

## **MSU Extension Publication Archive**

Archive copy of publication, do not use for current recommendations. Up-to-date information about many topics can be obtained from your local Extension office.

4H Electrical Project – Leader’s Manual

Michigan State University Cooperative Extension Service

4-H Club Bulletin

Joe Waterson, James Halm, Einer G. Olstrom, 4H; Amalie Vasol, June Wilkinson, Club Leader; Robert Maddex, Richard Pfister, Agricultural Engineering; John T. Stone, Staff Training; Arden Porter, Consumers Power Company; Erwin Raven, Don Cook, Kay Sizer, Detroit Edison Company

Issued July, 1963

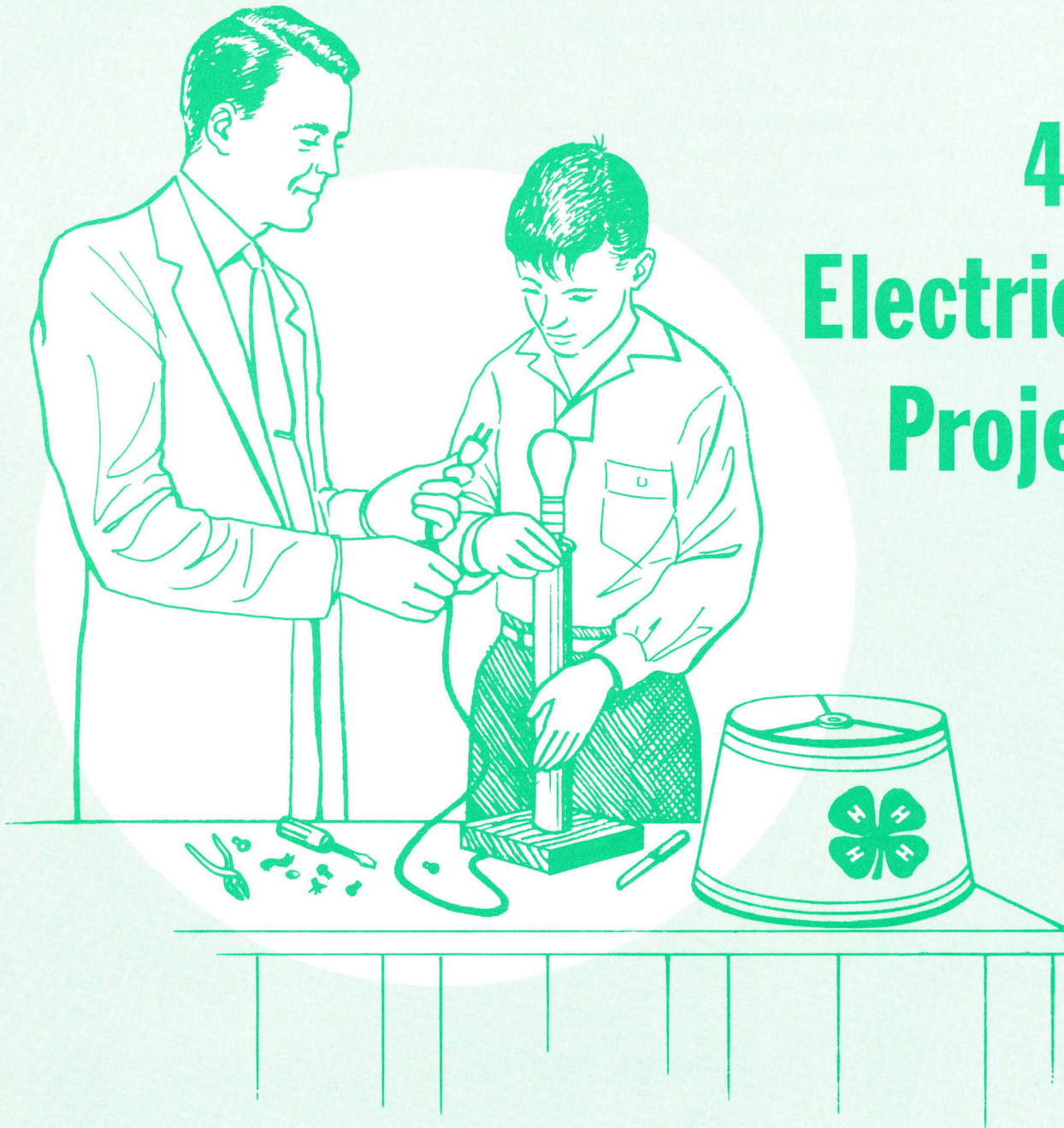
32 pages

The PDF file was provided courtesy of the Michigan State University Library

**Scroll down to view the publication.**

# LEADER'S MANUAL

## 4-H Electrical Project



**MICHIGAN STATE UNIVERSITY**

**Cooperative Extension Service** ✻ **4-H Club Program**

East Lansing



# INDEX

Procedure for Leaders .....	3
Information for Local Leaders .....	4
First Meeting .....	5
Management of Our Club .....	6
Project List .....	7
Required Articles .....	8
Organizing the Club .....	9
First Work Meeting .....	10
Extension Cords .....	11
Second Work Meeting .....	12
Principles of Electricity .....	13
Third Work Meeting .....	14
How to Give Demonstrations .....	15
Fourth Work Meeting .....	16
Importance of Safety .....	17
Fifth Work Meeting .....	18
Electric Motors .....	19
Sixth Work Meeting .....	20
Home Lighting .....	21
Seventh Work Meeting .....	22
Care of Electrical Equipment .....	23
Eighth Work Meeting .....	24
Importance of Reports .....	25
Achievement and Recognition .....	26
Characteristics of Approved Lamps .....	27
Lighting Activities Suggestions .....	27
Electrical Safety Check List .....	28
Care of Small Appliances .....	28
Care of Major Appliances .....	30

## Acknowledgment

The following people assisted in the preparation of this leader's outline:

Joe Waterson, Monroe County 4-H Club Agent  
James Halm, Saginaw County 4-H Club Agent  
Arden Porter, Consumers Power Company  
Erwin Raven, Don Cook, and Kay Sizer, Detroit Edison Company  
Amalie Vasold, Assistant State 4-H Club Leader

June Wilkinson, Assistant State 4-H Club Leader  
Robert Maddex, Department of Agricultural Engineering  
Richard Pfister, Department of Agricultural Engineering  
John T. Stone, Staff Training Officer  
Einer G. Olstrom, District Extension Supervisor, 4-H Club Program

# PROCEDURE FOR LOCAL LEADERS

**1**

You have decided to be a 4-H leader in your community. This is an important step.

**2**

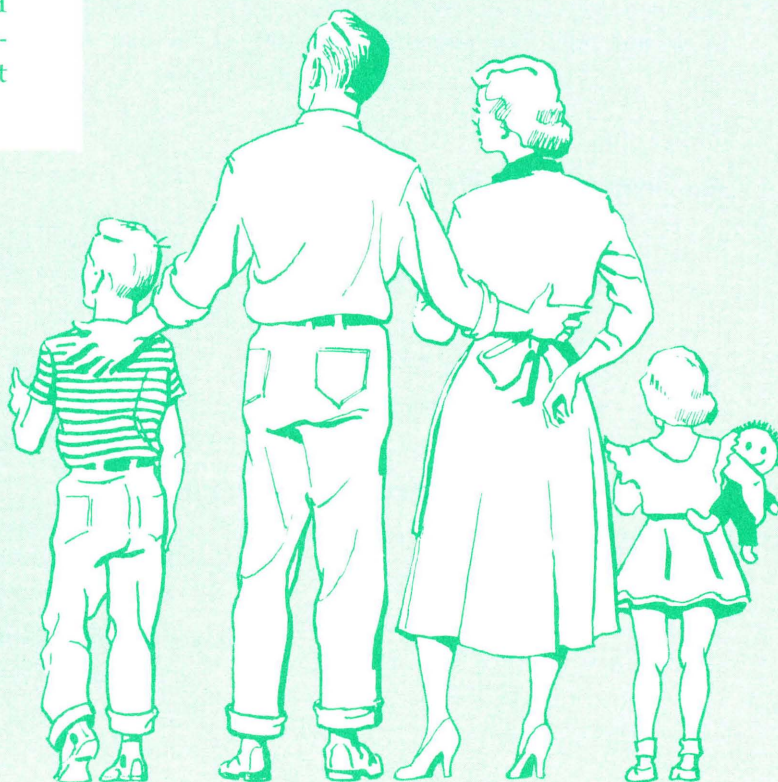
From the County Extension Office, 4-H leaders, 4-H bulletins and literature, find out about 4-H Club work.

