

ENVIRONMENTAL EDUCATION & EARTH SCIENCE

CHECK IN:

Wednesday, July 10, 2024 from 6:30 - 8:30 p.m.
& Thursday, July 11, 2024 from 7:30 – 8:30 a.m.

JUDGING TIME:

Thursday, July 11, 2024, 9:00 a.m. (closed to public)

FORESTRY

FORESTRY GUIDELINES

- The official reference for all forestry projects is The Tree Identification Manual (4-H 332) 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).
- Refer to the TREE IDENTIFICATION MANUAL (4-H 332) for detailed instructions of all forestry projects (except “Cross-Section of a Tree” and “Living Tree Display” described below).
- 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”.
- Repeat exhibitors must use new displays-each display may only be used once.
- Display “books” must measure no more than 16” x 16”.
- At least 5 of the 10 samples in Class 2, 3, 4, and 5 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 judges.

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, wild fire, forest products, forest wildlife, or forest pest. The only requirement is that the display must be no larger than 24 inches x 24 inches. 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.

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 samples should be in good condition and representative of the average leaves on the tree. Keep in mind that shaded leaves often are 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 exhibitor.

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 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 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 collections 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, may be used to mount twigs, be sure all features can be clearly identified. The non-terminal end must be cut at a slant so the pitch 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 and not the fruit. For example, the seed of honeylocust is enclosed in a pod. Remove and display the scene, 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 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 its 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 x 4 inches. 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 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 its educational value.

Class 6 Cross-Section Display: 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 state fair 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. 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:

- 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 to 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, pith, etc.

Attach a separate label on the back of the poster that includes the exhibitor's name and age.

Class 8 Living Tree Display: 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.

Class 9 Forest Product Display: Prepare a visual display and or collection tracing the origin of one non-lumber product that comes from trees and or forests. The display must be no larger than 24 inches x 22 inches x 28 inches. Photographs, drawings, samples, charts, posters, etc. can be used. Posters submitted may be no larger than 22" x 28" and may be either vertical or horizontal. The constant must identify what species of tree the product is derived from and where the product is harvested, grown, or otherwise collected. The product listed must be partially or fully derived from trees; if partial the approximate percentage should be articulated in the display.

- The goal of this exhibit is for students to learn that many products come from trees and forests and to explore one of these products through in-depth study.
- Information about the tree or forest product e.g. information about harvesting, processing, industry information, and environmental or other benefits may be included to enhance educational value. Supplemental information will be an important factor in judging but should not exceed three printed pages of text. Cit sources of information.
- Personal interviews with industry professionals are encouraged as a source of information.

Class 10 Forest Health Display: Prepare a visual display outlining a specific forest health issue such as a tree disease, insect pest, animal- or human- caused damage, or an abiotic issue such as weather damage. The display must be no larger than 24" x 24" x 24". Original photographs, drawings, samples, charts, posters, etc. can be used. Actual specimens are strongly encouraged but must be properly preserved, i.e. insects pinned or placed in vials of alcohol, leaves pressed and dried. Posters submitted may be no larger than 24"x24".

- Explain through the display what species of trees the health issue affects, diagnostic features of the issue (symptoms in trees, identifying features of the pest, etc.), and management options.
- Include common and scientific names of trees and pests.
- Supplemental information about the tree or forest health issue: e.g. origin, proliferation in Nebraska, United States, and physiological effects on the tree may

be included to enhance educational value. Supplemental information will be an important factor in judging but should not exceed three printed pages of text. Cite sources of information.

- Attach a separate label on the back of the display that includes the exhibitor's name and age.

Class 11 Wildfire Prevention Poster: Prepare a poster, no larger than 24"x24" that promotes wildfire prevention strategies. Strategies articulated in the poster can include personal and/or land management actions. Attach a separate label on the back of the poster that includes the exhibitor's name and age.

- Supplemental information about wildfire prevention should be attached to the poster: e.g. frequency of wildfires in Nebraska/United States, financial costs of wildfires, environmental factors that contribute to wildfires, etc. to enhance educational value. Supplemental information will be an important factor in judging but should not exceed three printed pages of text. Cite sources of information.

