

**ENGINEERING EXCITEMENT DAY**  
(includes Electricity, Computer, and Rope)  
Youth Center - Saturday, August 4  
TBA, Assistant Superintendent

**GENERAL GUIDELINES**

1. Age of Participants:
  - Junior (age 13 years and under)
  - Senior (age 14 years and older)
2. Participation Guidelines:
  - Winner of any one class in 2011 is not eligible to participate in the same class for 2012. Any previous members of the National Engineering Team are not eligible to compete in the same class again.
  - Within each division counties may have one participant per class. No one individual may participate in more than one class; except for class J-6. Participants may represent their county in multiple divisions.
  - Participants will report to the registration table fifteen (15) minutes before the scheduled interview period.
  - Awards will be presented at 4:30 p.m. in the Youth Center.
3. Type of Evaluation for Classes J-1 through J-5, J-7 and J-9 through J-10
  - Participant will have a personal interview evaluation with a judge. They may also be asked to demonstrate, show or explain any aspect of their exhibit.
  - Judge will evaluate participant on the following basis (also see sample score sheet):
    - 50% Knowledge (Basic concepts learned in the project)
    - 25% Interview (Presentation of the project)
    - 25% Project Display (Quality)
4. Participant to bring:
  - Registration information shared with you by your County 4-H Educator.
  - Completed project book showing involvement in and progress toward completion of project goals.
  - A display representing their learning experience of the current project. The display should be one used either at their local 4-H judging or at their county fair.
  - Refer to additional project requirements as listed in class list below.
5. For additional details and updates related to 4-H Engineering activities, go to their web site:  
[www.4hengineering.osu.edu](http://www.4hengineering.osu.edu).

**CLASSES**

**Electric Division**

- J-1 Science Fun With Electricity
- J-2 Magic of Electricity
- J-3 Investigating Electricity
- J-4 Wired for Power
- J-5 Entering Electronics
- J-6 Electric Energy Qualifier - National 4-H Engineering, Science, & Leadership Event

Contestants must be at least 14 as of January 1 and enrolled in 4-H electricity or self-determined project. This class will include a written examination, identification of electrical symbols and equipment, and a 5 to 10 minute speech using visual aids on a technical subject related to electric/energy. Additional contest details are on the following pages. Registration for this class will begin by 9:45 a.m. in the Youth Center. The contest will run from 10:00 a.m.- 12:00 noon. Because the 4-H'ers in this event may also be entered in classes J-1, J-2, J-3, J-4 or J-5, contestants are free to register for the 9:00 a.m., 1:00 p.m. or 2:00 p.m. time slot to exhibit in the other classes.

## Computer Division

### J-7 Computer - Junior

Contestants must be enrolled in a self-determined computer project. This contest is designed to give young 4-H members an opportunity to demonstrate their knowledge in computer technology, compete with other 4-H'ers in their age group, and prepare for the Computer National Qualifier in future years. This class will include a written quiz on computer technology; a 4 to 5 minute illustrated talk (using "PowerPoint" or posters, for example); parts identification, and a problem or mini assignment to solve within 20 minutes. A typical problem may include formatting a word document and/or spreadsheet calculations. Additional contest details are on the following pages and on a web site: <http://4Hengineering.osu.edu>. Registration for this class begins at 12:45 pm in the Youth Center. The contest will begin at 1:00 p.m.

### J-8 Computer Qualifier - National 4-H Engineering, Science, & Leadership Event

Contestants must be at least 14 as of January 1 and enrolled in the computer area. This contest is designed to give 4-H members an opportunity to demonstrate their knowledge in computer technology and to compete with other 4-H'ers in doing so. This class will include a written quiz on computer technology; a 5 to 10 minute illustrated talk (Do not use a computer as a visual aid); parts identification and a problem or mini assignment to solve within 20 minutes. A typical problem may include formatting a word document and/or spreadsheet calculations. Additional contest details are on the following pages. Registration for this class begins at 12:45 pm in the Youth Center. The contest will begin at 1:00 p.m.

## Rope Division

### J-9 Rope - Junior

Members will also be required to identify and tie selected knots from the project manual.

