

ENVIRONMENTAL EDUCATION/EARTH SCIENCE

DEPARTMENT D - CONSERVATION AND WILDLIFE & SHOOTING SPORTS

4-H'ers have the opportunity to create a variety of exhibits in the different divisions. This category gives 4-H'ers the opportunity to present their knowledge of their chosen interests. 4-H'ers will not only show their knowledge about conservation, wildlife, and shooting sports but also the different laws that surround those areas.

(1) **Show What You Did & Learned** - All exhibitors are encouraged to show evidence of their personal field experiences, or observations that relate to their exhibit. This helps judges understand what the 4-H'er did and learned in the process that led to the exhibit. (2) **Proper Credit** - Show proper credit by listing the sources of plans or other supporting information used in exhibits. (3) **Whose Exhibit?** - The exhibitor's name, county, age **MUST** be on the back or bottom of all displays so that the owner can be identified even if the entry tag becomes separated from the exhibit. (4) **Wildlife & Wildlife Laws** - "Animal" or "wildlife" in the following instructions includes wild fish, amphibians, reptiles, birds or mammals. Follow wildlife laws; example: wildlife laws do **NOT** allow collection of bird nests, eggs, or any of their parts. (5) **Project Materials** - Related project booklets include Exploring Your Environment Series, 4-H Shooting Sports, Amphibians, Bird Behavior (EC 59381), Fishing for Adventure Project Manuals, Wildlife Conservation (4-H125), and Outdoor Skills: Learning Science in the Outdoors series (Science Signature Outcome Program). (6) **Board and Poster Exhibits** - These are displays that show educational information about a topic of interest. Board exhibits can hold objects such as fishing equipment or casts of animal tracks. Mount all board exhibits on ¼" plywood, Masonite, or similar panel **NO** larger than 24" x 24". Poster exhibits should be on regular poster sheets, **NO** larger than standard size (22" x 28") but half size, 22" x 14", is recommended.

DIVISION 340

Class

Wildlife and How They Live (Classes 1-4) are board or poster exhibits. Display may show any aspect of wildlife, wildlife habitat, or related conservation. Examples: life history or other facts about one type of wildlife; how to manage wildlife on a farm or in town; managing habitat for one kind of wildlife; life requirements for one kind of wildlife during one season or through the year; wildlife behavior and habitats. For more ideas, refer to project booklets.