Class 12 Sustainable Landscape Diorama: Box must be no larger than 24" x 24". The exhibit must show a Nebraska landscape that includes elements such as windbreaks, fields, pastureland, CRP, public lands, community/municipal landscapes. The goal of this exhibit is for students to articulate conservation and sustainability best-practices that can be implemented on a landscape, while addressing landowner and other stakeholder interests.

- Label point/nonpoint sources of pollution, carbon sequestration, water-wise practices, wildfire prevention strategies, renewable energy sources, and other conservation practices as well as at least 10 species of plants included in the diorama.
- Attach to the exhibit a brief report including supplemental information describing the diorama, defining conservation practices, and outlining opportunities for landscape improvements to enhance educational value.; Supplemental information will be an important factor in judging but should not exceed three printed pages of text. Cite sources of information.

Class 13 Tree Planting Project Display: Plant a tree in your community. Prepare a visual display where the student articulates proper tree planting techniques, why the individual tree species was chosen, as well as steps taken to continue care for the tree after initial planting. The display must be no larger than 24"x24". Photographs, drawings, samples, charts, posters, etc. can be used. Posters submitted may be no larger than 24"x24". The tree must have been planted 60 days to 1 year before judging day. Students must obtain permission from necessary authorities and property owners before planting any trees.

- Labeling: the following information about the tree must be included in the display:
 1. common name
 2. scientific name
 3. planting location
 4. planting date
 5. tree source
 6. planter's name
 7. proper tree planting steps
 8. tree care (after planting)
- Supplemental information about the tree: e.g. why the species was chosen, 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 but should not exceed three printed pages of text. Cite sources of information.

AGRONOMY

GRAIN or PLANT GUIDELINES

The purpose of these exhibits is to demonstrate to the public the benefits from the study and application of crop, weed, range, and soil science to solving problems in management, conservation, sustainability, and environmental protections.

- A. **IMPORTANT:** A completed Crop Production Worksheet must accompany grain and plant exhibits or it will automatically be deducted one ribbon placing. The worksheet must include the exhibitor's name and address, county, plant hybrid or variety, plant population, whether crop production was irrigated or dryland, and general information including farm cropping history, soil type and weather effects. The worksheet also must include an economic analysis of the project, listing individual expenses and income, on a per acre basis. Other topics to discuss are the selection of variety or hybrid., impacts of tillage and conservation practices, inputs, (fuel, fertilizer, irrigation, labor, pesticides, etc.), any observations made during the growing season and what you learned from your crops project.
- B. The worksheet counts as 50% of the total when judged. Worksheet must be the original work of the individual exhibitor or it will be deducted one ribbon placing. Attach the worksheet to the entry in a clear plastic cover such that it can be read without removing it from the cover. In addition to the worksheet, grain and plant exhibits will be judged on condition, appearance (i.e. disease and insect damage, grain fill), uniformity (size, shape, color, maturity), quality of exhibit, and labeling.
- C. Grain exhibits must be one gallon per sample. Grain exhibits harvested in the fall (e.g., corn or soybeans) may be from previous year's project. Suggested container for the grain exhibit is a five-quart plastic ice cream bucket with a lid.
- D. Plant exhibits with the exception of ears of corn, must be the result of the current year's project.
 - Corn-10 ears or 3 stalks (cut at ground level with no soil and bound together)
 - Grain Sorghum- 4 stalks (cut at ground level and bound together)
 - Soybeans- 6 stalks (cut at ground level and bound together)
 - Small Grains (oats, barley, wheat, triticale)-sheaf of heads 2 inches in diameter at top tie with stems about 24" longOther crops (alfalfa, millet, etc.) – sheaf of stems 3 inches in diameter at top tied with stems cut at ground level or half size small square bale.
- E. Special Agronomy Project - Youth experience a crop that is grown, was grown or has the potential to be grown in Nebraska by growing it, researching traits of that crop and determining viability of that crop in the part of the state they live.