### J-10 Rope - Senior

Same requirements as above

## AWARDS AND SPONSORS

1. All participants will receive a participation award sponsored by The Ohio State Fair.
2. The top 20% of each class will receive "Outstanding of the Day" awards sponsored by The Ohio State Fair.
3. The top individual from classes J-1 through J-10 will receive a clock trophy. The 2011 sponsors were: **DFS/Eddie Bauer, OHIOGRO, Inc., eLIANT Technology Services, Dr. Charles Ingraham, OSU FABE Dept., James Conger, and "Will Rogers Today"**.
4. The winners of classes J-6 and J-8 will earn a place on the Ohio 4-H Engineering Team. They will receive an expense paid trip to compete at the National 4-H Engineering, Science, & Leadership Event in September at Purdue University.

## 2011 CLASS WINNERS

J-1	Science Fun With Electricity	Ryan Wilson, Muskingum
J-2	Magic of Electricity	Josh Miller, Stark
J-3	Investigating Electricity	Jake Kovacs, Shelby
J-4	Wired for Power	Melinda Meiring, Darke
J-5	Entering Electronics	Tyler Nason, Sandusky
J-6	Electric Energy Qualifier	Jeremy Howyshell, Muskingum
J-7	Computer, Junior	Timothy Dennison, Clermont
J-8	Computer Qualifier	Benjamin Fair, Franklin
J-9	Rope – Junior	Conner Engle, Clermont
J-10	Rope – Senior	Abram Heindel, Mercer

Previous clock trophy winners of the National 4-H Engineering, Science, & Leadership Event are not eligible to participate again in the same project area.

## JUDGING SCHEDULE

Report to the registration desk 15 minutes before your county is scheduled for judging. Judging times are listed below.

- 9:00 a.m.: Champaign, Clark, Delaware, Fairfield, Fayette, Franklin, Knox, Licking, Logan, Madison, Marion, Morrow, Muskingum, Pickaway, Ross, Union
- 10:00 a.m.: Allen, Ashland, Coshocton, Clinton, Crawford, Greene, Hardin, Hocking, Holmes, Miami, Montgomery, Perry, Richland, Shelby, Vinton, Wyandot
- 11:00 a.m.: Athens, Auglaize, Guernsey, Hancock, Highland, Huron, Jackson, Medina, Morgan, Pike, Seneca, Stark, Summit, Tuscarawas, Warren, Wayne, Wood
- 1:00 p.m.: Belmont, Butler, Carroll, Clermont, Darke, Erie, Hamilton, Harrison, Henry, Lorain, Monroe, Noble, Paulding, Portage, Preble, Putnam, Sandusky, Van Wert, Washington
- 2:00 p.m.: Adams, Ashtabula, Brown, Columbiana, Cuyahoga, Defiance, Fulton, Gallia, Geauga, Jefferson, Lake, Lawrence, Lucas, Mahoning, Meigs, Mercer, Ottawa, Scioto, Trumbull, Williams

**NOTE:** The starting time for class J-6 (10:00 a.m.) and J-7 & J-8 (1:00 p.m.). All contestants must report at those times regardless of home county.

#### GUIDE FOR NATIONAL 4-H ELECTRIC/ENERGY QUALIFIER CLASS J-6 (To be shared with individual participating in this event)

This contest is designed to give 4-H members who participate in the 4-H Electric Program an opportunity to demonstrate their knowledge of electricity, the efficient use of electricity, care, maintenance, and safety of electrical equipment, including electronics. Safety will be stressed throughout the contest.

This contest will include: (Time limits as shown)

1. Written Examination (20 minutes)
2. Identification of Electrical Equipment and/or parts of the equipment, including electrical and electronic symbols. (15 minutes, 25 parts)
3. Visual Presentation (10 minutes maximum)

Eligibility: Each county may enter only one participant. Participants must be enrolled in 4-H Electric Program or Self Determined; must have reached his or her 14th but not 19th birthday as of January 1 of the current year.

Visual Presentation: This should be a well organized speech with an introduction, body and summary. The speech may include explanation and/or demonstration of proper care, maintenance, adjustment, and functions of the various components; safety; and explanation of electrical equipment, including electronics. Participants may use working equipment but must observe proper safety precautions when demonstrating any live electrical part.