**3**

Talk with your neighbors and their children about organizing a 4-H Club. If there is interest, go on to the next step.

**4**

Arrange for a meeting with members and their parents.





# INFORMATION FOR LOCAL LEADERS

*(County provides this information)*

## 1. Extension Agents:

Agriculture

Home Economics

4-H Club

**Name**

**Phone**

_____	_____
_____	_____
_____	_____

## 2. Experienced Local Leaders:

Project Leader

County Policy and Events Leader

Recreation Leader

_____	_____
_____	_____
_____	_____

## 3. Commercial Representatives cooperating in this project:

Title or position \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

_____	_____
_____	_____
_____	_____

## 4. Important County Dates:

Leader Training Meeting

Leader Training Meeting

Achievement Days

Camp

**Place**

**Date**

_____	_____
_____	_____
_____	_____
_____	_____

## 5. Important Reference Material:

_____	_____
_____	_____
_____	_____

# FIRST MEETING WITH PARENTS AND MEMBERS

## Let's start

### 1. Introductions

A parent can introduce members of his family

### 2. Purpose of meeting

To organize (or reorganize) a local 4-H Club

### 3. 4-H Club requirements

A Club should have:

- Five or more members
- One or more adult leaders
- Organization with officers
- Six or more meetings
- A planned program
- Complete project, report, and exhibit at Achievement Day
- Participation in other 4-H Events

### 4. Opportunities for 4-H Club members

To learn useful skills, develop social confidence, learn good work habits, and provide opportunity for personal achievement

Extension Agent can help explain these and other opportunities available to the 4-H Club members

### 5. Time and cost involved

Leader, parents, and members should talk over the cost of supplies and materials and time needed to do a good job

### 6. Our responsibilities:

#### Leader should --

- Find the time, energy, and thought needed to provide a healthy learning experience for a group of boys and girls in this community

#### Parents should --

- Provide a favorable attitude and interest
- Provide active cooperation
- Give encouragement and guidance
- Provide opportunity for member to attend meetings and other 4-H events
- Provide their share of materials, transportation, etc.

#### Member should --

- Attend regularly
- Follow instructions
- Strive to do his best
- Learn to take part in the group
- Complete what he starts
- Do his share willingly



# MANAGEMENT OF OUR CLUB

## 7. Club activities

A. Frequency of meetings ..... Once a week \_\_\_\_\_ Every two weeks \_\_\_\_\_  
Day of week ..... Mon. \_\_\_ Tues. \_\_\_ Wed. \_\_\_ Thurs. \_\_\_ Fri. \_\_\_ Sat. \_\_\_  
Hours ..... Morning: \_\_\_\_\_ to \_\_\_\_\_  
Afternoon: \_\_\_\_\_ to \_\_\_\_\_  
Evening: \_\_\_\_\_ to \_\_\_\_\_

B. Refreshments (kinds and how much) ..... Every meeting \_\_\_\_\_  
Every other meeting \_\_\_\_\_  
Once a month \_\_\_\_\_  
Who provides ..... Date \_\_\_\_\_ Name \_\_\_\_\_  
Date \_\_\_\_\_

C. Dues (depends on club plans) ..... None \_\_\_\_\_ Per week \_\_\_\_\_ Per year \_\_\_\_\_

### D. Transportation (if cars are necessary)

1st meeting \_\_\_\_\_ 3rd meeting \_\_\_\_\_  
2nd meeting \_\_\_\_\_ 4th meeting \_\_\_\_\_

E. Business meetings (how often) ..... Every time \_\_\_\_\_ Once a month \_\_\_\_\_ Other \_\_\_\_\_

F. Demonstrations (members) ..... Every time \_\_\_\_\_ Every other time \_\_\_\_\_ 1/yr. \_\_\_\_\_

### G. Tour (leader, members, some parents)

Where ..... One \_\_\_\_\_ Two \_\_\_\_\_ Three \_\_\_\_\_  
Plan \_\_\_\_\_  
Who can help \_\_\_\_\_

H. Achievement Day ..... Date \_\_\_\_\_  
Who can help \_\_\_\_\_

I. Other 4-H events (list) .....  
Who can help \_\_\_\_\_

## 8. Project requirements and exhibits . .

Refer to the Project Requirements Bulletin and project list in this outline.

## 10. Serve refreshments

### 9. Plan the organization meeting:

Date \_\_\_\_\_ Time \_\_\_\_\_

Place \_\_\_\_\_

# Project List

Project work may be other than suggested here if it has the Extension Agent's or local leader's approval. Other work selected should require equal skill.

## First Year Article List

Cord board (required)  
Extension cord (heavy or light duty)  
Trouble lamp  
Toy electric motor  
Electric cord reel  
Repair appliance (replace with new plug or new cord if required)  
Swing arm lamp  
Make or assemble lamp  
Rewire lamp  
Make lamp shade  
Movable spot or flood light  
Electrical demonstration (1 to 3 minutes)

## Second Year Article List

Wire board or care of small appliances (required)  
Poultry water warmer  
Movable workbench light  
Approved lamp  
Approved shade  
Compute cost of electricity for operating certain equipment  
Ice cream freezer power unit  
Trouble lamp  
Toy motor  
Swing arm lamp  
Electrical demonstration (1 to 3 minutes)  
Ventilating fan

## Third Year Article List

Lighting Survey (required)  
Install door bell or chimes  
Install inter-communication system  
Belt sander  
Install yardlight  
Pig brooder  
Electric chick brooder  
Infra-red chick brooder  
Infra-red heater  
Infra-red milk-house heater  
Drill press  
Install electric fence unit  
Motor-driven grinder  
Installation of permanent motor  
Ice cream freezer power unit

Compute cost of operating certain electrical equipment  
Movable workbench light  
Lighten house numbers  
Electrical demonstration (10 to 15 minutes)

## Advanced Article List

Wiring panel  
Install poultry house light dimmer  
Wire small building  
Electric lawn mower  
Circular saw  
Install convenience outlet  
Drill press  
Motor-driven grinder  
Elevator  
Installation of permanent motor  
Install yard light and/or switch  
Electrical demonstration (10 to 15 min.)

## References

**Electrical Projects for 4-H Clubs**, Bulletin No. 148, Michigan State University, (available at County Extension Office).

**Electrical Equipment You Can Build**, Farm Youth Activities, Power Use Department, Westinghouse Electric Corp., 401 Liberty Avenue, P.O. Box 2278, Pittsburgh 30, Pennsylvania.

**See Your Home in a New Light**, General Electric Company Large Lamp Division, Nela Park, Cleveland, Ohio.

**Electric Light for the Farmstead**, U. S. Department of Agriculture, Bulletin No. F1838, Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

## NOTES



## REQUIRED ARTICLES

This page indicates the choice of required exercises and suggestions for doing them.