DEPT. G / DIV. 750

GRAIN or PLANT EXHIBITS

Class 1 Corn (includes yellow, white, pop, waxy, or any other type)

Class 2 Soybeans

Class 3 Oats

Class 4 Wheat

Class 5 Any other crop (includes grain sorghum, alfalfa, millets, barley, rye, triticale, amaranth, dry beans, sugar beet, mung bean, canola, forage sorghum, safflower, etc.)

DISPLAYS

- A. The 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" wide by 28" tall on plywood or poster board. The display should be neatly titled. Make sure to label the display with the exhibitor's name, address, and county on the back side. Explain pictures and graphs clearly and concisely. Consider creativity and neatness.
- B. Each display must have a one page essay (minimum) explaining why the exhibitor chose the area of display and what they learned from their project. Include any references used. The essay should be in a clear plastic cover with the exhibitor's name outside.

- Class 6 Crop Production Display – The purpose of this class is to allow original and creative exhibits that contain educational information about crop production aspects, such as crop scouting, alternative crops, pest management, etc.
- Class 7 Crop Technology Display – Display information about aspects of technology used in crop production, such as genetic engineering, crop breeding, GPS, yield mapping, computers, etc.
- Class 8 Crop End Use Display – Display information about the final product or end uses for a crop, such as food, feed, fuel, or other products. (i.e. corn can be processed into livestock feed, ethanol, plastics, etc. or soybeans can be processed into bio-diesel, pet bedding, crayons, oil, etc.) This should not be about the process of crop production, but focus on an end product(s).
- Class 9 Water or Soil Display – Display information about water or soils, such as how soils are being used for crop production, range, conservation, wildlife, or wetland use, or ways to protect or conserve water and soil resources.
- Class 10 Career Interview Display – The purpose of this class is to allow youth to investigate a career in agronomy. Youth should interview one person that works with crops about such topics as what parts of their job do they enjoy or dislike, why did they choose that career, what was their education, etc. Include a picture of the person interviewed.

SPECIAL AGRONOMY PROJECT

The crop of the year for 2024 is Sugar Beets.

- Class 11 - Special Agronomy Project - Educational Exhibit (SF259)- Educational exhibit based on what was learned from the project. Present information on a poster 14" X 22" either vertical or horizontal arrangement or in a clear plastic report cover. The 4-H member's name, age, and county must be on the back of the poster or report cover.
- Class 12 - Special Agronomy Project -Video Presentation - 4-H exhibitor designs a multimedia presentation related to the crop. This could include narration of the growing process, presenting facts about the crop or any other innovative multimedia practices. The presentation should be at least 2 minutes in length and no more than 5 minutes in length, appropriate graphics, sound and either a video clip, animation or voice over and/or original video clip. Any of the following file formats will be accepted: mp4, .mov, .ppt, or .avi.
- Class 13 - Special Agronomy Project (Freshly Harvested Crop) Plant exhibits must be the result of the current year's project. Depending on the type of crop selected for the current year:

Corn - 10 ears or 3 stalks (cut at ground level with no roots or soil and bound together)

Grain Sorghum - 4 stalks (cut at ground level and bound together)

Soybeans - 6 stalks (cut at ground level and bound together)

Small grains (oats, barley, wheat, triticale) - sheaf of heads 2 inches in diameter at top tie with stems about 24" long.

Other crops (alfalfa, millet, etc.) - sheaf of stems 3 inches in diameter at top tied with stems cut at ground level.

Supporting documentation (½ to 1-page in length) should include the following:

Economic Analysis and/or research that supports feasibility of this crop in Nebraska or how the crop has evolved over time.

Other topics to discuss are past/current commercial production of this crop. This includes: the selection of variety or hybrid, impacts of tillage and conservation practices, inputs (fuel, fertilizer, irrigation, labor, pesticides, etc.), any observations made during the growing season about this crop and what you learned from your crops project. This ½ to 1-page summary counts as 50% of the total when judged.

In addition to the summary, grain and plant exhibits will be judged on condition, appearance (i.e. disease and insect damage, grain fill), uniformity (size, shape, color, maturity), and quality of exhibit.