Participants must furnish their own demonstration materials. Any posters (if used) should be readable at 40 feet. A "PowerPoint" projector and computer will be available. Contestants may bring their "Powerpoint" visuals on CD or USB storage device.

#### GUIDE FOR NATIONAL COMPUTER QUALIFIER CLASS J-8 (To be shared with individual participating in this event)

The Computer Qualifier for the National 4-H Engineering, Science, and Leadership Event consists of four parts:

1. Written Quiz (15 minutes).
2. Illustrated Talk. The actual computer cannot be used in this presentation because the audience and judges will not be able to see well enough. Charts or enlarged diagrams may be used as visual aids. The presentation may include explanation of proper care, maintenance, and functions of a computer, programming techniques, new software, or related topics. Visuals should be readable at 40 feet. A "PowerPoint" projector and computer will be available. Contestants may bring their "PowerPoint" visuals on CD or USB storage device (10 minute maximum).
3. Problem Solving (20 minutes). Contestants will be asked to complete an assignment that may include word processing, data organization or programming. IBM compatible computers will be available for the problem solving activity.
4. Parts Identification (15 minutes)

ELECTRIC ENERGY PARTS AND SYMBOLS IDENTIFICATION

Name \_\_\_\_\_

Write the corresponding number beside the name.

Symbols - Electrical & Electronic

- \_\_\_ Antenna, aerial
- \_\_\_ Antenna, loop
- \_\_\_ Bell
- \_\_\_ Capacitor, adjustable
- \_\_\_ Capacitor, electrolytic
- \_\_\_ Capacitor, mica or paper
- \_\_\_ Ceiling lighting outlet for recessed fixture
- \_\_\_ Clock outlet
- \_\_\_ Combination radio & convenience outlet
- \_\_\_ Combination switch & convenience outlet
- \_\_\_ Continuous wireway for fluorescent lighting on ceiling in coves, cornices, etc.
- \_\_\_ Diode
- \_\_\_ Double-pole switch
- \_\_\_ Drop-cord equipped outlet
- \_\_\_ Duplex convenience outlet
- \_\_\_ Duplex convenience outlet for grounding-type plugs
- \_\_\_ Fan outlet
- \_\_\_ Floor outlet
- \_\_\_ Grounding plug
- \_\_\_ Junction box
- \_\_\_ Lighting outlet
- \_\_\_ Lighting outlet with lamp holder
- \_\_\_ Lighting outlet with lamp holder and pull string
- \_\_\_ Push button
- \_\_\_ Range outlet
- \_\_\_ Resistor
- \_\_\_ Resistor, adjustable
- \_\_\_ Rheostat
- \_\_\_ Special purpose outlet
- \_\_\_ Transformer
- \_\_\_ Triplex convenience outlet
- \_\_\_ Weatherproof convenience outlet
- \_\_\_ Weatherproof switch

- \_\_\_ Electromagnet
- \_\_\_ Fuse, Plug
- \_\_\_ Fuse, Plug, time delay
- \_\_\_ Fuse, Plug "S" type
- \_\_\_ Fuse, Cartridge
- \_\_\_ Fuse, Cartridge time delay
- \_\_\_ Ground fault circuit interrupter
- \_\_\_ Head Phones
- \_\_\_ Integrated Circuit
- \_\_\_ Lamp, fluorescent
- \_\_\_ Lamp, incandescent
- \_\_\_ Lamp, high pressure sodium
- \_\_\_ Lamp, mercury vapor
- \_\_\_ Lamps in parallel
- \_\_\_ Lamps in series
- \_\_\_ Magnet
- \_\_\_ Microphone
- \_\_\_ Outlet, duplex
- \_\_\_ Outlet, duplex for grounding plugs
- \_\_\_ Outlet, Dryer (240 volt - 30 amp)
- \_\_\_ Outlet, Range (240 volt - 50 amp)
- \_\_\_ Outlet, weather proof
- \_\_\_ Outlet, 240 volt - 20 amp
- \_\_\_ Pilot Lamp
- \_\_\_ Plug, grounded type
- \_\_\_ Plug, polarized
- \_\_\_ Resistor
- \_\_\_ Potentiometer
- \_\_\_ Rheostat
- \_\_\_ Solder
- \_\_\_ Solder Lug
- \_\_\_ Speaker
- \_\_\_ Splice, Rat-Tail
- \_\_\_ Splice, Western Union
- \_\_\_ Spring Clip
- \_\_\_ Switch, Dimmer
- \_\_\_ Switch, single pole
- \_\_\_ Switch, three way (SPDT)
- \_\_\_ Switch, four way (DPDT)
- \_\_\_ Switch, rotary
- \_\_\_ Switch, temperature (thermostat)
- \_\_\_ Switch, toggle
- \_\_\_ Transformer
- \_\_\_ Transistor (NPN)
- \_\_\_ Transistor (PNP)
- \_\_\_ Volt ohm Meter (VOM)
- \_\_\_ Voltmeter
- \_\_\_ Watt meter
- \_\_\_ Watt-hour meter
- \_\_\_ Wire stripper