- *1. **Mammal Display**
- *2. **Bird Display**
- *3. **Fish Display**
- *4. **Reptile Or Amphibian Display**
- *5. **Wildlife Connections** - Board or poster exhibit. The purpose of this display is to show interconnections and related aspects among animals, plants, and other habitat components. All displays should show two or more interactions (connections) that occur between/among animals or between animals and their habitat. Displays might show how animals interact with other animals, with people, or with their habitat.
Examples:
 1. Food chain display. Use pictures, drawings, or other items to illustrate the source of food energy and where it goes - who eats whom or what. Use arrows to show the direction of the energy (food) flow.
 2. Show the role of predators, scavengers, insect eaters, or others in nature.
 3. Show how wildlife numbers (populations) change through the year.
 4. Show predation, competition, or other behavioral interactions of wildlife.
 5. Choose one kind of wildlife and make observations through a season or year, keep notes of interactions, then make a display of what you saw.
- *6. **Wildlife Tracks** - Board or diorama-type box exhibit. Make a display of animal tracks using plaster of Paris casts. There are three options. For all options, include a brief description of your experiences in making the tracks so the judge can better understand what you did and learned. Positive casts (impressions as they would be in nature) are preferred.
Option 1 should show plaster of Paris tracks of five or more kinds of wildlife along with a picture or illustration of each kind of animal. (OR)
Option 2 should show two or more plaster of Paris tracks of one specific kind of wildlife and should include a picture or illustration of the animal, what the animal may eat, and what may eat the animal. (OR)
Option 3 should show two tracks and include the animal's habitat needs including preferred food, shelter, water, and space in addition to picture or illustration of the animal.
- *7. **Wildlife Knowledge Check** - Use electrical circuits, pictures, or other methods of teaching wildlife identification or other wildlife related knowledge. Plan size and shape to fit transportation and display; maximum size 24" x 24".
- *8. **Wildlife Diorama** - Box **MUST** be **NO** larger than 24" x 24". The exhibit might show a grassland, prairie, agricultural, woodland, riparian (stream or river corridor), wetland, and/or other area with wildlife habitat. Example: show a large unbroken grassland or prairie for species such as meadowlarks, greater prairie-chicken, lark bunting, grasshopper sparrows, Ferruginous hawk, burrowing owl, horned lark, upland sandpiper, or pronghorn; AND/OR show an area interspersed with several habitats such as windbreaks, farm fields, woods, waste areas, ditches, and pastures for edge-adapted species such as white-tailed deer, Northern bobwhite, mourning doves, cottontail rabbits, fox, squirrels, Northern cardinals, or blue jays. Label the habitats displayed and show at least five kinds of wildlife in their proper habitats.
- *9. **Wildlife Essay** - Learn how to share educational information by writing. Choose a conservation or wildlife topic that interests you and write an essay about it. For example, write about a particular species of wildlife that you have observed or about the values of wildlife. You might write about wildlife on a farm, in town, in a backyard, at a backyard feeder, or at other places. You might write about hunting, fishing, or ethics and proper behavior for hunting or fishing. The essay is between 100 and 1000 words long and typed, double spaced, on 8½" x 11" paper. You might use books, magazines, or personal interviews as resources, but you **MUST** give credit to all sources by listing them.
- *10. **Wildlife Values Scrapbook** - Make a scrapbook about the various values of wildlife following guidelines in the Wildlife Conservation project book (4-H 125).
- *11. **Wildlife Arts** - The purpose of this class is to allow artistic exhibits that contain educational information about conservation and wildlife. Examples might include paintings, photographs, wood carvings, painted duck decoys, or songs or poems written by the exhibitor. Entries **MUST** be appropriate for fair display and **NO** larger than 24" x 24". For example, paintings or photographs should be displayed in notebook format or mounted on a sturdy display panel. All entries **MUST** include a title and brief explanation of the purpose or message (what is the exhibit meant to show).

DIVISION 342 - WILDLIFE HABITAT

Class

- *1. **Houses** - Make a house for wildlife. Examples: bird house (bluebird, purple martin, wood duck, kestrel, barn owl, etc.) or bat house; **NO** insect houses. Make the house functional so that dimensions, hole size etc. are appropriate to fit the intended species' needs. Include the following information: (1) the kinds of animal(s) for which the house is intended, (2) where and how the house should be located for best use, and (3) any seasonal maintenance needed. Tips: check NebGuide on bird houses and shelves.
- *2. **Feeders/Waters** - Make a bird bath or feeder. Examples: seed, suet, or nectar feeders. Squirrel feeder okay; **NO** insect feeders. Indicate the kinds of animal(s) for which the feeder or waterer is intended. Make the feeder or waterer functional so that it fits wildlife needs. Include the following information: (1) where and how the feeder or waterer should be located for best use and (2) how it should be maintained. Tips: check NebGuide on feeding birds.
- *3. **Wildlife Habitat Design Board Or Poster Exhibit** - Choose a backyard, acreage, or farm, and design a habitat plan to meet the food, water, shelter, and space needs of at least three kinds of animals you would like to attract. Draw an outline of the area and show what plants or other habitat will be provided. Indicate how the various parts of your plan provide the desired habitat needs. You might include an aerial photo of the area if you have one.

