

## Home School Series: 3-5

## February: Ravenous Rodents

- Start Up:** (5-10 min) Rodent skulls, mounts, rodent pictures, mammal posters  
**Rodent Guessing Game** (see below)
- Welcome/ Introduction:** 5 min. Staff/Volunteer Names  
**Today's Topic-Rodents**  
**Question: What feature are rodents known for?**
- Opener:** 10 min. **Rodents & Relatives Match Up** (based on Noah's Ark, Sanborn)-  
Pass rodent cards out to students (see below).  
Each student acts out the rodent on his/her card to find their partner.  
Ask the partners to introduce each other to the group.
- Background/ Exploration:** 45 min. Ask the students what mammal characteristics they remember.  
What is special about the mammals we call rodent  
Show some mammal mounts or pictures. Discuss the special features of rodents:
- Largest and most diverse group of mammals with over 1500 species
  - Teeth grow continuously  
Rodents **MUST** gnaw hard stuff to control the growth
  - Four chisel-shaped front teeth (incisors)  
Good for snipping plants, eating tough food, and digging
  - No fangs (canines)-space between incisors and molars (diastema)
  - Strong jaw muscles pull the lower jaw forward and back for gnawing
  - Most reproduce often and have large numbers of young
  - Herbivores-eat mostly plants, seeds, bark, etc.
  - Are prey/food for many predators
- Activity:** **Skull Search**-Help the students look at skulls of various mammals, including rodents, noting the teeth and their patterns.
- ♣ Find incisors, canines, and molars.
  - ♣ How are the teeth of rodents different from other groups?
  - ♣ Look at an insectivore skull for contrast, noting the pointed teeth.
  - ♣ Discuss tooth type and diet. (see *HS-1:3-5 Marvelous Mammals*)
- The chisel shape of rodent incisors comes from the outer layer of enamel being harder than the inner dentine, which wears away faster. A rodent can die if its teeth aren't worn down enough by gnawing. They can grow into its skull!
- Insectivores** are often mistaken for rodents, but are predators who eat insects and other invertebrates. Show a picture of an insectivore (mole, shrew, hedgehog).

Discuss insectivore characteristics:

- Tend to be smaller mammals
- Nocturnal and secretive
- Burrow for prey
- Sharp pointed nose and tiny ears
- Teeth are unspecialized, with one point each
- Small eyes, may be mostly hidden by fur

**Activity:**  
10 min.

**You and a Shrew** (*Ranger Rick*)-Ask different students to read the shrew facts from the copycat page, then compare to human characteristics.  
Mention echolocation and poison used on prey. Shrews store stunned/poisoned prey.  
Discuss how the features of rodents compare to humans.

**Lagomorphs**, or Rabbits, were once thought to be rodents, but now have their own group. Show a rabbit mount or picture. Lagomorphs:

- Include rabbits, hares, and pikas
- Most are great jumpers with long hind legs.
- Rabbits and hares have long narrow ears.
- Have a second smaller set of teeth behind two front incisors.
- Herbivores

**Activity/Snack:** Give the students baby carrots for a snack. Let them try to “gnaw” on them.  
5 min. How do your jaws feel? Are human teeth well adapted for gnawing?

**Rodent Guessing Game**-Ask students to take turns reading the clue cards and guessing which mount or mammal picture they represent.

**Game:**  
10 min.

**Fox and Squirrel** (Fluegelman)-

Ask students to stand in a circle facing inward.

Give them three balls, two alike (foxes) and one unique (squirrel).

Foxes must be passed person to person in one direction or the other.

The squirrel can be passed OR thrown across the circle.

The foxes must try to tag the squirrel.

Have the students call out “Fox” or “Squirrel” whenever a ball is passed.

Start a new game when the squirrel is tagged by one or both foxes.

**Prepare to  
go Outside:**  
5 min.

Restroom break. Dress for weather.

Bring clipboards, paper, and pencils.

