keeping 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 *[SF250]*: 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

## ENTOMOLOGY GUIDELINES

- Entomology exhibits give 4-H Members the opportunity to demonstrate their knowledge about insects and insect displays. This category has multiple projects that allow 4-H Members to progress over numerous years. For help getting started with this project contact your county 4-H extension office.
- 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.
- Purchase of commercially-made boxes is allowed.
- All specimens are to be pinned and labeled by the exhibitor. No purchased specimens allowed.
- No projects over 50 pounds allowed.
- Scoresheets, forms, contest study materials, and additional resources can be found at: https://go.unl.edu/ne4hentomology
- Educational materials can be found at: https://4hcurriculum.unl.edu/index.php/main/program_project/61
- **Nebraska Extension Publications:** https://extensionpubs.unl.edu/
  *Tip: Search Nebraska Extension Publications for Creating a Solitary Bee Hotel

## DEPT. H / DIV. 800 ENTOMOLOGY

**GENERAL INFORMATION** *[Scoresheets SF186-191]***:**

- Learn the difference between an insect and a bug; Identify insect parts and know why each is important; Find and examine bugs and insects in the field; Design your own or create a home for an insect; Make an insect collection; Learn how to identify and classify insects; Complete an insect collection table; Record insect observations.

Class 1 Entomology Display-First Year Project *[SF186]*: 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 *[SF186]*: 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 *[SF186]*: 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 *[SF187]*: Educational display developed according to personal interests and/or advanced identification capability. This is also 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 insets 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, insect from goldenrod, insect pollinators, etc).

Class 5 Insect Habitats *[SF188]*: Habitats consist of any hand-crafted objects, made of natural or artificial materials, to be placed outdoors, which promote or conserve insects in the environment. Insects may include bee pollinators, butterflies, beneficial insects, etc. A one-page report describing activities must accompany the exhibit. Report should include placement, target insect, why materials were chosen, functional design, and indicators of success.

Class 6 Macrophotography *[SF189]*: 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 8 ½" x 11" and mounted on rigid, black 11"x14" poster or mat board. Either orientation is acceptable. No frames or mat board framing are 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 *[SF190]*: 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 *[SF191]*: 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 of butterflies over the summer, rearing a specific insect from egg to adult, managing a beehive, observations of insects in a specific habitat, accounts of insect behavior in a forest or flower garden, etc.

# FORESTRY

## FORESTRY GUIDELINES

- This category provides 4-H Members an opportunity to prepare displays that show their expertise in many aspects of forestry. Involvement in this category will lead to expansion of seed, twig, wood, leaf, and tree knowledge for 4-H Members. In addition, participants would learn more about common Nebraskan trees.
- 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: https://marketplace.unl.edu/ne4h/4h332.html

- Other helpful forestry references include The 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
- Board Displays: Must be made from wood or wood composite (i.e. plywood, fiberboard, or Masonite) ¼" to ½" thick and no larger than 24" x 24". Display boards may be coated, i.e. painted or varnished, on both sides to prevent warping.
- Poster Displays: Must be made from a material (i.e. foam board or poster board) that will stand upright without buckling, and be no larger than 24" x 24".
- Book Displays: Must measure no more than 16" x 16".
- At least 5 of the 10 samples in Classes 2-5 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.
- 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, (i.e. 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.
- Scoresheets, forms, contest study materials, and additional resources can be found at http://go.unl.edu/ne4hforestry
- Educational materials can be found at: https://4hcurriculum.unl.edu/index.php/main/program_project/65

# DEPT. D / DIV. 320 FORESTRY

*[Scoresheets SF31-40]*

Class 1 Design Your Own Exhibit *[SF31]:* Prepare an educational exhibit about some aspect of trees, forests, or forestry that is of special interest to you. Possible topics include paper recycling, wildfire, forest products, forest wildlife, or forest pests. The only requirement is that the display must be no larger than 24" by 24". 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 *[SF32]:* 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. 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 the 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:** i.e. general uses, common products, fall color, etc., may be included with the display to enhance educational value.

Class 3 Twig Display *[SF33]:* The twig display must include twig samples from at least 10 different tree species. The display must include at least two samples of opposite and alternate leaf arrangements from broadleaf trees.

- **Collection:** Twig samples should be collected during the dormant season. (November – April) when the buds are mature. Twig samples must be at least 6" long and exhibit buds. Leaves must be removed and side branches must be trimmed to less than 1" in length. All collection must be done by the exhibitor.
- **Mounting:** Twigs must be mounted on a display board. Any method (i.e. 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:** i.e. general uses, tree characteristics, etc., may be included with the display to enhance its educational value.

Class 4 Seed Display *[SF34]:* 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: i.e. 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 (i.e. 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:** i.e. maturity date, average number of seed in the fruit, etc., may be included with the display to enhance educational value.

Class 5 Wood Display *[SF36]:* The wood display must include wood samples from at least 10 different tree species.

- **Preparation**: Samples may be of any shape, i.e. 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, i.e. all wood cylinders or all sections of a board. Each sample can be no larger than 4"x4"x4". 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, i.e. 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:** i.e. common products, density, etc., may be included with the display to enhance educational value.

Class 6 Cross-Section Display *[SF38]*: 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 6-12" in diameter and 1-3" thick. The bark should be firmly attached, which may be difficult if the tree was dead when the disc was cut. Sand at least one side of the disc so the grain can be easily seen. If the disc is treated with a clear finish, both sides must be treated to minimize warping. As the disc dries, some cracking or checking can be expected and is allowed.