DIVISION 343 - HARVESTING EQUIPMENT

Class

- *1. **Fish Harvesting Equipment** - Board exhibit. Display of equipment used in fish harvesting. Examples: fishing knots, hooks (with corks over ends for safety), and lures. Label all items displayed. Include in your exhibit the following information: (1) The purpose of each item, (2) When or where each item is used in relation to other equipment, and (3) Any personal experiences you've had with the item(s).
- *2. **Build A Fishing Rod** - Build your own fishing rod for exhibit and for fishing use. Rod building blanks and kits with instructions are available for this purpose. A fishing rod educational exhibit may **NOT** exceed 96" in length. Exhibit **MUST** be mounted on a board and labeled with the member's name, county and class number. Include with the exhibit the following items as a brief attachment: Explanation of cost of materials/components; where materials/components were purchased; how many hours required for construction. Identify all parts. Necessary components which **MUST** be included are grip, line guides (based on manufacturers specifications), guide wraps, and hook keeper. Reel seat needs to be aligned with guides, and guides aligned accurately down rod. Guide wraps of size A to D, nylon or silk thread. Exhibit will be judged on: workmanship, labeling of parts (guides, etc.), correct information, and neatness.
- *3. **Casting Target** - Make a casting target for exhibit and use, following guidelines on the reference sheet. Target must be under 36"x36". The bullseye/rings must be a" in diameter and can have up to three rings. They must be easy to store, durable, and weather resistant.
- *4. **Wildlife Harvesting Equipment Board** - Display of equipment used in harvesting wildlife. Examples: expended ammunition casings (no live ammunition permitted), steel traps, hide stretchers, fleshers, etc. For displays of shotguns, rifles, or bows, use drawings or pictures. Label all items displayed. Include in your exhibit the following information: (1) the purpose of each item, (2) when or where it is used in relation to other equipment, and (3) any personal experiences you've had with the item(s).
- *5. **Inventing Wildlife/Fish Harvesting Equipment, Aid Or Accessory** - Use engineering principles to invent or adapt equipment that helps you harvest fish or wildlife. This could include wildlife calls, adapted fishing pole for shallow water, a blind, decoys, etc. Share your drawing (or adapted plans), how the equipment works, how you tested it, and the results of testing your prototype and any adjustments you made.

DIVISION 346 - TAXIDERMY

Class

- *1. **Tanned Hides Or Taxidermy** - Any legal fish, bird, or other wild animal properly processed by the member. **NO** requirement as to size or mounting. Include the following information: (1) The animal's name and (2) Information about the exhibitor's personal field experiences, study, or observations that relate to the exhibit.

DIVISION 347 - 4-H Shooting Sports

4-H Shooting Sports requires 4-H'er to be under the direct leadership of a certified 4-H Shooting Sports Leader in either shotgun, rifle (BB gun), archery, pistol, black powder/muzzleloader, and/or hunting skills. **NO** firearms can be entered as an exhibit, **NOR** live ammunition; however, information can be shared through pictures.