### FIRST YEAR REQUIRED PROJECT

#### Cord Board

1. Use 12 x 12 x ¼ inch plywood board.
2. Use four different types of cord, 8 inches long, such as:
  - Rubber lamp cord (rip cord), 2 wire, 18 gauge.
  - Plastic lamp cord (rip cord), 2 wire, 18 gauge.
  - Rayon covered lamp cord, 2 wire, 18 gauge.
  - Cotton cover braided, 2 wire, 18 gauge.
  - Asbestos appliance cord.
  - Flat rubber-covered (similar to rip cord), 2 wire, 16 gauge.
  - Round rubber cord (light duty, type 5V), 2 wire, 18 gauge.
  - Round rubber cord (medium duty, type SJ), 2 wire, 16 gauge.
  - Round rubber cord (heavy duty, type S), 2 wire, 18 gauge.
  - Round rubber cord (heavy duty, type S), 2 wire, 16 gauge.
3. Cut cord cover back 1½ inch.
4. Clean insulation back ¾ inch and solder ends.
5. Attach wires to plywood board (suggestion: Drill holes in board and use fine wire to fasten wire samples to board.)
6. Label the cords, indicating what each can be used for.

### SECOND YEAR REQUIRED PROJECT

Make a wire board or a scrapbook on care of small appliances.

#### Wire Board

1. Use 12 x 12 x ¼ inch plywood board.
2. Use four different types of wire, 8 inches long, such as:
  - Service cables.
  - Non-metallic sheathed cables.
  - Non-metallic sheathed cable with plastic covering.
  - Outdoor single conductor wire, copper or aluminum.
  - Bare ground wire.
  - Inside single conductor wire (such as used in conduit).
3. Cut cable sheath back 4 inches.

4. Clean insulation back ¾ inch.
5. Attach wires to plywood board.
6. Label the wires, indicating where they should be used.

#### Care of Small Appliances

1. Care for two small appliances.
2. Make a scrapbook on the care of these appliances, giving all steps.
3. Have local leader check and sign scrapbook. (Reference—Care of Small Appliances)

### THIRD YEAR REQUIRED PROJECT

Make a lighting survey and scrapbook report or a scrapbook on the care of a major appliance.

#### Lighting

1. Prepare scrapbook.
  - a. Show existing lighting in two work areas by photo or simple sketch.
  - b. Show how it can be changed to improve the lighting whenever possible.
  - c. Use "before" and "after" photographs whenever possible.
  - d. Outline other lighting activities.
2. Actually change lighting in one work area as reported.
3. Have local leader check and sign report. (Reference—Lighting Activities Suggestions).

#### Major Appliance Care

1. Care for one large appliance.
2. Make a scrapbook, giving all steps taken.
3. Have local leader check and sign scrapbook.

### ADVANCED REQUIRED PROJECT

#### Demonstrations

All members in advanced work are to give a 10- to 15-minute demonstration on any appropriate subject, such as articles, modern appliances, safety, lighting fuses, etc.

(References — Suggested Demonstrations, **Electrical Demonstrations You Can Perform**, Westinghouse publication. 4-H Demonstration Story Bulletin No. 111A, Michigan State University.)

**ORGANIZATION MEETING**

DATE \_\_\_\_\_

# ORGANIZING THE CLUB

## Preparation

1. Notify interested members well in advance of this meeting.
2. Get project supplies available from the County Extension Office.
3. Brief your family on plans for the meeting—when you will meet, how long, expected behavior, etc.
4. Have house in order with extra seating space, etc.
5. Have something for first comers to do, such as look over electrical bulletins or magazines with electrical projects.
6. Start the meeting with the 4-H Club Pledge:

### I pledge

My Head to clearer thinking,  
 My Heart to greater loyalty,  
 My Hands to larger service,  
 My Health to better living, for my club, my  
 community, and my country.

## Procedure

1. Start the meeting on time. This indicates that all meetings will start on time.
2. Open the meeting with the 4-H Club Pledge. Assign a club member to lead the pledge at the next meeting.
3. Discuss the expected conduct during meeting. Set "off limit" areas if necessary.
4. Elect officers; leader is chairman until a president is elected. Suggested business for organized club: roll call topic, recreation committee, demonstrations, final agreement on club management as talked over with parents.
5. Enroll members, one member on each enrollment card; send to County Extension Agent.
6. Hand out bulletin supplies.
7. Make meeting and work plans for next meeting.

8. Close meeting on time and help members make a list of the supplies each needs to bring for the first work meeting.

## Next Meeting

- Business Meeting
- Work

Date \_\_\_\_\_ Time \_\_\_\_\_

Place \_\_\_\_\_

Demonstrations \_\_\_\_\_

Roll Call Topic \_\_\_\_\_

Recreation Committee \_\_\_\_\_

Other Committees \_\_\_\_\_

## Play

Recreation Committee provides two active games.

**Twenty Questions (Masterminding).**—One player thinks of some specific object anywhere in the world and indicates whether it is animal, vegetable, or mineral. The other players try to learn what the object is. They may ask up to 20 questions. The questions must all be answered "Yes", "No" or "I don't know". Direct questions such as "Is it that door?" should be avoided until the group, by the process of elimination with general questions, feels pretty sure of the object. The player asking the final question is "It" for the next round.

## Work Meeting Plans

The following lesson plans are *suggested* activities for each meeting. Each leader will want to make some changes to best fit the needs of the club members of their club.



## FIRST WORK MEETING

---

DATE \_\_\_\_\_

### Preparation

1. Have work space in order.
2. Need 1-foot cord for each member. Also, jackknife and screwdriver.
3. When the first member arrives, your leadership influence begins.
4. **Go direct to meeting area and have something for first comers to do such as looking over electrical articles, lamps, meters, switches, etc.**
5. Start meeting at pre-arranged time.
6. Take time to make necessary plans for the next meeting. Assign two members as recreation committee.

### Procedure

1. President starts meeting with 4-H Club Pledge.
2. Secretary takes roll. Either go on to business meeting or group work.
3. Point out uses of "plugs" in electrical equipment.
4. Demonstrate how to wire a plug.
5. Cut 1-foot lengths of 16-2 cord for each member.
6. Emphasize the importance of doing this job well.
7. Compliment their efforts and progress—help each as necessary.
8. Demand the best work that each individual can do.

#### Close the Meeting on Time — Remind Them —

1. All learn the 4-H Club Pledge by next meeting.
2. Time and place of next meeting.
3. Bring back choice of articles to make.
4. Bring cord and supplies for required articles.

### Next Meeting

- Business Meeting  
 Work

Date \_\_\_\_\_ Time \_\_\_\_\_

Place \_\_\_\_\_

Demonstrations \_\_\_\_\_

Roll Call —

When secretary calls the roll, members may answer to their names by a pre-arranged topic such as **Electrical Articles**. Some might be: light bulb, radio, refrigerator, washer, dryer, electric fan, lamp, TV, etc.

Recreation Committee \_\_\_\_\_

Other Committees \_\_\_\_\_

### Play

Recreation Committee provides two active games.

**Jerusalem and Jericho.**—All players stand in front of their chairs, in a line or circle. The leader stands before the group and says "Jericho" or "Jerusalem" as he wishes. Everyone stoops on "Jerusalem" and stands still on "Jericho". In the meantime, the leader may do what he wishes, preferably the wrong thing at the wrong time. Anyone caught making a mistake sits down immediately. Play until a majority are seated.

# TEACH and DEMONSTRATE: Extension Cords

Several 110-volt extension cords are handy things to have about the house and farmstead. They can provide light or electric power in out-of-the-way places, in case of emergency or on special jobs. Never use them in place of permanent wiring.

