

ENVIRONMENTAL EDUCATION & EARTH SCIENCE

CHECK IN:

Tuesday, August 3, 2021 from 6:00 - 8:00 p.m.
& Wednesday, August 4, 2021 from 7:30 – 9:00 a.m.

JUDGING TIME:

Wednesday, August 4, 2021 beginning at 9:00 a.m. (closed to public)

PREMIUMS:

Purple \$2.50; Blue \$2.00; Red \$1.50; White \$1.00

CONSERVATION WILDLIFE

- ✓ Managing habitat for one kind of wildlife;
- ✓ Life requirements for one kind of wildlife during one season or through the year;
- ✓ Wildlife behavior
- ✓ Habitats
- ✓ For more ideas, refer to project booklets.

Conservation, wildlife, and shooting sports gives 4-H members an opportunity to share their knowledge and field experience about conservation, wildlife, and shooting sports. When creating an exhibit make sure to take close account of the rules while taking into account the different laws that surround those areas.

CONSERVATION / WILDLIFE

GUIDELINES

1. Show What You Did and Learned: All exhibitors will show evidence of their personal field experiences, research, 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, and age must be on the back or bottom of all displays.
4. Wildlife and Wildlife Laws: "Animal" or "wildlife" in the following classes includes wild fish, amphibians, reptiles, birds, or mammals. Please make sure you are following all appropriate wildlife laws.
5. Project Materials: Related project booklets including Exploring Your Environment Series, 4-H Shooting Sports, Amphibians, Bird Behavior (EC 5-93-81), Fishing for Adventure Project Manuals., and Wildlife Conservation (4-H 125), Geology, and Outdoor Adventure. Other resources include: Outdoor Skills: Learning Science in the Outdoors series (Science Signature Outcome Program) outdoornebraska.gov/afterschool/ and www.whep.org
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" high by 24" wide. Poster exhibits should be on regular poster sheets, no larger than standard size (22 by 28 inches) but half size, 22 by 14 inches, is recommended.

Scoresheets, forms, contest study materials, and additional resources can be found at <https://go.unl.edu/ne4hconservation-wildlife-shooting>

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CONSERVATION / WILDLIFE

CLASSES 1 – 4: Wildlife and How They Live - These classes 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;

Class 1 Mammal Display

Class 2 Bird Display

Class 3 Fish Display

Class 4 Reptile or Amphibian

Class 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. Display 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.

Class 6 Wildlife Tracks: Board or diorama-type 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 judges better understand what you did and learned. Positive casts (impressions as they would be in nature) are preferred, but not required.

- 1) Option One 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)
- 2) Option Two 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.
- 3) Option Three 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.

Class 7 Wildlife Knowledge Check: Use electrical circuits, pictures, or other methods of teaching wildlife identification or other wildlife related knowledge. Plan size and structure to facilitate transportation and display; maximum size 24 x 24 inches.

Class 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 area-sensitive species such as meadowlark, 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.

- Class 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 (commercial value, game value, aesthetic value, ecological value, scientific value). 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 at least 100 to 1000 words long and typed, double spaced on paper. You might use books, magazines or personal interviews as resources, but you must give full credit to all sources by listing them.
- Class 10 Wildlife Values Scrapbook: Make a scrapbook about the various values of wildlife (commercial value, game value, genetic value, aesthetic value, ecological value, scientific value) following guidelines in the Wildlife Conservation project booklet (4-H 125).
- Class 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 or 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).

DEPT. D / DIV. 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.*

- Class 2 Feeders/Waterers: Make a bird bath or feeder. Examples: seed, suet, or nectar feeders. Squirrel feeders are acceptable. No insect feeders. Indicate the kind 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.*

- Class 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.

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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), 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).
- Class 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 inches' 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 made, and number of 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.

