2. If photographs are to be part of the exhibit, remember that they will be viewed by the public. Make sure that the photographs used are in good taste and will not be offensive to anyone. Graphic photographs of excessive bleeding, trauma or painful procedures are not appropriate. For exhibits related to veterinary surgical procedures, aseptic techniques need to be shown, for example, use of drapes, use of sterile procedures, wearing of gloves and other appropriate veterinary medical practices.

3. **First-Aid Kits**: Because of public safety concerns and risk of theft of first-aid kit contents (veterinary drugs/equipment) with perceived potential for drug abuse, **animal first aid kits containing any drugs or medications will be immediately disqualified and not displayed. First Aid kits wishing to include medication information should instead utilize written descriptions, photographs, drawings, computer generated printouts or empty packaging of pharmaceuticals.**

4. **Veterinary Science Posters** - This exhibit presents the viewer with a design that is simple and direct, unlike a display that usually presents more information. A poster should not exceed 22 inches x 28 inches and may be either vertical or horizontal.

5. **Veterinary Science Displays -** A display may include but is not limited to: a 3-dimensional exhibit, a scale model, the actual product (for example: skeleton; teeth; samples of leather, fur, or dried skin damaged by disease or parasites) or a notebook. A display is not a poster. A display may be mounted on poster board not to exceed 22 inches x 28 inches or on ¼ inch plywood or equivalent that does not exceed 24 inches high or 32 inches wide or in a three-ring binder or another bound notebook format.

6. Appropriate Veterinary Science Topics:
   - Maintaining health
   - Specific disease information
   - Photographic display of normal and abnormal characteristics of animals
   - Animal health or safety
   - Public health or safety
   - Proper animal management to ensure food safety & quality
   - Efficient and safe livestock working facilities
   - Or a topic of the exhibitors choosing related to veterinary medicine or veterinary science

7. **Remember, since these are science displays, all references and information need to be properly cited.** Proper sources include but are not limited to: Professional journals and publications, professional AVMA accredited websites, interviews with Veterinarians and excerpts from Veterinary Educational Literature. *Plagiarism will result in a disqualification. Please study your topic and present the information to your audience in your own words.*

Entries per Individual - One entry per exhibitor per class. Limit of 4 entries per exhibitor per project.

All static exhibits must have received a purple ribbon at the county fair to advance to the State Fair. Premier 4-H Science Award is available in this area. See General Information for more details.

Scoresheets and additional resources can be found at https://go.unl.edu/ne4hvetscience.

VETERINARY SCIENCE CLASSES (Scoresheet SF119)
PREMIUMS: Purple, $4.00; Blue, $3.00; Red, $2.00; and White, $1.00
H840001   **4-H Veterinary Science Large Animal Poster, Notebook, or Display**.
H840002   **4-H Veterinary Science Small Animal/Pet Poster, Notebook, or Display**

STEM WELDING

This category helps 4-H'ers learn the basics of welding. In addition, 4-H'ers get the opportunity to present their knowledge on the topic and display what they have made. Involvement in STEM Welding gives participants a first-hand experience in a skill that can be used for a lifetime.

RULES:
1. The name and county of each exhibitor should appear separately on the back of each board, poster, or article and on the front cover of the notebooks so owner of the exhibit may be identified if the entry tag is separated from the exhibit.
2. All welds exhibited in class 1 or 2 must be mounted on a 12 inches high x 15 inches long display board of thickness not to exceed 3/8 inch. Attach each weld on a wire loop hinge or equivalent, so the

judge can look at the bottom side of the weld when necessary. Each weld should be labeled with information stated 1) type of welding process (stick, MIG, TIG, Oxy-Acetylene, etc.) 2) kind of weld, 3) welder setting, 4) electrode/wire/rod size, and 5) electrode/wire/rod ID numbers. **Attach a wire to display board so it can be hung like a picture frame. No picture frame hangers accepted.**

3. Fabricated board such as plywood, composition board, or particle-type lumber may be used for demonstration displays.
4. Demonstration boards should be sanded and finished to improve their appearance. The finish on a demonstration board will be judged as a woodworking exhibit.
5. Reports should be written using the scientific method whenever possible (Background, the Question or hypothesis, what you plan to do and what you did, Method used and observations, Results: what you learned.) All reports should include 4-Her name and county, be computer generated and enclosed in a clear plastic cover. The reports should be attached securely to the display.
6. If no plans are included with welding art, welding article, welding furniture or composite weld project item will be disqualified.
7. All outside projects MUST have entry tag and supporting information placed in a protective bag to prevent damage from weather events such as rain and be ATTACHED to projects with sting, zip ties, etc.

Entries per Individual - One entry per exhibitor per class. Limit of 4 entries per exhibitor per project.

All static exhibits must have received a purple ribbon at the county fair to advance to the State Fair.
Scoresheets and additional resources can be found at https://go.unl.edu/ne4hwelding.

Each 4-H member may exhibit two (2) items.