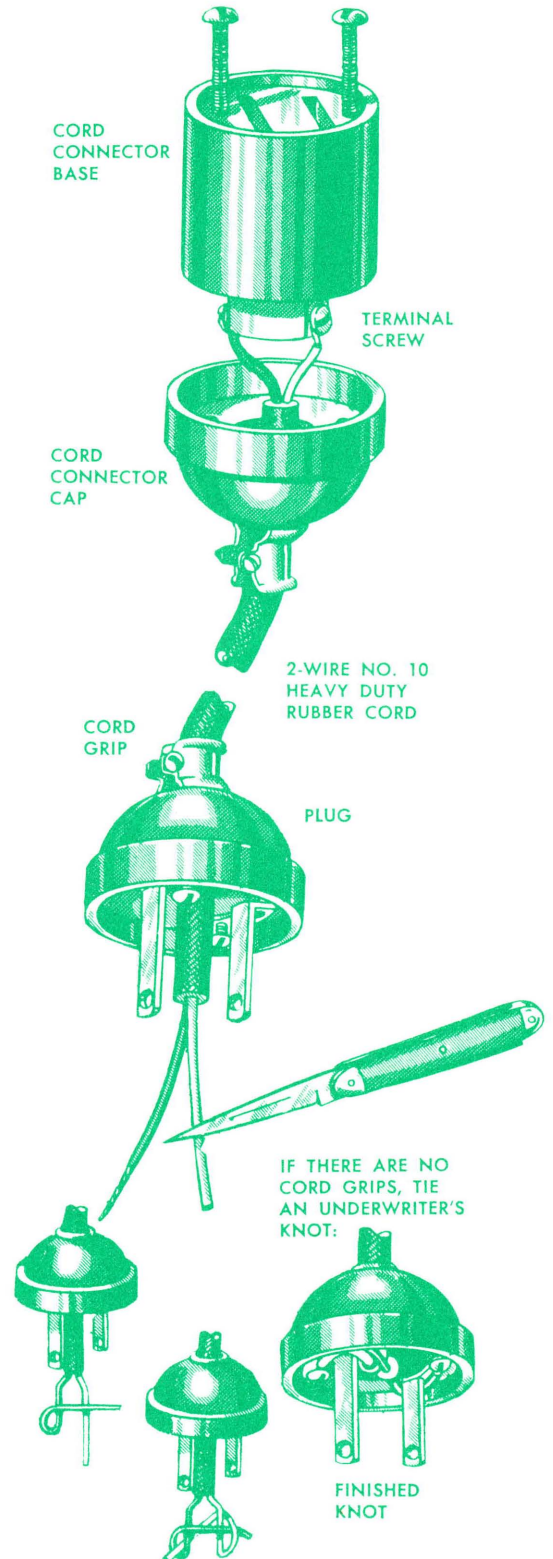
If you use No. 16 wire for an extension cord it will be adequate to serve many pieces of electrical equipment, including a 1/3 horsepower motor. Keep your extension cord out of water and wipe off any oil, grease, or dirt that may get on the cord when you are using it.

## Materials Needed

1. Heavy-duty cord, grip-type plug with clamp.
2. 30 feet of 2-wire No. 16 heavy-duty, rubber-covered cord.
3. Cord connector body.
4. Jackknife.
5. Screw driver.

## Procedure

1. Pull wire through plug, remove rubber covering, and separate wires about two inches.
2. Prepare the wire by removing  $\frac{3}{4}$  inch of the rubber insulation and then scraping the wires clean. Twist the strands of fine wire together. Prepare the other wire in the same manner.
3. Tie the underwriter's knot.
4. Attach the wire to the plug. Loop each wire clockwise around one plug prong and clockwise around the connector screw. Tighten the screws securely.
5. Disassemble the cord connector body. Prepare the wire as you did in Step 2. Wire connector and reassemble.





## SECOND WORK MEETING

---

DATE \_\_\_\_\_

### Preparation

1. To help promote organization and cooperation, provide shelves for members' material and projects.
2. Provide each member with paper and string to make six (6) tags each. Tag each project or article.
3. Provide broom, dust pan, etc. so each member can help clean up after working time is up.
4. Have supply of ¼-inch plywood for cord or wire boards (each member needs piece 12 x 12 inches)
5. 4 Cords – 8 inches  
4 Wires – 8 inches
6. Take time to make plans and assignments for the next meeting.

### Procedure

1. President starts meeting with the 4-H Club pledge.
2. Secretary takes roll. Either go on to business meeting or group work.
3. Work on required articles

#### First year: – Cord board

1. Use 12 x 12 x ¼ inch plywood board.
2. Use 4 different types of cord, 8 inches long.
3. Clean insulation back 1½" and solder ends.
4. Name the cords and what they can be used for.

#### Second year: – Wire board

1. Use 12 x 12 x ¼ inch plywood board.
2. Use 4 different types of wire, 8 inches long.
3. Clean insulation back 1½".
4. Name the wires and where they should be used.

OR

#### Care of Small Appliances

Make a scrap book on the care of the appliances you checked (give all steps taken)

### Next Meeting

- Business Meeting  
 Work

Date \_\_\_\_\_ Time \_\_\_\_\_

Place \_\_\_\_\_

Demonstrations \_\_\_\_\_  
\_\_\_\_\_

Roll Call Topic \_\_\_\_\_

Recreation Committee \_\_\_\_\_  
\_\_\_\_\_

Other Committees \_\_\_\_\_  
\_\_\_\_\_

### Play

Recreation Committee provides two active games.

**Crazy Cane.** – Provide a cane, wand or broomstick. Each player in turn places one end of the cane on the floor, with both hands over the upper end. The forehead is brought to rest on the back of the hands. With eyes closed, walk around the cane in this position twice, then stand up, count to five, and walk a straight line across the room. Anyone failing to walk a straight line is eliminated. This may be used as a relay.

# TEACH and DEMONSTRATE: Principles of Electricity

## What To Do

Compare electrical system to water system or compressed air system.

Show electrical distribution system for farm or home.

Demonstrate circuit by joining hands.

Have power supplier representative or electrician explain electrical system using meters if available.

## Materials Needed

1. Different size pieces of pipe (diameter) or hose, wire.
2. Water container — 1 gallon or larger — watch.
3. Pictures of an electrical switch, an outlet, a light and one or two portable appliances.

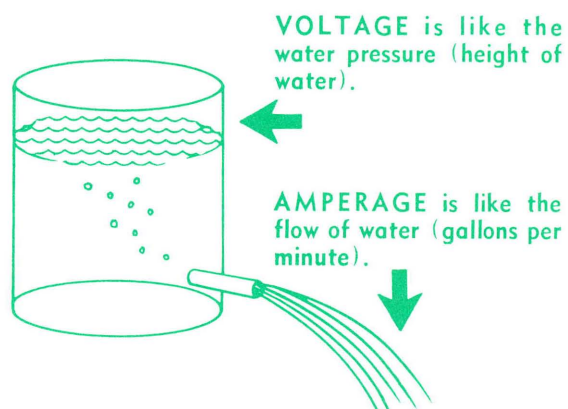
## Procedure

1. Show water system, explain that water pressure acts the same as electrical pressure which we call voltage, point out pressure gauge on water system or air compressure.
2. Open a faucet, a little bit, half-way, all the way. Compare time it takes to fill a container; relate this to current; gallons per minute is a measure of the amount of water and amperes is the measure of the amount of electricity flowing through a circuit.
3. Follow the electrical distribution system starting at pole transformer.
4. Form a circle — show how devices such as switches and outlets make it convenient to connect appliances or control flow of electricity.

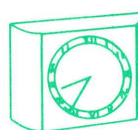
### REFERENCE:

Wiring Simplified

- An electric current in a wire is something like water flowing through a pipe . . .