- Class 3 Casting Target: Make a casting target for exhibit and use, following guidelines on the reference sheet. Target must be under 36" x 36". The bullseyes/rings must be 1 foot in diameter and can have up to 3 rings. They must be easy to store, durable, and weather resistant.
- Class 4 Wildlife Harvesting Equipment Board Exhibit: 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 drawing 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
 - 3) Any personal experiences you've had with the item(s).
- Class 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 be wildlife calls, adapted fishing pole for shallow water, a blind, decoys, etc. Have your drawing (or adapted plans), how the equipment works, how you tested it, and the results of testing your prototype and any adjustment you made.

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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:
- The animal's name
 - Information about the exhibitor's personal field experiences, study, or observations that relate to the exhibit.

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OTHER NATURAL RESOURCES

- 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.

SHOOTING SPORTS

SHOOTING SPORTS GUIDELINES

4-H Shooting Sports requires youth 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. Classes 4-9 can be entered by anyone in the conservation and wildlife area.

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- Class 1 Shooting Aid or Accessory: Any item which helps the shooter/hunter better perform their sport, examples: rifle sling, kneeling roll, arm guard, shotgun vest, target boxes, shooting stick, etc. Include your design, or plans you adapted, what the item is and used for.
- Class 2 Storage Case: An item with the purpose to safely hold a firearm, bow, ammunition, and/or arrows, examples: soft sided shotgun case, quivers, firearm safe. Include your design, or plans you adapted. Explain how the storage case is used.
- Class 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 for 4-H members who played the game, what skill is being worked on, and directions for the game. Explain how you came up with the game or adapted it to fit the needs of your group members.
- Class 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 1000 words and should be on 8 ½ x 11 paper.
- Class 5 Healthy Lifestyles Plan: Include a shooter's diet and exercise plan, and how the 4-H member will benefit or improve form following the plan. Ideally, the 4-H member would follow the plan and include some journal entries about adaptations or improvements made while following the plan.
- Class 6 Citizenship/Leadership Project: Share a display on a citizenship project or leadership project the 4-H member took on individually or with a group to improve some aspect related to 4-H Shooting Sports. Examples could be range development, conservation planting to attract wildlife, a camp, 4-H recruitment event. Include who benefitted from the project, what the 4-H member's role was, and any results.
- Class 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 1000 words and should be on 8 ½ x 11 paper. Interviews need to include a picture of the interviewee in their work setting, questions asked, and a transcript of answers.
- Class 8 Community Vitality Display: Explore the difference shootingsports and hunting make in keeping Nebraska vibrant especially in rural area. Present facts and research in an interesting way for the public to learn from.
- Class 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 finding in an interesting way for the public to learn from.

ENTOMOLOGY

STATE FAIR ENTRIES:

Premier 4-H Science Award is available in this area. Exhibitors may, and should, correct and update collections for competition at the State Fair.

Entomology exhibits give 4-H'ers the opportunity to demonstrate their knowledge about insects and insect displays. This category has multiple projects that allows 4-H'ers to progress over numerous years.

ENTOMOLOGY GUIDELINES

- Specimens in display collections should be mounted properly and labeled with location, date of collection, name of collector, and order name. Follow mounting and labeling instructions in the Nebraska 4-H Entomology Manual
- Boxes are preferred to be 12" high X 18" wide, and landscape orientation, so they fit in display racks.
- Purchase of commercially-made boxes is allowed. All specimens must be from the collector.

Scoresheets, forms, contest study materials, and additional resources can be found at: <https://go.unl.edu/ne4hentomology>