**Trail Rules** (see The First Program).

**What we will do/What to look for**-Rodents and signs of rodents.

**Predictions**-What rodent signs will we find?

**OUTDOOR  
EXPLORATION:**  
1 hour, 40 min.

Hike to an area near water and look for beaver chews.

How high off the ground are they?

Look for other signs of rodents-tunnels in snow/grass, seed caches, etc.

Discuss how the blanket of snow is helpful to rodents in the winter  
(see *K-2 Winter Wonders*).

- Activity:** Find some active squirrels and observe their behavior.  
10-20 min. You may have the students record behaviors and time repeated actions.  
This could also be done through a window if it's very cold.
- Game:** **Hares & Hounds** (Allison)- Divide the students into two groups.
- One group (hares) leaves a trail of 10 pinecones for the other group to find.
  - Give the hares a 2 minute head start. The second group (hounds) must follow the trail, picking up the cones.
  - The hares try to finish their trail before the hounds see them or catch up to them.
- Closing:** Rodents are often thought to be a nuisance due to their large numbers, eating of human food stores, and carrying of disease.  
Rodents, whether prey or nuisance have some special and interesting features.
- Send Off:** Goodbye!  
**Next Month-Rocks & Fossils**
- Take Home:** Parent Outline  
At-home activities

## Vocabulary

Rodent, incisor, enamel, dentine, insectivore, lagomorph, canines, molars, chisel, herbivore, cache

## Background and Activity References for Naturalists and Parents

- Allison, Linda. 1989. *The Sierra Club Summer Book*. Sierra Club Books/Little, Brown, and Company, San Francisco. P. 143 Hare & Hounds game
- Fluegelman, Andrew, ed. 1976. *The New Games Book*. The Headlands Press, Inc., San Francisco, CA. P. 59 Fox and Squirrel game
- Home School EE Program Series: Year 1*. 2005. Indian Creek Nature Center, Cedar Rapids, IA. 3-5 *Marvelous Mammals*
- Iowa Wildlife*. 1998. Iowa Association of Naturalists. ISU Press, Ames, IA. (IAN-601--606)  
*Iowa Mammals* (IAN-601) <http://www.extension.iastate.edu/pubs/wi.htm>
- Lingelbach, Jenepher. 1986. *Hands-On Nature: Information and Activities for Exploring the Environment with Children*. Vermont Institute of Natural Science, Woodstock, VT.  
Pp. 43-44 Dentition and diet
- Ranger Rick's Naturescope: Amazing Mammals Part II*. 1989. National Wildlife Federation, Washington, D.C. Pp. 45-58 Rodents, lagomorphs, insectivores; pp. 49-50, 52 The Great Rodent Expedition-send home; pp. 57-58 You And A Shrew-shrew and human facts
- Sanborn, Jane. 1984. *Bag of Tricks: 180 Great Games*. Search Publications, Florissant, CO.  
P. 21 Noah's Ark
- Schwartz, C. W., and E. R. Schwartz. 1981. *Wild Mammals of Missouri*. University of Missouri Press and Missouri Department of Conservation, Columbia, MO. Dentition formulae
- Sisson, Edith A. 1987. *Nature with Children of All Ages*. The Massachusetts Audubon Society-Prentice Hall Press, New York. Pp. 88-98 Mammals-background and activities

## Extensions/Alternate Activities/Rainy Day

Use some rodent skulls or pictures to help the students learn about dentition formulae (see *HS-1: 3-5 Marvelous Mammals*). Write the formulae for several rodent skulls.

Look at some rubber scat of different rodents before going outside.

|                  |                            |                               |
|------------------|----------------------------|-------------------------------|
| <b>Supplies:</b> | Skulls (mammal box)        | Repliscat (Acorn Naturalists) |
|                  | Beaver chew and/or picture | Rodent mounts/skins           |
|                  | Furs                       |                               |
|                  | Clipboards and clips       | <b>Fox and Squirrel-</b>      |
|                  | Paper                      | 2 identical balls (tennis)    |
|                  | Pencils                    | 1 unique ball (soft)          |
|                  | 10-12 pinecones            |                               |
|                  |                            |                               |
|                  |                            |                               |
|                  |                            |                               |

**Advance** Copy the *Ranger Rick* You and a Shrew page and cut the facts apart.

**Preparation:** Copy the **Rodents and Relatives** page, and the **Rodent Guessing Game** cards onto cardstock and cut apart.