- Voltage (volts) is the pressure that forces an electric current through a wire. The rate of flow of the electricity is measured in Amperes. These appliances use about



1/40 amp.



60 watt  
1/2 amp.



8 amps.

- A Watt is a measure of electric Power. It is the Rate at which electricity is used. A man can work at a rate of about 75 watts for a short time . . . for long periods at about half this rate.
- You buy Electrical Energy by the Kilowatt-Hour. It tells how much work electricity does. A 100-watt electric lamp used for 10 hours consumes 1 kilowatt-hour of electricity.
- A. C. means Alternating Current. A. C. surges back and forth in the wires which carry it. Usually it does this 60 times a second and is called 60-cycle current.

This is how A. C. is pictured.



- D. C. means Direct Current. It always flows in the same direction. D. C. is used to run many kinds of motors. It is also used in plating metals and making aluminum and other metals.

This is how D. C. is pictured.





## THIRD WORK MEETING

---

DATE \_\_\_\_\_

### Preparation

1. Consider the demonstration method as a good way to teach steps in project work.
2. Time for a business meeting  
Reference:  
4-H Club Leaders Guide, No. 314A  
4-H Secretary's Book
  - A. Start on time
  - B. Use correct and dignified procedure
  - C. Make the business meeting a training session
    - (1) Chairing a meeting
    - (2) Importance of organized procedure
    - (3) Serving on committees
    - (4) Individual responsibility
  - D. Under new business – plan next meeting.
3. Assign Demonstrations for members to prepare for next meeting.
  - A. Replace a plug in a good lamp
  - B. How to solder
  - C. Care of tools
  - D. How toy motor works
  - E. How to tie electrician's knot
  - F. Size of wire to use
  - G. There are many, many other possibilities

### Procedure

1. President starts meeting with the 4-H Club Pledge.
2. Secretary takes roll. Either go on to business meeting or group work.
3. Discuss demonstrations.
4. Pair up members and have them practice the demonstration procedure.
5. Suggest members choose topic for demonstrations from your suggestions and present at next meeting.
6. Work on projects.
7. Remind members to bring plans and materials for next project.

#### REFERENCE:

- 4-H Demonstration Story, Bulletin No. 111A, Michigan State University
- Electrical Demonstrations You Can Perform, Farm Youth Activities, Power Use Dept., Westinghouse Electric Corp., 401 Liberty Avenue, P.O. Box 2278, Pittsburgh 30, Pennsylvania.

### Next Meeting

- Business Meeting  
 Work

Date \_\_\_\_\_ Time \_\_\_\_\_

Place \_\_\_\_\_

Demonstrations \_\_\_\_\_

Roll Call Topic \_\_\_\_\_

Recreation Committee \_\_\_\_\_

Other Committees \_\_\_\_\_

### NOTES

### Play

Recreation Committee provides two active games.

**Hot Potato.**—Players sit or stand in a circle with an "It" in the center. They throw a knotted towel across from one to another, trying to prevent the center player from touching it. He tries to touch it at any time, even when it is in the hands of a player or when it lands outside of the circle. The one who is at fault in letting him touch it becomes "It" and changes places with him.

# TEACH and DEMONSTRATE: Giving Demonstrations

## What To Do

1. Explain to members that demonstrating is showing how.
2. The following points contribute to effective demonstrations.
  - a. Careful planning contributes to the success of a demonstration —
    - (1) It saves time.
    - (2) It contributes to your self confidence.
  - b. Here are the steps for organizing your demonstration:
    - (1) Visualize the audience.
    - (2) Decide on purpose.
    - (3) Decide on length of time it will take.
    - (4) Decide what to do.
    - (5) Gather background information.
    - (6) Organize subject matter — dovetail what you say and do.
    - (7) Plan visual aids
    - (8) Plan staging
    - (9) Plan display } Dramatize.
  - (10) PRACTICE — very important.
  - (11) Make necessary adjustments.
  - (12) Present as planned.

## Procedure

Have members demonstrate. They will have a very good demonstration if they can answer "YES" to the questions in the next column.

"Here! Let me show you."



## 1. THE INTRODUCTION

- A. Is it interesting and brief?
- B. Do you tell how and why you have used the practice you are demonstrating?

## 2. BODY

- A. For each step do you make clear —  
WHAT is being done?  
HOW it is being done?  
WHY it is being done?
- B. Is your demonstration interesting? Will the audience want to do what you are demonstrating?
- C. Is your demonstration clear? Can the audience repeat what you are demonstrating?
- D. Is your demonstration worthwhile? Do you show good results?
- E. Is your demonstration conclusive? Do you prove the value of the idea demonstrated?
- F. Can the audience follow your demonstration? Is it too fast? Is it too slow?
- G. Are your charts and posters large enough to be seen and read easily?

## 3. CONCLUSION

- A. Do you review the main points of your demonstration?
- B. Are you prepared to answer questions?



**FOURTH WORK MEETING**

---

**DATE** \_\_\_\_\_

**Preparation**

1. Consider a parents' night or tour for your club members.
2. Invite parents to assist with the demonstration program.
3. Provide table and chart stand for demonstrators, seating arrangement for others.
4. Check progress
  - (a) Project work done to date
  - (b) Next projects
  - (c) Material needed
  - (d) Special problems
5. Complete plans for next meeting.

**Next Meeting**

- Business Meeting  
 Work

Date \_\_\_\_\_ Time \_\_\_\_\_

Place \_\_\_\_\_

Demonstrations \_\_\_\_\_  
\_\_\_\_\_

Roll Call Topic \_\_\_\_\_

Recreation Committee \_\_\_\_\_  
\_\_\_\_\_

Other Committees \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Procedure**

1. President chooses a member to lead the group in 4-H Club Pledge.
2. Secretary takes roll. Either go on to business meeting or demonstrations and project work.
3. Have members give their demonstrations.
4. Compliment every effort, especially members that need encouragement.
5. Suggest members choose another topic to demonstrate at some future meeting.
6. Work on projects.

**Play**

Recreation Committee provides two active games.

**Ghost.**—Players sit around in a circle. The first player says a letter of the alphabet and the players follow suit — trying to make a word. A player who cannot add a letter is given the letter "G" from ghost, then the "H" and so on down. The first player who is given all the letters from the word "Ghost" drops out. Each player is given a time limit of three minutes in order to say his or her letter.

**NOTES**

# TEACH and DEMONSTRATE: The Importance of Safety

## What To Do

1. Present discussion, inspection, and work examples of proper fusing, wire insulation, and 110 volt-3-wire outlets.
2. Conduct an electrical safety inspection at the meeting place and surrounding buildings.
3. Follow-up with members making a similar inspection of their home buildings.

## Materials Needed

1. Assorted fuses and fusestats.
2. Two-wire outlet with ground cable—#12, 3 feet.
3. Three-wire 110 volt duplex outlet, outlet box, and plug.
4. Assortment of various wires using different insulation.

## When You Change Fuse

The fuse and the circuit breaker are safety valves to protect your electric circuits. When a fuse "blows" or a circuit breaker opens a circuit it means you have too many pieces of electrical equipment on one circuit or you have trouble on a piece of equipment.

### FIRST

Locate and disconnect lamp or appliance responsible for blowing the fuse.

### SECOND

Locate blown fuse while standing on dry board.

### THIRD

Unscrew, being careful not to touch anything but fuse rim. Replace with new fuse of correct ampere rating.



### NOTE:

Use 15 ampere fuse for ordinary household or lighting circuits. (No. 14 wire). A 20 ampere fuse can be used with No. 12 wire.

## To Reset The Automatic Circuit Breaker

1. Remove source of trouble as outlined when replacing a fuse.
2. Restore service by resetting automatic switch, following directions on face of breaker panel.