DEPT. H / DIV. 800

ENTOMOLOGY

- Class 1 Entomology Display / First Year Project: Collection to consist of 25 or more different kinds (species) of insects representing at least 6 orders. Limit of one box.
- Class 2 Entomology Display / Second Year Project: collection to consist of a minimum of 50 kinds (species) of insects representing at least 8 orders. Replace damaged or poorly mounted specimens. At least 25 species must be present from after July 1 of the previous year. Limit 2 boxes.
- Class 3 Entomology Display / Third or More Year Project: collection to consist of minimum of 75 kinds (species) of insects representing at least 10 orders. Replace damaged or poorly mounted specimens. At least 25 species must be present from after July 1 of previous year. Limit 3 boxes.
- Class 4 Special Interest or Advanced Insect Display: Educational display developed according to personal interests and/or advanced identification capability. This also is an opportunity to highlight favorite insects in a creative arrangement. Insects should conform to pinning and mounting standards as in Classes 1-3 and be protected in an insect box. Each specialty display should include names of the insects, interesting information about them, and why the display was made. Advanced identification collections should have insects grouped with labels that correspond with identification level (e.g. family, genus, species). A specialty collection may consist of insects by taxonomic group (e.g. butterflies, grasshoppers, dragonflies, scarab beetles) or by host, subject or habitat (e.g. insect pests of corn, aquatic insects, insect mimicry, insect galls, insects from goldenrod, insect pollinators, etc.).
- Class 5 Insect Habitats: Habitats consist of any hand-crafted objects, made of natural or artificial materials, placed outdoors, which promote or conserve insects in the environment. Insects may include bee pollinators, butterflies, beneficial insects, etc. A one-page report must accompany the exhibit.
- Class 6 Macrophotography: Subjects should be insects, spiders or other arthropods, or any nests, webs or constructions they make. All exhibit prints should be either 8" x 10" or 8½" x 11" and mounted on rigid, black 11" X 14" poster or matt board. Either orientation is acceptable. No frames or mat board framing is allowed. A caption of a few sentences should explain the subject and be printed on white paper and glued below the print on the poster board.
- Class 7 Insect Poster/Display Exhibits: Exhibits can be posters or three-dimensional displays, and artistic creativity is

encouraged. Posters should be no larger than 22" x 28". They should be instructional and can be attractive and have pictures, drawings, charts, or graphs. Posters and displays may show any aspect of insect life, habitat, or related conservation or management. Examples include life history and other facts about an insect; insect anatomy; how to manage insects in a farm, home, lawn, or garden setting; experiences rearing one kind of insect; survey of an important insect; insect behavior (ex. nesting, finding food, mobility, defenses, etc.); habitats (e.g. forests, grasslands, wetlands, rivers, or lakes) and what insects are found there, etc. Three-dimensional displays, such as dioramas, sculptures, models or decorative boxes should have a page of explanatory information accompanying them and fit within a 22" x 28" area.

Class 8 Reports or Journals: Reports and journals should be in a 3-ring binder. A report may be informational, that is, an original article about a favorite insect, a history of insect outbreaks, diseases caused by insects, insects as food, etc. Or, it may be a research report about an investigation or experiment done in a scientific manner. It then should have a basic introduction of the insect studied, methods used, observations, and results of the project. Tables, graphs and images are helpful to include. A journal is an observational study over a period of time with personal impressions. It may cover watching changes in kinds in butterflies over the summer, rearing a specific insect from egg to adult, managing a bee hive, observations of insects in a specific habitat, accounts of insect behavior in a forest or flower garden, etc.

FORESTRY

STATE FAIR ENTRIES:
Premier 4-H Science Award is available in this area.

This category provides 4-H'ers an opportunity to prepare displays that shows 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, participants would learn more about common Nebraskan trees. For more information about tree classification visit this website:

https://4hcurriculum.unl.edu/index.php/main/program_project/65

Scoresheets, forms, contest study materials, and additional resources can be found at <http://go.unl.edu/ne4hforestry>

FORESTRY GUIDELINES

- The official reference for all forestry projects is The Tree Identification Manual (4-H 332) <https://marketplace.unl.edu/ne4h/4h332.html> which was recently revised and is available for purchase from UNL Marketplace. Other helpful forestry references include Trees of Nebraska (EC 92-1774-X), Leafing Out (4-H431), and Plant a Tree (EC 17-11-80). <https://marketplace.unl.edu/ne4h/leafing-out.html>
- Display "boards" must be made from wood or wood composite, e.g. plywood, fiberboard, or Masonite, ¼" to ½" thick and no larger than 24" x 24". 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" x 24".
- Display "books" must measure no more than 16" x 16".
- At least 5 of the 10 samples in Class 2, 3, 4, and 6 must be from the list of 60 species described in 4-H 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.