Class 1: 4-H Welding Project Tips and Suggestions
1. All welds should be made with the same electrode/wire/rod size and number.
2. Welds should be made only on one side of metal so penetration can be judged.
3. Welds should be cleaned with a chipping hammer and wire brush. Apply a coat of light oil (penetrating oil) to the metal to prevent rusting. Wipe off excess oil.
4. It is suggested that all welds be of the same size and thickness as metal. These pieces, referred to as coupons, should be 1.5 to 2 inches wide and 3.5 to 4 inches long. A good way to get this size is to buy a new cold rolled strap iron and cut it to length. The extra width is needed to provide enough metal to absorb the heat from the welding process and prevent the coupons from becoming too hot before the bead is completed. Narrower coupons will become very hot, making an average welder setting too cold at the bead start, just about right in the middle, and too hot at the end. The correct way to weld narrow strips is to make short beads and allow time to cool, however this project requires a full-length bead.
5. Stick welding: Suggested coupon thickness- ¼ inch if using 1/8-inch rod. Suggested rod-AC and DC straight or reverse polarity- first E-7014, second E-6013.
6. MIG welding: Suggested coupon thickness--¼ inch if using .035 wire and 1/8 inch if using .023 wire.
7. Oxy-Acetylene: Suggested coupon thickness- 1/8 inch. Suggested rod- 1/8 inch mild steel rod.

Class 2: 4-H Welding Project Tips and Suggestions
1. It is suggested that all welds be of the same size and thickness of metal. These pieces are referred to as coupons. The welds can be on one coupon that is about 4 inches x 4 inches or on individual coupons that are about 2 inches x 4 inches and ¼ inch thick. Suggested rods for this class of position welds for AC and DC straight or reverse polarity is, first E-6013, second E-7014 and E-6010 for DC reverse polarity only.
2. Welds should be cleaned with a chipping hammer and wire brush. Apply a coat of light oil (penetrating oil) to the metal to prevent rusting. Wipe off excess oil.

Classes 3 & 4: 4-H Welding Project Tips and Suggestions
1. All welds should be cleaned and protected from rust with paint or light oil. Plans are to be complete enough that if they were given to a welding shop, the item could be made without further instructions. Bill of materials should include a cost for all items used including steel, electrodes, paint, wheels, etc.

WELDING CLASSES
PREMIUMS: Purple, $4.00; Blue, $3.00; Red, $2.00; and White, $1.00
H920001   **Welding Joints (Scoresheet SF281**) -a display of one butt, one lap and one fillet weld.

H920002 **Position Welds (Scoresheet SF281)** -a display showing three beads welded in the vertical down, horizontal and overhead positions.

H920003 **Welding Art (Scoresheet SF283)**
Any art created using tack welds to hold the metal pieces together (examples include horseshoe projects). Type of welder, welder settings, all plans, plan alternations, and a bill for material must be attached to the article. Protect plans with a cover. If project is designed to be outside, it is required to have appropriate outdoor finish.

H920004 **Welding Article (Scoresheet SF281)**
Any shop article where welding is used in the construction. 60% of the item must be completed by 4-Her and notes regarding laser welding or machine welding must be included. Type of welder, welder settings, all plans, plan alternations, and a bill for material must be attached to the article. **Protect plans with a cover.** If project is designed to be outside, it is required to have appropriate outdoor finish because project may be displayed outside.

PREMIUMS: Purple, $6.00; Blue, $5.00; Red, $4.00; and White, $3.00
H920005 **Welding Furniture (Scoresheet SF282)**
Any furniture with 75% welding is used in the construction. 60% of the item must be completed by 4-Her and notes regarding laser welding or machine welding must be included. Type of welder, welder settings, all plans, plan alternations, and a bill for material must be attached to the article. **Protect plans with a cover.** If project is designed to be outside, it is required to have appropriate outdoor finish because project may be displayed outside.

PREMIUMS: Purple: $4.00; Blue: $3.00; Red: $2.00; White, $1.00
H920006 **Plasma Cutter/Welder Design (Scoresheet SF279)** – Plasma cutters/welders allowed for detailed design(s) to butt cut into metal. 4-H members will create a notebook describing the design process to create the "artwork" to butt cut into the metal. In the notebook include:
- A photo (front and back) of the finished project.
- Instructions on how the design was created (include software used), this allows for replication of the project.
- Lessons learned or improvements to the project.
- Steps to finish the project.

PREMIUMS: Purple: $5.00; Blue: $4.00; Red: $3.00; White, $2.00
H920007 **Composite Weld Project (Scoresheet SF280)**
60% of the project must be welded and 40% made from other materials such as wood, rubber, etc. Type of welder, welder settings, all plans, plan alternations, and a bill for material must be attached to the article. Protect plans with a cover. If project is designed to be outside, it is required to have an appropriate outdoor finish because project may be displayed outside.

STEM WOODWORKING
In this category 4-H'ers have the opportunity to create exhibits about varying levels of woodworking. In addition, participants can also create informational exhibits about their woodworking projects. Through involvement STEM Woodworking, 4-H'ers will be better educated about the topic and better their woodworking skills.

RULES:
1. The name and county of each exhibitor should appear separately on the back of each board, poster, or article and on the front cover of the notebooks so owner of the exhibit may be identified if the entry tag is separated from the exhibit.
2. **Requirements**:
   - **All articles exhibited must include a plan (with drawings or sketch or blueprints) stating dimensions and other critical instructions a builder would need to know how to build the project and 4-Her's name and county.**
   - **Plans may include narrative instructions in addition to the dimension drawings and include any alternations to the original plan. Part of the score depends on how well the project matches the plans**. If the plans are modified, the changes from the original need to