WEED SCIENCE

WEED SCIENCE GUIDELINES

- A. At least 15 of the specimens must represent this year's work. For assistance identifying plants, participants can use Nebraska Department of Agriculture's Weeds of Nebraska and the Great Plains (1994) or Weeds of the Great Plains (2003).

DEPT. G / DIV. 751

BOOKS

- A.** Plants must be mounted on sheets that are no larger than 14" wide by 14" high. Proper plant mount should include root as well as stem and leaf tissue. Plants should be glued rather than taped and the mounts should be protected with a clear cover.
- B.** Exhibits will be judged based on completeness of plant mount, accuracy of identification, label, neatness, and conformity to exhibit requirements.
- C.** Each completed mount must have the following information see the example below in the lower right corner of the mounting sheet: 1. Scientific name (in italic or underlined), with authority, 2. Common name, 3. County of collection, 4. Collection date, 5. Collector's name, 6. Personal collection number indicating the order that plants were collected, in your personal collection. 7. Other information depending on class selected, i.e., noxious, life form. This information should be typed or printed neatly.

Label Example

Scientific Name:	<i>Abutilon Theophrasti</i> Medi.
Common Name:	Velvetleaf
County of collection:	Dodge County
Collection date:	6 July 2014
Collector's name:	Dan D. Lion
Personal collection number:	3
Life cycle:	Annual

Class 1 Weed Identification Book: A collection of a minimum of 15 plant mounts including at least two of the following prohibited noxious weeds (Canada Thistle, musk thistle, plumeless thistle, leafy spurge, purple loosestrife, diffuse knapweed, spotted knapweed, Japanese knotweed, bohemian knotweed giant knotweed, sericea lespedeza or phragmites), and at least three weeds that are a problem primarily in lawns.

Class 2 Life Span Book: A collection of 7 perennials, 1 biennial, and 7 annual weeds

DEPT. G / DIV. 751

DISPLAYS

- A.** The 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" by 28" on plywood or poster board. The display should be neatly titled. Make sure to label the display with the exhibitor's name, address, and county on the back side. Explain pictures and graphs clearly and concisely.
- B.** Each display must have a one page essay explaining why the exhibitor chose the area of display and what they learned from their project. Include any references used. The essay should be in a clear plastic cover with the exhibitor's name outside. If a display does not have an essay, it will automatically be deducted one ribbon placing.
- Class 3 Weed Display – The purpose of this class is to allow original and creative exhibits that contain educational information about weeds, such as interesting information about a weed species, the effects of weed control, herbicide resistant weeds, what makes a weed a weed, or used for weeds.
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RANGE MANAGEMENT

RANGE MANAGEMENT GUIDELINES

- A. Each exhibit must be properly identified with Unit and Class.
- B. 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).

DEPT. D / DIV. 330

BOOKS

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.

Each completed mount must have the following information (see example below) in the lower right corner of the mounting sheet.

1. Scientific names (in italic or underlined) with authority.
2. Common name
3. County of collection
4. Collection date
5. Collector's name
6. Personal collection number indicating order that plants were collected
7. 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 2017
Collector's name:	Joe Smith
Personal collection number:	37
Value and Importance:	
Livestock Forage:	High
Wildlife Habitat:	High
Wildlife Food:	Medium OR Life Span: Perennial OR Season of Growth: Warm Season OR 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, Appendix Table 1 (EC 150, Revised July 2016) starting on page 42. Plants can consist of any combination of grasses, grass-like plants, forbes, 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 'forbes.'

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.

DEPT. D / DIV. 330

DISPLAYS

The 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"x28" on plywood or poster board. The display should be neatly titled. Make sure to label the display with the exhibitor's name, address, and county on the back side.

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, including the scientific and common name of the plant. Put your name and 4-H county on the back of the poster.

DEPT. D / DIV. 330

BOARDS

Boards should be no larger than 30" wide by 36" tall. Boards should be adequately labeled.

Class 8 Special Study Board: A display of the results of a clipping study, a degree of use study or a 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 9 Junior Rancher Board: It includes 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.