## FIFTH WORK MEETING

---

DATE \_\_\_\_\_

### Preparation

1. Learn to identify and give the uses of different types of motors (4-H Electrical Bulletin 148, pages 12 and 13).
2. Have ready for the meeting two or more motors commonly used, to discuss with members. (These may be on equipment.)
3. Material cost records kept as you go along help make the final report accurate and meaningful. Insist that the members keep good records.
4. Allow time to make plans and assignments for the next meeting.

### Procedure

1. President opens meeting. May ask other members to lead pledges.
2. Secretary takes roll. Either go on to business meeting **or** make plans for next meeting and do group work.
3. Discuss motors.
4. May assign these activities:
  - Have each member count the number of **electric** motors they use at home.
  - Count the number of **electric** motors found on the family automobile.
5. Work on projects.
6. Check materials needed for next meeting.

### Play

Recreation Committee provides two active games.

**Relay.** — Separate the members into two groups, the same number in each group if possible.

Material needed — large size: men's slacks, shirt, shoes, gloves and hat. The first person in each group (who are standing in line) go across the room to the pile of clothes — first put on the gloves and then proceed to dress in the garments, remove these same clothes, and go back to the end of their line. The group finishing this relay first is the winner. Note:— Shirt must be buttoned and unbuttoned.

### Next Meeting

- Business Meeting  
 Work

Date \_\_\_\_\_ Time \_\_\_\_\_

Place \_\_\_\_\_

Demonstrations \_\_\_\_\_  
\_\_\_\_\_

Roll Call Topic \_\_\_\_\_

Recreation Committee \_\_\_\_\_  
\_\_\_\_\_

Other Committees \_\_\_\_\_  
\_\_\_\_\_

### NOTES

# TEACH and DEMONSTRATE: Electrical Motors

## What To Do

1. Take a motor apart and show parts (have an electrician help or get used parts from a motor repair shop).
2. Have members examine nameplates on several motors.
3. Discuss care of motor.
4. Show different types of motors and tell what they are used for:

## Procedure

1. Show motor parts; point out bearings; discuss care of motor.
2. Compare information on the nameplate of several motors.
3. List number and size of motors in a home or on a farm.
4. Compare types of cords and plugs on motors.

## Materials Needed

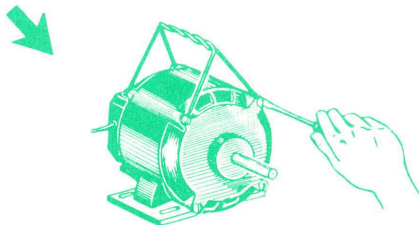
1. Motor parts — or motor that can be taken apart.
2. Several motors or appliances with motors on them.
3. Instructions for oiling a motor.

## REFERENCES:

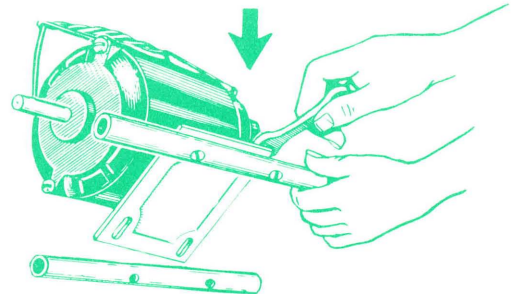
4-H Electric Project Bulletin  
Wiring Simplified

## PORTABLE MOTOR

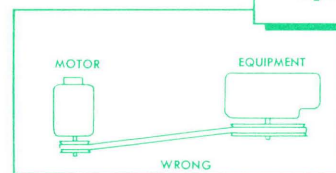
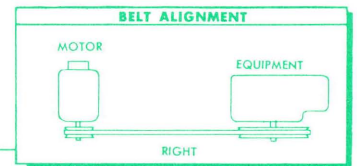
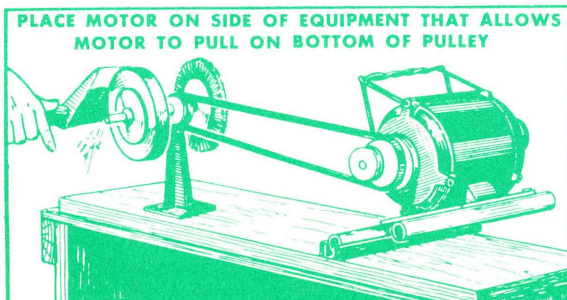
1. Twist the two pieces of No. 10 wire together. Fasten hooked ends under the bolts on the top frame of the motor.



2. Fasten pipe to motor base with stove bolts.



3. Attach pulley to shaft, if necessary. The 4-step pulley makes it possible to use the motor to turn equipment at various speeds without changing pulleys. Place motor on side of equipment that allows motor to pull on bottom of pulley.



## SIXTH WORK MEETING

---

DATE \_\_\_\_\_

### Preparation

1. Good lighting is important to every member of the family.
2. Have several types of lamps of various heights and designs to show different lighting effects. Reference page 27.
3. Some articles constructed partly of wood will need finishing materials. The main points to keep in mind when finishing wood are:
  1. Make a smooth surface.
  2. Remove grease spots or discoloration.
  3. Remove excess glue, if glue was used for jointing.
  4. Remove dents in the wood.
  5. Fill holes and checks.
  6. Sanding.
  7. Apply finishes.
4. Allow time to plan and make assignments for the next meeting.

### Procedure

1. President opens meeting. May ask other members to lead pledges.
2. Secretary takes roll. Either go on to business meeting or make plans for next meeting and do group work.
3. Hear reports of members who counted electric motors at home.
4. Discuss the importance of lighting.
5. Have each member show what he has accomplished to date.
6. Help members make a list of materials they need for finishing wood portions of their projects.

### Next Meeting

- Business Meeting  
 Work

Date \_\_\_\_\_ Time \_\_\_\_\_

Place \_\_\_\_\_

Demonstration \_\_\_\_\_  
\_\_\_\_\_

Roll Call Topic \_\_\_\_\_

Recreation Committee \_\_\_\_\_  
\_\_\_\_\_

Other Committees \_\_\_\_\_  
\_\_\_\_\_

### Play

Recreation Committee provides two active games.

#### Guess:

- The diameter of a half-dollar.
- Number of safety matches in a package.
- How many keys on a piano? White? Black?
- Size of this room? Height of ceiling?
- Width of a newspaper column?
- (Make up others locally.)



# TEACH and DEMONSTRATE: Effective Home Lighting

## What To Do

1. Show the effects of glare, shadows, and amount of light by demonstration.
2. Show types of light bulbs.
3. Show types of portable lamps recommended for reading, studying, and other types of activity.
4. Ask power supplier representative to show lighting equipment.

## Materials Needed

1. An extension cord with a bare light bulb.
2. A sheet of aluminum foil, sheet of tissue paper, newspaper, a 25-watt light bulb and 100-watt light bulb.
3. Different types of lamps — preferably some good lamps made by club members.

## Procedure

1. Hold bare light bulb (100-watt) in front of newspaper — it's hard to read because of the glare. Shield lamp with tissue paper to reduce glare.
2. Make a reflector with aluminum foil — show how amount of light on newspaper can be increased. Explain that light may be compared to a water nozzle — aim it at the object you want to see — a wide spray to cover a large area, a narrow spray to increase amount of light on one item.
3. Have someone stand between light and paper. Move lamp about to reduce shadows.
4. Replace 100-watt lamp with 25-watt lamp. See how much harder it is to see with less light.
5. Show and explain different types of lamps.
6. Have members list the number and size of lamps in their own home or tour leader's house and do this.