**Rodents & Relatives Match Up**

**RABBIT**

Hop around the area

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**BEAVER**

Make gnawing motions with teeth  
Make swimming motions w/hands

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**SQUIRREL**

Scamper about  
Make chattering sounds

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**FLYING SQUIRREL**

Spread out arms and glide around

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**MOUSE**

Wiggle nose quietly

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**MOLE**

Squint eyes  
Make burrowing motions w/hands

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**SHREW**

Move around excitedly

**RABBIT**

Hop around the area

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**BEAVER**

Make gnawing motions with teeth  
Make swimming motions w/hands

---

**SQUIRREL**

Scamper about  
Make chattering sounds

---

**FLYING SQUIRREL**

Spread out arms and glide around

---

**MOUSE**

Wiggle nose quietly

---

**MOLE**

Squint eyes  
Make burrowing motions w/hands

---

**SHREW**

Move around excitedly

## Rodent Guessing Game Cards-Clues

A large aquatic rodent  
Lives in a bank hole or a stick lodge  
Eats young trees & bark  
Has a large flat hairless tail  
Slaps tail to signal danger  
Stores food and is active all winter

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A rodent with orange colored fur  
The largest of its kind  
Eats tree seeds like acorns, walnuts  
Has a bushy tail  
Makes a leafy tree nest  
Stores food for the winter

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A large rodent  
Eat plants like grass and twigs  
Lives in the woods  
A true hibernator  
Looks like a beaver with a furry tail  
Its other name is Groundhog

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A small rodent with brown fur  
Has a white underside  
An herbivore, eats smaller seeds, berries  
Named after a large woodland animal  
May come in your house in the fall  
Mostly nocturnal

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Can be mistaken for a mouse  
Has gray velvety fur  
Nose and tail shorter than a mouse  
Eats plants, including flower bulbs  
Active in winter on warmer days

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A small perky rodent with chestnut fur  
Its back has white and black stripes  
Its face also has a stripe  
Can be seen during the day in the woods  
Eats seeds, berries, & other plants

Known for its burrows and "hills"  
Feet work well for digging  
Teeth with one point each  
Eats insects and their grubs (larvae)  
Small eyes, great sense of touch  
Not a rodent

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A common rodent-like creature  
Brownish fur and a white fluffy tail  
Known for its hopping motion  
Has long ears on top of its head  
Eats plants  
Small second set of teeth behind first

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One of the smallest mammals  
Has a huge appetite and lots of energy  
An aggressive predator and insectivore  
Eats worms, snails, spiders, & insects  
Poison saliva can help kill larger prey  
Sometimes eat mice and their own kind

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A smaller aquatic rodent  
Has brown sleek fur and a naked tail  
Eats aquatic plants  
Lives in a cattail lodge or bank hole  
Stores food and is active all winter  
Looks like a large rat

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A burrowing prairie rodent  
Cheek pouches help it carry food  
An herbivore  
Large front claws and stumpy tail  
Furs lies flat both directions  
Rarely seen above ground

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Lives in larger grassy areas  
A small herbivore-eats grass & seeds  
Known for its white back stripes & spots  
Lives in underground burrows  
Hibernates in the winter

**Rodent Guessing Game Cards-Answers**

MOLE

COTTONTAIL RABBIT

SHREW

MUSKRAT

POCKET GOPHER

THIRTEEN-LINED  
GROUND SQUIRREL

BEAVER

FOX SQUIRREL

WOODCHUCK

DEER MOUSE

MEADOW VOLE

CHIPMUNK