DEPT. D / DIV. 320

FORESTRY

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 pest. The only requirement is that the display must be no larger than 24 inches by 24 inches. Photographs, drawings, samples, charts, posters, etc. can be used, but include substantially different from other display classes. Be as creative as you like.

Class 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.

- Leaf Collection:** Whenever possible, collect leaves from mature trees. Collect leaves any time after they have reached full size, usually beginning in early summer. The leaf sample 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 collection must be done by exhibitor.
- Mounting:** Leaves may be displayed in a notebook or on a display board. Any method may be used to mount leaves, for example, 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 cedar sample because the leaves are very small and difficult to remove from the twig.
- Supplemental information, for example, general uses, common products, fall color, etc., may be included with the display to enhance its educational value.

Class 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 inches

long and exhibit buds. Leaves must be removed and side branches must be trimmed to less than 1 inch in length. All collection must be done by the exhibitor.

- **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 their features can be clearly identified. The non-terminal ends 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, for example, general uses, tree characteristics, etc., may be included with the display to enhance its educational value.

Class 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 the 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 collection must be done by the exhibitor.
- **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 labels 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, for example, maturity date, average number of seed in the fruit, etc., may be included with the display to enhance educational value.

Class 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 inches by 4 inches. Cut surfaces should be sanded to show the grain. Treating samples with a clear finish (no stain) is optional. All collection must be done by the exhibitor.
- **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, for example, common products, density, etc., may be included with the display to enhance educational value.

Class 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 judging day. The disc must measure 6 to 12 inches in diameter and 1 to 3 inches 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. The disc may be treated with a clear finish, but treat both sides to minimize warping. 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:
 - 1) Common name
 - 2) Scientific name
 - 3) Tree classification (softwood or hardwood)
 - 4) Age (of the cross section)
 - 5) Collector's name
 - 6) Collection Date
 - 7) Collection location (be specific, state and county at a minimum)

Class 7 **Parts of a Tree:** This project is only for ages 8 – 11.

Prepare a poster, no larger than 24 inches x 24 inches 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, for example xylem, phloem, cambium, annual rings, etc is optional.
 - Attach a separate label on the back of the poster that includes the exhibitor's name and age.

Class 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 4H 332. The seedling must be 60 days to 1-year-old (on State Fair judging day). The display container must contain at least 8 inches of soil (potting mix or suitable natural soil) have drainage holes 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) Exhibitor'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.

RANGE

The purpose of this category is to help 4-H'ers identify and collect range plants. In addition, participants will learn the basics of range management, and Nebraska's range. Through the creation of range boards 4-H'ers will become more proficient in knowledge of Nebraska's range.

Scoresheets, forms, contest study materials, and additional resources can be found at <http://go.unl.edu/ne4hrange>

RANGE GUIDELINES

1. Each exhibit must be properly identified with Unit and Class.
2. All plant displays and display covers must be the result of the current year's work.
3. Plant identification and lists of appropriate plants in each category (grasses, forbs, shrubs, introduced seeded pasture and hay plants, and grass-like plants) can be found in the Range Judging Handbook and Contest Guide (EC 150, Revised July 2016) Common Grasses of Nebraska (EC 05-170), Nebraska Range and Pasture Plants (EC 170), and Common Forbs and Shrubs of Nebraska (EC 118).
4. The purpose of these exhibits is to demonstrate to the public the benefits from the study and application of crop, weed, range, and soil sciences to solving problems in management, conservation, sustainability, and environmental protection.
5. For guidelines on specific projects, refer to appropriate project manuals.