## REFERENCE:

See Your Home in a New Light —  
General Electric

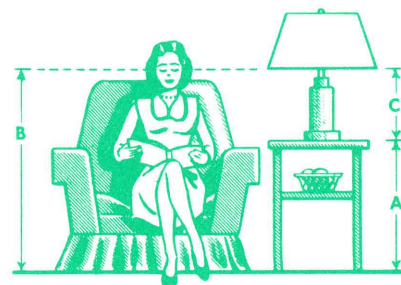
**THIS IS DIFFICULT  
TO READ DUE TO  
CONTRAST**

For good see-ability table lamps and floor lamps must

- produce the amount of light you need
- produce comfortable, glare-free light
- direct the light where you need it

These are the three basic check points to use in determining whether your floor and table lamps are giving you the amount of light and the kind of light you need for reading.

Here is one way to determine approximate height of a lamp for a specific reading task.



Subtract the table height (A), from your seated eye height (B), to obtain approximate lamp height from base to lower edge of lamp shade (C).

The bulb should be located low in the shade. The lamp shade should have a large enough lower diameter.

for table lamps — 14" minimum

for floor lamps — 16" minimum

The lamp is located in the proper position — slightly back and to one side of the chair — never directly behind the chair.

## SEVENTH WORK MEETING

---

DATE \_\_\_\_\_

### Preparation

1. Proper care of equipment is good management.
2. Have some old tool or piece of equipment handy to show that care and repairs can keep an article useful for many years.
3. Check members' projects -- Only one more work meeting.
  1. Is each member completing the required number of articles?
  2. Have you allowed enough time for finishes to dry?
  3. Do you have necessary information on the program at Achievement Day?
  4. You may find it necessary to schedule extra work meetings.
4. Allow time to plan and make assignments for the next meeting.

### Procedure

1. President opens meeting. May ask other members to lead pledges.
2. Secretary takes roll. Either go on to business meeting or make plans for next meeting and do group work.
3. Discuss care and repair of equipment.
4. Finish up major work on projects.
5. Check materials needed for next meeting.

### NOTES

### Next Meeting

- Business Meeting  
 Work

Date \_\_\_\_\_ Time \_\_\_\_\_

Place \_\_\_\_\_

Demonstration \_\_\_\_\_

Roll Call Topic \_\_\_\_\_

Recreation Committee \_\_\_\_\_

Other Committees \_\_\_\_\_

### Play

Recreation Committee provides two active games.

**Gossip.** — The players form in a circle. The first player whispers a sentence to the second, who repeats it to the third, and so on until the sentence goes all around the circle, the last one repeating aloud what he heard.

**Stunt.** — Touch the tips of the fingers together, except the middle ones, which are bent down to middle knuckle.

Separate father and mother (thumbs) and put together again.

Separate uncle and aunt (first fingers) and put together again.

Separate sisters (last fingers) and put together again. Separate sweethearts (next to last).

(It can't be done very often.)



# TEACH and DEMONSTRATE: Care of Electrical Equipment

## What To Do

1. List the electrical appliances which need some care such as toasters, range, refrigerator, or sweeper.
2. Demonstrate care of one appliance, such as toaster or range.
3. Examine cords on different electric appliances.
4. Count the number of appliances in the home and have members decide where the electricity is used as a source of heat, power (electric motor), or light.

## Materials Needed

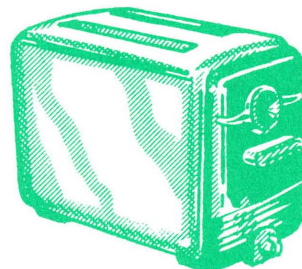
1. Information on care of appliances.
2. Cleaning materials — mild soap, soft cloth, soft brush.
3. A small heating appliance, such as a toaster or range unit that can be cleaned.
4. A small electric motor driven appliance that can be cleaned.
5. Manufacturer's recommendations on care of equipment.

## Procedure

1. Show the care of a small appliance as recommended by a manufacturer.
2. Discuss the features that are desirable in appliances.
3. Have members read the nameplate on several appliances. Decide how many appliances can be plugged into a branch circuit.
4. Name the appliances in a home or on a farm and suggest what care should be given each piece of equipment.

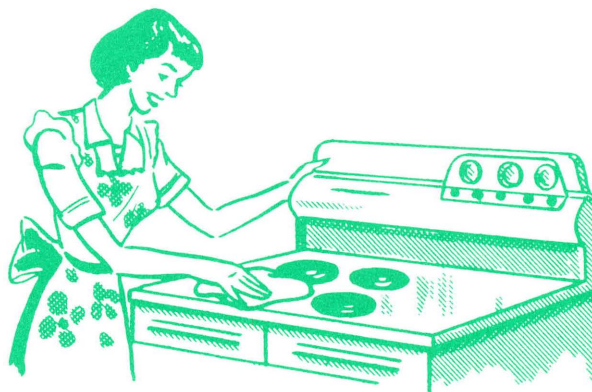
## REFERENCE:

Especially for Girls  
Westinghouse



TOASTER

Never immerse toaster in water. Wipe off outside with damp cloth. If toaster has no crumb tray use small brush to remove crumbs. Never wrap cord around base or store toaster until it is completely cool and disconnected. Interior heating element is self cleaning.



RANGE

1. Wipe off outside of range with warm, soapy water. Avoid letting spilled foods dry or harden on range.
2. Food spilled on surface unit will burn itself off. Never use a stiff brush or sharp instrument.
3. Some surface units can be raised and drip pan beneath removed for cleaning. Never twist unit when removing for cleaning — it may break off the wires. Other range models have surface units that plug out or lift out completely making it easy to remove drip pan and chrome ring.
4. Wipe oven with damp cloth when it has cooled after use. Remove spilled food as soon as possible.
5. Leave oven door ajar after use to cool and dry thoroughly.



**LAST WORK MEETING BEFORE  
ACHIEVEMENT DAY**

**DATE** \_\_\_\_\_

**Preparation**

1. Everyone makes out written reports of some kind -- let's do a good job!
2. Be ready to hand out final report blanks to each member (County Extension Office has supply).
3. Reports are due at least by Achievement Day.
4. A tag or label is needed for each **article** (County may furnish).

WOODLAND COUNTY 4-H EXHIBIT	
Name _____	Age _____
Address _____	
Article _____	Year's Work _____
Leader _____	

**Procedure**

1. President opens meeting. May ask other members to lead pledges.
2. Secretary takes roll. Either go on to business meeting or make plans for next meeting and conduct group work.
3. Business meeting may include:
  - Plans for trip to Achievement Day.
  - Plans for other trips and tours.
  - Plans for meeting after Achievement Day (Local recognition and achievement program).
  - Explain how to make out final reports. Suggest parents assist, but not "take over".
  - Invite parents and friends of 4-H to participate in Achievement Day.
4. Put final touches on all projects.
5. Label all articles.
6. Repeat final plans for Achievement Day.

**Next Meeting**

- Business Meeting
- Work

Date \_\_\_\_\_ Time \_\_\_\_\_

Place \_\_\_\_\_

Demonstration \_\_\_\_\_

Roll Call Topic \_\_\_\_\_

Recreation Committee \_\_\_\_\_

Other Committees \_\_\_\_\_

**Play**

Recreation Committee provides two active games.

**Knocking a coin** -- One player balances a small coin on his index finger. Another player stands back 8 or 10 feet, closes one eye, walks directly toward the coin and with a pencil tries to dislodge the coin from the finger. Generally the blow falls short of the mark.

A ring may be held between the thumb and forefinger. Close one eye, approach the ring, and try to run a pencil through it sideways.

# TEACH and DEMONSTRATE: Good Reports

## Purpose

Written Reports help to summarize and evaluate the project work.

They help –

- To show others what the member has accomplished.
- To encourage self improvement.
- To make members eligible for the 4-H Achievement certificate, 4-H Club pin, and other awards.
- To give training in record keeping for adult responsibilities.
- To qualify for contests.