CONSERVATION AND WILDLIFE

CONSERVATION AND WILDLIFE GUIDELINES

- A. **SHOW WHAT YOU DID AND LEARNED:** All exhibitors must 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.
- B. **PROPER CREDIT:** Show proper credit by listing the sources of plans or other supporting information used in exhibits.
- C. **WHOSE EXHIBIT?** The exhibitor's name, county, and age must be on the back or bottom of all displays.
- D. **WILDLIFE & WILDLIFE LAWS:** The word "animal" or "wildlife" in the following classes includes wild fish, amphibians, reptiles, birds, or mammals. Please make sure you are following all wildlife laws. Domestic animal (i.e. domestic livestock or house pets) and insect exhibits are not appropriate for this area.
- E. **ENTRIES PER INDIVIDUAL:** Each individual may enter up to one exhibit per class.
- F. **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), and Wildlife Habitat Evaluation Handbook, Participants Manual (NE 4H4300). 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.
- G. **BOARD AND POSTER EXHIBITS** – Exhibits other than poster/display board should not exceed 48 inches x 48 inches and be able to be moved by two people.
- H. **SCORING:** Sample score sheets can be found at: <http://4h.unl.edu>.

DEPT. D / DIV. 340 CONSERVATION AND WILDLIFE

CLASSES 1 – 4: 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;

Managing habitat for one kind of wildlife;

- 4) Life requirements for one kind of wildlife during one season or through the year;
- 5) Wildlife behavior and habitats

For more ideas, refer to project booklets.

Class 1 Mammal Display 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.

Class 2 Bird Display 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.

Class 3 Fish Display 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.

Class 4 Reptile or Amphibian Display 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.

Class 5 Wildlife Connections Board or Poster Exhibit: 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 Exhibit: 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 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 (OR)
- 3) Option Three should show two tracks and include the animal's habitat needs, including preferred food, shelter, water, and space in addition to a 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 Habitat Diorama: 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 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. 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, or fishing.
The essay is between 100 and 1000 words long and should be typed, double spaced on 8 ½ x 11 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. This would include aesthetic, scientific, commercial, game, genetic, and/or ecological. One resource would be 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). Important points for judging include: 1) clarity of the purpose/message in relation to conservation and wildlife (20%); 2) educational value of the exhibit to viewers (20%); 3) evidence of the exhibitor's personal field experience, study or observations that relate to the exhibit (30%); and 4) accuracy of information (30%).

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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.
 - 4) Any evidence of your personal observations or experiences.
- *Tips: Check NebGuide on bird houses and shelves.
- Class 2 Feeders/Waters: Make a bird bath or feeder. Examples: seed, suet, or nectar feeders. Squirrel feeders are acceptable. No insect feeders. Include the following information:
1. The kinds of animal(s) for which the water/feeder is intended
 2. Where are the water/feeder located for best use
 3. Any seasonal maintenance needed
 4. Any evidence of your personal observations or experiences
- *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, and
- 3) Any personal experiences you've had with the item(s).

Class 2 Build A Fishing Rod: Rod building kits with instructions are available for this purpose. A fishing rod educational exhibit may not exceed 96 inches length. Exhibits must be mounted on a board.

-Include with the exhibit: Explanation of cost of materials/components, where materials/components were purchased, how they were made, and number of hours required for construction.

-Label 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 the rod. Guide wraps of size A to D, nylon or silk thread.

Exhibits will be judged on: workmanship, labeling of parts, correct information, and neatness.

Class 3 Casting Target: Make a casting target for exhibit and use. Target must be under 48" x 48". The bullseyes must be 2 feet, the outer band must be 1 foot in diameter and can have up to 3 rings. The exhibit must be easy to store, durable, and weather resistant. Include the purpose and rules of using your casting target.

Class 4 Wildlife Harvesting Equipment: 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:

- 1) The purpose of each item,
- 2) When or where it is used and
- 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. 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.

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TAXIDERMY

Class 1 Tanned Hides: Exhibit of a wild animal hide properly processed by the member. No requirement as to mounting but must meet the size requirement listed under General Rules. Include the animal's name and the following information about the exhibitor's personal field experiences, study OR observations that relate to the exhibit.

