Environmental Education & Earth Sciences - Department D
Division 320 – Forestry

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

GENERAL INFORMATION

- 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 http://marketplace.unl.edu/ne4h/tree-identifcation-manual-691.html Other helpful forestry references include Trees of Nebraska (EC 92-1774-X), Leafing Out (4-H431) https://marketplace.unl.edu/ne4h/leafing-out.html and Plant a Tree (EC 17-11-80).
- Display "boards" must be made from wood or wood composite, e.g. plywood, fiberboard, or Masonite, 1/4" 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 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 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.

Eligibility

All static exhibits **must have received a purple ribbon at the county fair to advance** to the state fair.

Scoresheets, Forms, and Contest Study Materials

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

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 pests. The only requirement is that the display must be no larger than 24 inches x 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.

- **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 is 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 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 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.

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 each of opposite and alternate leaf arrangements from broadleaf trees.

- **Collection:** The best time to collect twig samples is during the dormant season (November-April) when the buds are mature. Twig samples must be at least 6 inches long including the terminal end, contain buds, be in good condition, and not include any leaves or petioles. Side branches should be trimmed to less than 1 inch. 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, may be used to mount twigs, but be sure all their features can be clearly identified. Be sure to cut the non-terminal end 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 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 seeds, not fruit. For example, the seed of honeylocust 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. <u>All collection must be done by the exhibitor.</u>
- **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) <u>collector's</u> 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.

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 of 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 x 4 inches. Cut surfaces should be sanded to show the grain. Treating samples with a clear finish (no stain) is optional<u>. All collection must be done by the exhibitor.</u>
- **Mounting:** Samples may be displayed in a variety of ways. For example, wood samples may be mounted on a display board or 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) <u>collector's</u> 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.

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 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 precisely identified on the disc with pins, paper tags, or some other form of identification.

1) Pith
2) Heartwood
3) Sapwood
4) One growth ring
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)

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.

A) Trunk
B) Crown
C) Roots
D) Leaves
E) Flowers
F) Fruit
G) Buds
H) 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.

CLASS 8 LIVING TREE

Display a living tree seedling grown by the exhibitor from seed. The seed must be from any species listed in 4H332. 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. 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 contestant 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. Cite 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 inches by 24 inches by 24 inches. 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 inches x 24 inches.

- 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 inches x 24 inches 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 inches x 24 inches x 24 inches. Photographs, drawings, samples, charts, posters, etc. can be used. Posters submitted may be no larger than 24 inches x 24 inches. The tree must have been planted 60 days to 1 year before State Fair 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.

*** The following class is not eligible for State Fair consideration***

CLASS 901 LEAF PRINT DISPLAY

Leaf prints of 10 tree leaves (not shrubs). Try to include examples of different leaf composition (palmately compound, pinnately compound, simple), shapes (needle, heart-shaped, scale, oval), and margins (smooth, toothed, lobed). Prints should be on stiff 8 ½" x 11" paper and be bound in a notebook. Label each page with the common name of the plant, scientific name (underlined), leaf composition, shape, margin type preparer's name and date prepared.