Parts and Equipment - Electrical & Electronic

- \_\_\_ Ammeter
- \_\_\_ Battery, single cell (A)
- \_\_\_ Battery, multicell (B)
- \_\_\_ Capacitor, Electrolytic
- \_\_\_ Capacitor, ceramic
- \_\_\_ Capacitor, variable
- \_\_\_ Circuit Breaker, 120 volt
- \_\_\_ Circuit Breaker, 240 volt
- \_\_\_ Circuit fault indicator
- \_\_\_ Connector, split bolt
- \_\_\_ Connector, wedge grip
- \_\_\_ Connector, wire nut
- \_\_\_ Diode

## 4-H Computer Parts Identification

Contestant number: \_\_\_\_\_

Number incorrect: \_\_\_\_\_

Contestant name: \_\_\_\_\_

County: \_\_\_\_\_

\_\_\_\_\_ audio cable, CD-ROM to sound card

\_\_\_\_\_ ATA-66/100/133 cable

\_\_\_\_\_ backup tape for PCs

\_\_\_\_\_ IDE or parallel ATA cable

\_\_\_\_\_ CD caddy

\_\_\_\_\_ network cable

\_\_\_\_\_ CD-ROM

\_\_\_\_\_ network interface card (NIC)

\_\_\_\_\_ CPU

\_\_\_\_\_ phone cable

\_\_\_\_\_ CPU heatsink/fan

\_\_\_\_\_ power supply, laptop

\_\_\_\_\_ digital camera media

\_\_\_\_\_ RAM

\_\_\_\_\_ Firewire, IEEE 1394, iLink cable

\_\_\_\_\_ ROM

\_\_\_\_\_ floppy disk drive cable

\_\_\_\_\_ SCSI internal cable

\_\_\_\_\_ floppy disk drive, 3.5"

\_\_\_\_\_ serial adapter, 9 to 25 pin

\_\_\_\_\_ floppy disk, 3.5"

\_\_\_\_\_ slot cover

\_\_\_\_\_ floppy disk, 5.25"

\_\_\_\_\_ speaker

\_\_\_\_\_ hard disk

\_\_\_\_\_ USB cable

\_\_\_\_\_ hard disk drive

\_\_\_\_\_ USB hub

\_\_\_\_\_ hard disk mounting bracket

Contestant's Number \_\_\_\_\_

Name \_\_\_\_\_

County \_\_\_\_\_

**Event No. III — Visual Presentation**

**Title of Presentation** \_\_\_\_\_

Items under the major divisions I, II, III, and IV should be scored. Space under "Judges' Comments" is for additional scoring suggestions and ideas. Indicate scoring, compare scores, and decide on combined score and comments to be made. Time limit: 10 minutes maximum.