Class 2 Taxidermy - Any legal fish, bird, or other wild animal properly processed by the member. No requirement as to mounting but must meet the size requirement listed under General Rules. Include the animal's name and the following information about the exhibitor's personal field experiences, study OR observations that relate to the exhibit.

DEPT D / DIV. 361

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 the exhibitor's personal experiences and learning.

DEPT D / DIV. 341

OUTDOORS ADVENTURES - LEVEL 2

Class 1 - Poster - Topics may include, but not limited to one or more of the following; how to pitch a tent, knot tying, cooking over a campfire, how to start a campfire, wildlife and plants identified while camping, how to set up emergency shelter, dealing with weather, collection of photos from camping trips, “Leave No Trace” and how that was followed while camping, plan a camping trip, camping essentials, environmental issues/protecting natural resources, park or trail clean up, sanitation/hygiene while outdoors or use of GPS.

Class 2 - Journal/Binder - Written report of virtual or actual camping/hiking trips with observations OR field journal (notes of actual experiences, sights, sounds, smells, etc.), OR camping or hiking trip diary. Explain growth in project, leading the hikes, planning the camping trip, now being able to identify the wildlife and nature around you and how identified (sight/sound/shape/smell/color). Feathers/leaf/flower pressings must be securely attached, if included. Photos of drawing of observations encouraged. Exhibits measure no larger than 16” X 16”.

Class 3 - Camping/Hiking Safety - Must include explanation of use of item and why selected/purpose, how it fits hiking/camping needs. May include, but are not limited to, one of the following: travel sized poisonous plants guide, camping first aid kit, weather/water safety or hand hygiene kit.

Class 4 - Digital Media - Use digital media to show video/slideshow/presentation of setting up a tent (include why site is chosen) or protecting natural resources or environmental issues or computer video camping/hiking game. Submit a USB drive or DVD inside a report cover or notebook. If using a slideshow, include printed slides inside report cover or notebook.

Class 5 - Other Camping Items - Must include what inspired the creation of the item, and its purpose. May include, but are not limited to one of the following; nature art, nature haiku poem, spider web sketches or knot display.

Rules

· See General Rules.

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OUTDOORS ADVENTURES - LEVEL 3

Class 6 Poster - Topics may include but not limited to one of the following; Topographic map, backpacking trip plan, camp layout, plan an expedition (can be dreamed or lived), collection of photos from your expedition, trails hiked, cost comparison of rental vs purchase or using GPS/compass.

Class 7 - Journal/Binder - Written report of actual, virtual or imagined expeditions/camping/hiking, OR field journal (notes of actual experiences, sights, sounds, smells, etc.). Explain growth in project, challenges in leading a group, teaching others about wildlife and nature identification and “Leave No Trace.”

Class 8 - Expedition Safety - Must include an explanation of use of items, why selected/purpose of item, how it meets hiking/camping/expedition needs. May include, but are not limited to; travel sized edible plants, creepy crawly guide, tent repair kit, travel first aid kit or weather/water safety.

Class 9 - Digital Media - Use digital media to show video/slideshow/presentation of one of the following,

but not limited to; building a non-tent shelter (include why needed), packing your backpack/equipment and getting it onto you, teaching others about environmental issues or a computer video backpacking expedition game. Submit a USB drive or DVD inside a report cover or notebook. If using a slideshow, include printed slides inside the report cover or notebook.

Class 10 - Other Expedition Items - Must include what inspired the creation of the item, and the purpose of the item. May include, but are not limited to; nature art, nature cinquain poem, backpacking food recipes, hiking/expedition conditioning plan, charcoal etching, dehydrated meal or snack (at least 1 cup displayed in a resealable plastic bag with ingredients, instructions, and nutritional facts included). Exhibits measure no larger than 18" X 24"

Rules

· See General Rules.

DEPT D / DIV. 347

4-H Shooting Sports

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.

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 (hiker's, camper's angler's) diet and exercise plan, and how the 4-H member will benefit or improve from 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, Conservation or Wildlife. 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 shooting sports, conservation, fishing, and hunting that makes Nebraska vibrant especially in rural areas. 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.