Class

- *1. **Shooting Aid or Accessory** - Any item which helps the shooter/hunter better perform their sport. Ex: rifle sling, kneeling roll, arm guard, shotgun vest, target boxes, shooting stick, etc. Include your design, plans you adapted, what the item is and used for.
- *2. **Storage Case** - An item with the purpose to safely hold a firearm, bow, ammunition, and/or arrows. Ex: soft-sided shotgun case, quivers, firearm safe. Include your design or plans you adapted. Explain how the storage case is used.
- *3. **Practice Game or Activity** - Invent or adapt an activity to practice or teach a project skill. Include pictures of youth playing the game, testimonials of 4-H'ers who played the game, what skill is being worked on, and the directions for the game. Explain how you came up with the game or adapted it to fit the needs of your group members.
- *4. **Science, Engineering, Technology Advancements of Shooting Sports, Conservation, or Wildlife Essay or Display** - Choose a specific area of shooting sports and share how it has advanced. Include a timeline and photos or illustrations. Keep your topic narrow and manageable. Essays are limited to 1,000 words and should be on 8½"x11" paper.
- *5. **Healthy Lifestyles Plan** - Include a shooter's (hiker's, camper's, angler's) diet and exercise plan, and how the 4-H'er will benefit or improve from following the plan. Ideally, the 4-H'er would follow the plan and include some journal entries about adaptations or improvements made while following the plan.
- *6. **Citizenship/Leadership Project** - Share a display on a citizenship project or leadership project the 4-H'er took on individually or with a group to improve some aspect related to 4-H Shooting Sports, Conservation, or Wildlife. Ex: range development, conservation planting to attract wildlife, a camp, or 4-H recruitment event. Include who benefitted from the project, what the 4-H'er member's role was, and any results
- *7. **Career Development/College Essay, Interview or Display** - Research opportunities for careers related to this area or opportunities for college majors or college activities to help discover using project skills beyond a person's 4-H career. Essays are limited to 1,000 words and should be on 8½"x11" paper. Interviews need to include a picture of the interviewee in their work setting, questions asked, and a transcript of answers.
- *8. **Community Vitality Display** - Explore the difference shooting sports conservation, fishing, and hunting make in keeping Nebraska vibrant especially in rural areas. Present facts and research in an interesting way for the public to learn from.
- *9. **Ag Literacy-Value Added Agriculture Interview or Research Project** - Explore how traditional ag producers are adding value to their production agriculture operations through conservation efforts, hunting, raising pheasants, shooting sports related tourism, etc. Present findings in an interesting way for the public to learn from.

DEPARTMENT D - OTHER NATURAL RESOURCES

Including projects related to Conservation, Geology or Ecology

DIVISION 361

Class

- *1. **Design Your Own Exhibit In Natural Resources, Conservation, Geology Or Ecology** - This class is for educational exhibits about natural resources, conservation, wildlife, or ecology that do **NOT** fit into other categories. Entries **MUST** be appropriate for fair display and **NO** larger than 24" x 24". All entries **MUST** include a title and should be clear (a brief explanation or other method) about the intended purpose or message – what the exhibit is meant to show. Think about accuracy, creativity, educational value for viewers, and evidence of exhibitor's personal experiences and learning.

DEPARTMENT D - FORESTRY

This category provides 4-H'ers an opportunity to prepare displays that show their expertise in many aspects of forestry. Involvement in this category will lead to expansion of seed, twig, wood, leaf, and tree knowledge for 4-H'ers. In addition, 4H'ers would learn more about common Nebraska trees.

DIVISION 320

The official reference for all forestry projects is Tree Identification Manual (4H 332). Other helpful forestry references include Trees of Nebraska (EC 921774), Leafing Out (4H431), and Plant a Tree (EC 171180). Display "boards" **MUST** be made from wood or wood composite, i.e., plywood, fiberboard, or Masonite, ¼" to ½" thick and **NO** larger than 24"x24". Display boards **MAY** be coated, e.g., painted or varnished, on both sides to prevent warping. Display "posters" **MUST** be made from a material, e.g. foam board or poster board that will stand upright without buckling and be **NO** larger than 24"x24". Display "books" **MUST** measure **NO** more than 16"x16". At least 5 of the 10 samples in Class 2, 3, 4, and 5 **MUST** be from the list of 60 species described in 4H 332. Samples **MUST** be from 10 different tree species. For example, Emerald Queen Maple and Crimson King Maple are both varieties of the same species (Norway Maple), and

thus have the same genus and species name, i.e. *Acer platanoides*. All samples **MUST** be from trees, **NO** shrubs. If more than 10 samples are included in the display, only the first 10 samples from the current year will be judged. **Due to emerald ash borer infestation, no true ash species (Green Ash, White Ash, Black Ash, or Blue Ash) may be included in any collections. Inclusion of a true ash species will result of the project being disqualified.**

Remember that other general labeling standards apply. For example, scientific names are **ALWAYS** italicized or underlined. Also, the first letter of a Genus name is always capitalized. The first letter of a species name is always lower case. When required, always indicate **COMPLETE** scientific names (Genus and species) and common names, (e.g. Norway Maple) even when “variety names” are included. For example, the scientific name of Emerald Queen Maple is *Acer platanoides* and the common name is Norway Maple. “Emerald Queen” may be included as the variety name, but variety names are **NOT** required. How well the exhibitor follows written directions is an important factor in judging.

