmate: When the leaf is arranged like the palm of your hand
Opposite Leaf Arrangement: When leaves on a stem are placed directly across from each other

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<thead>
<tr>
<th>Alternate Leaf Arrangement</th>
<th>Broadleaf</th>
<th>Compound</th>
<th>Conifer</th>
<th>Lobed Leaf</th>
<th>Palmate</th>
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<th>Pinnate</th>
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<th>Leaf A</th>
<th>Leaf B</th>
<th>Sentence describing how Leaf A is different from Leaf B.</th>
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<td>Leaf A</td>
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<td>3.</td>
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<td>10.</td>
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Leaf Rubbing

Materials:
Leaves of all shapes and sizes
Peeled crayons
White paper

Procedure:
• Arrange one or several leaves underneath a white piece of paper.
• Rub the piece of paper with the crayon on its side and watch the leaf picture emerge.

Follow-up:
• Observe the leaf rubbing and notice how the leaves can look very different.
• Do they think some scientists can identify a plant based on the leaf shape? If possible, get a plant or tree identification book and try to identify each plant by using the leaf shape. Why are some plants easier or harder to identify than others? Can all plants be identified by their leaf shape?
• Were some leaves harder to use in this activity? Why?