- **Labeling**: The following parts must be clearly and accurately labeled on the cross section with pins, paper tags, or some other form of identification.
  1) Pith
  2) Heartwood
  3) Sapwood
  4) One growth ring (beginning and end)
  5) Cambium
  6) Bark
- A separate label attached to the back of the disc must include:
  7) Common name
  8) Scientific name
  9) Tree classification (softwood or hardwood)
  10) Age (of the cross section)
  11) Collector's name
  12) Collection Date
  13) Collection location (be specific, state and county at a minimum)

Class 7 Parts of a Tree *[SF39]*: **This project is only for ages 8-11.** Prepare a poster, no larger than 24" x 24" that clearly identifies the main external parts of any tree:

1. Trunk
2. Crown
3. Roots
4. Leaves
5. Flowers
6. Fruit
7. Buds
8. Bark

- Optional: Identify other internal parts, i.e. 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 *[SF40]*: 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" 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) Collector's name
- **Supplemental information about the tree:** i.e. 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.

Class 9 Forest Product Display *[SF D320009]*: 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" x 22" x 28". 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: i.e. 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 *[SF D320010]*: 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" x 24".

- 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: i.e. 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 *[SF D32011]*: Prepare a poster, no larger than 24" x 24" that promotes wildfire prevention strategies. Strategies articulated in the poster can include personal and/or land management actions.

- Supplemental information about wildfire prevention should be attached to the poster: i.e. 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.
- Attach a separate label on the back of the poster that includes the exhibitor's name and age.

Class 12 Sustainable Landscape Diorama *[SF D320012]*: 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 *[SF D320013]*: 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" x 24" x 24". Photographs, drawings, samples, charts, posters, etc. can be used. Posters submitted may be no larger than 24" x 24". 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: i.e. 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.

# HEALTHY LIFESTYLES

# FOOD & NUTRITION

## FOOD & NUTRITION GUIDELINES

***All entries must include supporting information. Limit of one entry per class. Each recipe may be used in only ONE Division/Entry.***

- The purpose of Food & Nutrition exhibits is to encourage the knowledge about healthy eating and safe cooking practices. This category has multiple projects that allow 4-H Members to progress over numerous years. In addition, 4-H Members will learn different types of cooking methods to improve their knowledge of cuisine.
- Supporting Information: Each exhibit must include the recipe. Recipe may be handwritten, photocopied or typed. Place food on the appropriately sized plate or container and put in self-sealing bag. Attach entry tag and recipe at the corner of the bag. For non-food entries, please attach the entry tag to the upper right-hand corner of the entry. Additional information including recipes and supplemental information should be identified with 4-H Members name and county.
- Criteria for Judging: Exhibits will be judged according to scoresheets. Make sure to follow all entry instructions required for your exhibit. Incomplete exhibits will be lowered a ribbon placing. Commercially prepared mixes are ONLY allowed in Cooking 201 Creative Mix Class. Prepared baking mixes, biscuit mixes, commercially prepared seasoning mixes for food preservation and other pre-made mixes entered in other categories will be lowered a ribbon placing.
- Food Projects: Exhibits should be entered using a disposable pan or plate and covered by a plastic self-sealing bag. Staff are not responsible for non-disposable containers, lost bread boards, China, or glassware.
- Ingredients: Any ingredient that the 4-H Member uses must be able to be purchased by the 4-H Member. Ingredients such as beer, whiskey, rum, etc. may NOT be used in any recipe file or food exhibit. **Exhibits that include alcohol will be disqualified.**
- Food Safety: Exhibits are on display for several days. Please think FOOD SAFETY! Items that require refrigeration will not be accepted, judged, or displayed as exhibits must be safe to eat when entered, whether they are tasted or not. Glazes, frostings and other sugar-based toppings are considered safe due to their high sugar content. Egg glazes on yeast breads and pie crusts BEFORE baking are acceptable. Eggs incorporated into baked goods and crusts are considered safe. The following food ingredients are considered unsafe for fair exhibits and will be disqualified:
  - Egg or cream cheese fillings and cream cheese frostings;
  - Any meat item including meat jerky, imitation meat bits (bacon bits, pepperoni, etc.);
  - Melted cheese on top of food exhibit toppings (cheese mixed into baked goods is considered safe and will be accepted);
  - Uncooked fruit toppings (i.e. fresh fruit tart).
- Scoresheets, forms, contest study materials, and additional resources can be found at https://go.unl.edu/ne4hfood-nutrition
- Educational resources can be found at: https://4hcurriculum.unl.edu/index.php/main/program_project/194

## DEPT. E / DIV. 350

## GENERAL FOODS & NUTRITION

*[Scoresheets SF122, SF152, SF251]*

Class 1 Food Science Explorations *[SF152]*: Show the connection between food and science as it relates to food preparation, food safety, or food production. Exhibit may be a poster or foam core board (not to exceed 22" by 30"), computer-based presentation printed off with notes pages, if needed, and displayed in binder, an exhibit display, a written report in portfolio or notebook. Consider neatness and creativity.

Class 2 Foods and Nutrition Poster, Scrapbook or Photo Display *[SF122]*: The project should involve a nutrition or food preparation technique or explore a career related to the food industry (i.e. caterer, restaurant owner, food scientist, registered dietitian, etc.). This might contain pictures, captions, and/or reports to highlight the concept. Exhibit may be a poster or foam core board (not to exceed 22" by 30"), a computer-based presentation printed off with notes pages, if