DIVISION 320

Class

- *1. **Design-Your-Own Exhibit** - Prepare an educational exhibit about some aspect of trees, forests, or forestry that is of special interest to you. Possible topics include paper recycling, wildfire, forest products, forest wildlife, or forest pests. The only requirement is that the display **MUST** be **NO** larger than 24” by 24” by 24”. Photographs, drawings, samples, charts, posters, etc. can be used, but include enough information to adequately explain the topic. Your display should be substantially different from other display classes. Be as creative as you like.
- *2. **Leaf Display** - The leaf display **MUST** include samples of “complete leaves” from at least 10 different tree species. The display **MUST** include at least two samples of simple leaves, compound leaves, and conifer leaves. Leaves should be pressed, dried, and mounted.
Collection: Whenever possible, collect leaves from mature trees. Collect leaves any time after they have reached full size, usually beginning in early summer. Leaf samples should be in good condition and representative of the average leaves on the tree. Keep in mind that shaded leaves are often much larger than normal. Carefully remove leaves from the twig with the entire petiole or rachis intact. After collection, fresh leaf samples can be temporarily stored within the pages of an old magazine, but they should be properly pressed and dried for display. Be sure to record pertinent information during collection. All collections **MUST** be done by the 4-H'er.
Mounting: Leaves may be displayed in a notebook or on a display board. Any method may be used to mount leaves, e.g. wire, glue, tape, staples, plastic bags, but be sure all their features can be clearly identified.
Labeling: The label for each sample **MUST** include: (1) Common name, (2) Scientific name, (3) Leaf type, (4) Leaf arrangement (for broadleaf trees), (5) Leaf composition (for broadleaf trees), (6) Collector's name, (7) Collection date, (8) Collection location (be specific, state and county at a minimum). If a twig is included with a sample, indicate “twig included” on the label. For example, the twig may be included with an eastern red cedar sample because the leaves are very small and difficult to remove from the twig.
Supplemental Information: e.g. general uses, common products, fall color, etc., may be included to enhance educational value.
- *3. **Twig Display** - The twig display **MUST** include twig samples from at least 10 different tree species. The display **MUST** include at least two samples of opposite and alternate leaf arrangements from broadleaf trees.
Collection: Twig samples should be collected during the dormant season (November – April) when the buds are mature. Twig samples **MUST** be at least 6” long and exhibit buds. Leaves **MUST** be removed and side branches **MUST** be trimmed to less than 1” in length. All collections **MUST** be done by the 4-H'er.
Mounting: Twigs **MUST** be mounted on a display board. Any method, e.g. wire, glue, tape, staples, plastic bags, etc., may be used to mount twigs, but be sure all features can be clearly identified. The non-terminal end **MUST** be cut at a slant so the pith can be seen.
Labeling: The label for each sample **MUST** include: (1) Common name, (2) Scientific name, (3) Leaf arrangement (for broadleaf trees), (4) Collector's name, (5) Collection date, (6) Collection location (be specific, state and county at a minimum).
Supplemental Information, e.g. general uses, tree characteristics, etc., may be included to enhance educational value.
- *4. **Seed Display** - The seed display **MUST** include seed samples from at least 10 different tree species.
Collection: Tree seeds should be collected at the time of year when they mature, which varies widely depending upon tree species. For example, Silver maple seeds mature in May while red oak acorns do not mature until September. Seed samples should be free of insect or disease symptoms. Remember to display seeds, **NOT** fruit. For example, the seed of honey locust is enclosed in a pod. Remove and display the seed, **NOT** just the pod. It is acceptable to display the fruit with the seed, but clearly label each. All collections **MUST** be done by the 4-H'er.