DEPT. D / DIV. 330

BOOKS

1. For books, plants must be mounted on sheets that are no larger than 14" wide by 14" high. Plants should be glued rather than taped and the mounts should be protected with a clear cover. Proper plant mount should include root as well as stem and leaf tissue.
2. Exhibits will be judged based on completeness of plant mount, accuracy of identification, labeling, neatness and conformation to project requirements. Refer to Scoresheet SF260.
3. Each completed mount must have the following information (see example below) in the lower right corner of the mounting sheet.
 - a) Scientific names (in italic or underlined) with authority.
 - b) Common name
 - c) County of collection
 - d) Collection date
 - e) Collector's name
 - f) Personal collection number indicating order that plants were collected in your personal collection.
 - g) Other information depending on class selected, i.e. value and importance, life span, growth season, origin, major types of range plants. This information should be typed or printed neatly.

Label Example

Scientific Name:	<i>Schizachyrium scoparium</i> (Michx.) Nash
Common Name:	Little bluestem
County of collection:	Dodge County
Collection date:	6 August 1017
Collector's name:	Joe Smith
Personal collection number:	37
Value and Importance:	
Livestock Forage:	High
Wildlife Habitat:	High
Wildlife Food:	Medium
Life Span:	Perennial
Season of Growth:	Warm Season
Origin:	Native

- Class 1 Value and Importance for Livestock Forage and Wildlife Habitat and Food Book: A collection of 12 different plant mounts, with 4 classified as high value, 4 as medium value, and 4 as low value for livestock forage, wildlife habitat, or wildlife food. Value and importance classifications can be found in the Range Judging Handbook and Contest Guide (EC 150, Revised July 2009) on pages 3 through 6. Plants can consist of any combination of grasses, grass-like plants, forbs, or shrubs. Assemble plant mounts in order of high, medium, and low value and importance. Label each plant mount with its value and importance classifications for each of the three areas: Livestock Forage, Wildlife Habitat, Wildlife Food.
- Class 2 Life Span Book: A collection of 6 perennial plant mounts and 6 annual plant mounts selected from 'grasses' or 'forbs.'
- Class 3 Growth Season Book: A collection including 6 cool-season grass mounts and 6 warm-season grass mounts.
- Class 4 Origin Book: A collection of plant mounts of 6 native range grasses and 6 introduced grasses. Introduced grasses are not from North America and often used to seed pastures.
- Class 5 Major Types of Range Plants Book: A collection of plant mounts of 3 'grasses', 3 'forbs', 3 'grass-like' and 3 'shrubs'.
- Class 6 Range Plant Collection Book: A collection of 12 range plant mounts with something in common (i.e. poisonous to cattle, or historically used as food by Native Americans, or dye plants, or favorite antelope forage, etc.). Include a short paragraph in the front of the book which describes what the plants have in common and why you have chosen to collect them.

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DISPLAYS

A purpose of the display is to tell an educational story to those that view the display. The display is a visual representation (pictures, charts, graphs) no larger than 28" x 28" on plywood or poster board. The display should be neatly titled. Make sure to label display with exhibitor's name, address, and county on back side. Refer to Scoresheet SF 259.

- Class 7 Parts of a Range Plant Poster: Mount a range plant on a poster board. Label all the plant parts. Include the plant label in the lower right corner. Put your name and 4-H county on the back of the poster.

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BOARDS

Boards should be no larger than 30" wide by 36" tall. Boards should be adequately labeled. Refer to Scoresheet SF260.

- Class 8 Special Study Board: A display of the results of a clipping study, a degree of use study, range site study, etc. A short essay must accompany the display to explain the reason for the study, what was learned and study results and should be placed in a sheet cover attached to the board.
- Class 10 Junior Rancher Board: This exhibit should include a ranch map with a record book or an appropriate educational display on some phase of rangeland or livestock management. A short essay must accompany the display to explain the purpose of the rancher board, what was learned, etc.