FACTORS FOR SCORING	MAXIMUM SCORE 5 POINTS EACH {Unless otherwise noted}	JUDGES' COMMENTS
<b>I. The 4-H Member (20 points)</b> A. Appearance B. Voice C. Poise D. Grammar	_____ _____ _____ _____	
<b>II. Presentation (35 points)</b> A. Introduction B. Appropriate Method C. Teaching Aids D. Verbal Presentation E. Audience View F. Organization G. Summary	_____ _____ _____ _____ _____ _____ _____	
<b>III. Subject Matter (25 points)</b> A. Information Presented 1. Accurate 2. Complete and Up-to-Date 3. Appropriate for State/National Contest B. Knowledge of Subject 1. Principles 2. Application	_____ _____ _____ _____ _____	
<b>IV. Level of Content (20 points)</b> {Award 1 to 20 points based on the depth and "degree of difficulty" of the topic regardless of age}	{Maximum 20 points} _____	

**TOTAL** \_\_\_\_\_

# POINTS TO CONSIDER IN SCORING VISUAL PRESENTATION

## I. The 4-H Member (20 points)

- A. Appearance — Neat appropriate dress, good posture. Is the 4-H'er well groomed? Is the clothing suitable for the task?
- B. Voice — Distinct, forceful, yet natural. Is the voice clear with distinct enunciation, enthusiasm, and reasonably strong?
- C. Poise — Calm, pleasant, confident. Does the 4-H'er stay composed even when something appears to go wrong or does go wrong? Does he or she have self-assurance, yet a pleasant manner?
- D. Grammar — Correct, well chosen words.

## II. Presentation (35 points)

- A. Introduction — Effective, interesting. This is an explanation of the presentation, not an introduction of the 4-H'er. Does it get the attention of the audience?
- B. Appropriate Method — Did the 4-H'er choose the best method of "showing" the topic (demonstration or illustrated talk)?
- C. Teaching Aids — Equipment, models, charts, and supplies effective and well arranged. Did the 4-H'er choose the teaching aid that would best tell the story? Were the charts and models neat, concise, and appropriate?
- D. Verbal Presentation — Steps, illustrative material, and explanation coordinated. Does the 4-H'er talk about what he/she is showing and explain the procedure? Is the information related to what is being shown?
- E. Audience View — Are visual aids large enough for audience to see? Does the 4-H'er make sure the audience can see what he or she is doing?
- F. Organization — Presentation well organized, steps clear and logical, not memorized. Is evidence shown that the 4-H'er has planned the presentation?
- G. Summary — Are key points summarized?

## III. Subject Matter (25 points)

- A. Information Presented
  - 1. *Accurate* — Is the information correct? Could you follow directions given?
  - 2. *Complete and Up-to-Date* — Are all the steps in the process shown? Is it the most current information presented?
  - 3. *Appropriate for State/National Contest* — Is the presentation appropriate for high level competition?
- B. Knowledge of Subject
  - 1. *Principles* — Did the 4-H'er demonstrate an understanding of the principles and practices presented?
  - 2. *Application* — Did he or she show an understanding of how to apply the information?

## IV. Level of Content (20 points)

Depth and "Degree of Difficulty" — Is the topic sufficiently challenging? Was it presented in depth? Has the 4-H'er demonstrated a comprehensive understanding of the subject matter? Do not consider differences in age or experience among contestants.

# 4-H ENGINEERING EXCITEMENT DAY

## Evaluation Sheet

NAME: \_\_\_\_\_  
 COUNTY: \_\_\_\_\_  
 AGE AS OF JAN. 1 (OF CURRENT YEAR): \_\_\_\_\_  
 YEARS IN 4-H: \_\_\_\_\_

EXHIBITOR NUMBER: \_\_\_\_\_  
 CLASS: \_\_\_\_\_  
 PROJECT NAME: \_\_\_\_\_  
 YEARS IN PROJECT: \_\_\_\_\_

Brief description of what you brought today to display your project (i.e. poster, equipment):

\_\_\_\_\_

\_\_\_\_\_

**Keep this sheet with you until the judge calls your exhibitor number.**

Judging Guidelines	Excellent	Very Good	Good	Average
50% <b>Knowledge</b> - basic concepts/skills learned in the project				
25% <b>Communication</b> - ability to communicate project knowledge.				
25% <b>Quality of Project Display</b> - quality of project exhibited or displayed				
<b>Judge's Overall Rating</b>	Excellent	Very Good	Good	Average

Judge's Comments –  
 Strengths:

Area(s) for improvement:

White Copy – 4-H'er    Yellow Copy – Judge