Mounting: Seeds may be displayed in a variety of ways, e.g. mounted on a display board, displayed in jars in a rack, etc., but they **MUST** be securely mounted and easily viewed. Be as creative as you like.
Labeling: The label for each sample **MUST** include: (1) Common name, (2) Scientific name, (3) Type of fruit, if known (e.g. samara, pod, nut, legume, etc.) (4) Collector's name, (5) Collection date, (6) Collection location (be specific, state and county at a minimum).
Supplemental Information, e.g. maturity date, average number of seed in the fruit, etc., may be included to enhance educational value.
- *5. **Wood Display** - The wood display **MUST** include wood samples from at least 10 different tree species.
Preparation: Samples may be of any shape, e.g. sections from a board, wood cylinders turned on a lathe, horizontal or vertical cross-sections of a small log with bark attached, etc., but all samples should be the same shape, e.g. all wood cylinders or all sections of a board. Each sample can be **NO** larger than 4” by 4” by 4”. Cut surfaces should be sanded to show the grain. Treating samples with a clear finish (no stain) is optional. All collections **MUST** be done by the 4-H'er.
Mounting: Samples may be displayed in a variety of ways, e.g. mounted on a display board, displayed in a box or rack, etc., but they **MUST** be securely mounted and easily viewed. Be as creative as you like.
Labeling: The label for each sample **MUST** include: (1) Common name, (2) Scientific name, (3) Wood type (softwood or hardwood), (4) Collector's name, (5) Collection date, (6) Collection location (be specific, state and county at a minimum).
Supplemental Information, e.g. common products, wood density, etc., may be included to enhance educational value.
- *6. **Cross Section Display** - A disc cut from a tree species listed in 4H 332. The sample **MUST** be collected by the exhibitor within one year of the fair judging day. The disc **MUST** measure 6” to 12” in diameter and 1” to 3” thick. The bark should be firmly attached, which may be difficult if the tree was dead when the disc was cut. Sand at least one side of the disc so the grain can be easily seen. If the disc is treated with a clear finish, both sides **MUST** be treated to minimize warping. As the disc dries, some cracking or checking can be expected and is allowed.
Labeling: The following parts **MUST** be clearly and accurately labeled on the cross section with pins, paper tags, or some other form of identification: (1) Pith, (2) Heartwood, (3) Sapwood, (4) One growth ring (beginning and end), (5) Cambium, (6) Bark. A separate label attached to the back of the disc **MUST** include: (7) Common name, (8) Scientific name, (9) Tree classification (softwood or hardwood), (10) Age (of the cross section), (11) Collector's name, (12) Collection date, (13) Collection location (be specific, state and county at a minimum).
- *7. **Parts of a Tree** - (This project is only for ages 8 – 11) Prepare a poster, **NO** larger than 24” x 24” that clearly identifies the main external parts of any tree: (1) Trunk, (2) Crown, (3) Roots, (4) Leaves, (5) Flowers, (6) Fruit, (7) Buds, (8) Bark Identifying other internal parts, e.g. phloem, xylem, cambium, annual ring, pith, etc., is optional. Attach a separate label on the back of the poster that includes the exhibitor's name and age.
- *8. **Living Tree Display** - A living tree seedling grown by the exhibitor from seed in the display container. The seed **MUST** be from a species listed in 4-H 332. The seedling **MUST** be 60 days to 1 year old (on fair judging day). The display container **MUST** contain at least 8” of soil (potting mix or suitable natural soil), have drainage hole(s), and a drain pan to catch drainage water.
Labeling: A waterproof label **MUST** be attached and include: (1) Common name, (2) Scientific name, (3) Seed treatments (if any), (4) Planting date, (5) Emergence date. (6) Collector's name.
Supplemental Information About The Tree, e.g. where the seed was collected, growth measurements, uses for that species, etc., may be included in an attached notebook, poster, etc. to enhance educational value. Supplemental information will be an important factor in judging.