## Materials Needed

1. A project report for each member.
2. Price list (or purchase price).
3. Allow time for members to do a good job.

## Procedure

1. Younger members may use pencil; older members should use ink. Neatness is important.
2. Help members with costs and values.
3. Encourage members to do and record more than the minimum required.
4. The story is usually the most difficult.

## STORY SUGGESTIONS –

Why you joined the club.

Interesting things you did.

What I like about this project.

How has your project experience helped you and your family?

My plans for other 4-H Club activities.

## REFERENCES:

Michigan 4-H Club Leaders. Guide.

4-H Club Bulletin 314A, page 19.

## Keep regular accounts



## Show your skill



## Write a project report



## I'm an author!



# ACHIEVEMENT AND RECOGNITION PROGRAM

## Plan

Date:

Time:

Place:

Whom to invite: (Members, leaders, friends of 4-H.)

Exhibit Display: One favorite or best article as selected by each member.

Publicity:

Program:

Refreshments: Serve light refreshments at end of meeting.

**OR**, a pot-luck dinner may be planned to serve at the beginning of this program.

**OR**, if money is available, group may plan to have experience of eating a meal together at a public eating place with recognition program held there.

## Program

Get acquainted activities:

Singing:

U.S.A., 4-H Flag Pledges:

Demonstration: Two or three representing different project years.

Recognition:

- Members: Complimented by leaders, given pins and certificates.
- Leaders, parents, friends of 4-H: Appreciation shown by members for interest, effort, and understanding shown by all.

4-H Talent:

Where do we go from here: Leaders and junior leaders explain and briefly describe to parents and members the projects available in the next project season.

Recreation:

## Procedure

Arrange for meeting place well in advance.

Appoint and work with committees

Publicity \_\_\_\_\_

Hospitality \_\_\_\_\_

Exhibit display \_\_\_\_\_

Program \_\_\_\_\_

Demonstration coordinator \_\_\_\_\_

Recreation

Refreshments or dinner

## Publicity

Send publicity of coming events to newspaper and radio.

Send cards or invitations written by members to all members, parents, and friends of 4-H who are invited. Send at least one month in advance, so this event can then be placed on their calendars.

Send a reminder card so it arrives 2 or 3 days before the meeting.

Entire community may be invited to better inform them of what is being done in 4-H.



# Characteristics of Approved Lamps

## Table Lamps

1. The height to top of shade should be 25 inches.
2. **Diffusing**
  - a. Diffusing bowl 8 to 9 inches in diameter using 50/150 watt lamp bulb or 150 watt standard lamp bulb.
  - b. Wide mouth harp using R-40 and 150 watt lamp bulb or 50/150 watt white indirect bulb.
  - c. Fiber glass diffusing disc 11 inches in diameter using 50/150 watt lamp bulb or 150 watt standard lamp bulb.
3. The minimum diameter of shade bottom should be 16 inches and lower edge of shade should be 15 to 17 inches above table.
4. Shade should be white or light lined.
5. Cord extending from base must be 6 feet or more.
6. Ends of wire should be properly tinned before wiring.

## Personal Grooming, Dressing Table, or Vanity Lamps

1. The height to top of shade should be 19 to 20 inches.

2. Shade should be white and should allow some light to come through the shade to light the face. The shade should be dense enough to conceal the lamp bulb.
3. Shade bottom diameter should be 9 inches minimum and at least 7 inches deep.
4. Use a 30-70-100 three-light frosted bulb or standard 100-watt bulb.
5. Cord extending from base must be 6 feet or more.
6. Ends of wire should be properly tinned before wiring.

## Personal Grooming Dresser Lamps

1. Height to top of shade should be 24 to 25 inches.
2. Bottom of shade diameter should be at least 9 inches and at least 7 inches deep.
3. Shades should be white and should allow some light to come through the shade to light the face. The shade should be dense enough to conceal the lamp bulb.
4. Use a 30-70-100 three-light frosted bulb or 100-watt standard bulb.
5. Cord extending from base must be 6 feet or more.
6. Ends of wire should be properly tinned before wiring.

# Lighting Activities Suggestions

These are activities of the type which a member could do in improving lighting around the home and farmstead. A look at the lighting facilities at home will suggest other possibilities. A lighting activity should be reported as outlined under "Required Articles List."

1. Clean bulbs, reflectors, and shades.
2. Check bulb size — replace with proper size.
3. Paint ceilings and walls white or a light color (in milk house, basement, laundry, shop), because

light colors reflect light while dark colors absorb light.

4. Eliminate glare from bare lamp bulb whenever possible by using shade, diffusing bowl or disc, metal reflector, silver bowled lamp bulb, or valance.
5. Make a lamp or pair of lamps for a specific seeing task — i.e. study desk, dresser, or dressing table.
6. Show correct placement of lamps.

# Electrical Safety Check List

This activity can be used to point out where the materials displayed on the cord and wire boards are used or should be used around homes and outbuildings, such as barns, garages, etc. Also this activity can be used by club members or as a club project to encourage parent interest and participation, since safety checks around the home should be a family project.

1. Replace broken plates.
2. Replace cords that:
  - are frayed.
  - have worn insulation.
  - have cracked insulation.
3. Replace broken or cracked plugs.
4. Clean dirty, greasy, or soapy cords.

5. Use base board clips to keep cords off the floor to prevent them being walked on.
6. Remove cords that hang over nails, hooks, pipes, etc.
7. Where necessary, use twine or friction tape to hang cords over nails, etc.
8. Check electrical boxes for damage.
9. Examine exposed wiring for deterioration due to dampness, rodent damage, or mechanical injury.

(Note: The above list can be greatly expanded by the Club members. The Club might make an inspection of a house, barn, or entire farmstead, listing all of the potential trouble spots.)

## Care of Small Appliances

### AND SCRAPBOOK REFERENCES

#### Small Appliances

##### Vacuum Cleaners, Mixers, and Toasters

Suggested questions to be covered in scrapbook.

1. How many small electrical appliances do you have in your home?
2. How many attachments does your vacuum cleaner have?
3. How many jobs can you do with each of the following appliances:

- Vacuum Cleaner.
- Electric Mixer.
- Toaster.

#### Things To Be Done

1. List some of the attachments for a vacuum cleaner.
2. Clean a vacuum cleaner.
3. Clean a toaster.
4. Use the attachments for a vacuum cleaner or an electric mixer.

#### Exhibits — Scrapbook

1. Pictures of things that can be done with two small appliances.
2. List all steps taken in care for appliances.

#### Demonstrations

1. The cleaning of a vacuum cleaner or a toaster.
2. The use of a vacuum cleaner and its attachments.
3. The use of an electric mixer or mixer attachments.

#### REFERENCE:

Electrical Demonstrations You Can Perform

#### Vacuum Cleaners

- A. Read and follow manufacturer's instructions.
- B. All types of vacuum cleaners require general care as follows:
  1. Pick up sharp pieces of glass, hair pins, pins, and tacks before running the cleaner over the rug or floor. They may damage your cleaner or clog the hose.



2. Remove hairs and threads that collect on the brushes.
3. Oil as directed. If the motor requires oiling, use the right amount and kind of oil. Too much oil or the wrong kind of oil can be as bad as none at all.
4. Always put the vacuum and attachments away clean—free from dirt and oil. Keep attachments in a dry clean place; dampness rusts metal and mildews cloth.
5. Do not bend, twist, or step on the cord.
  - a. Never run the cleaner over the cord. Do not pull the cord to remove the plug from a convenience outlet.
  - b. Wrap the cord loosely around the hooks provided for it during storage.
6. Check the cleaner thoroughly once a year or more often, depending on use of cleaner. If any unusual noises or trouble develop within the machine, take it to a competent serviceman.

**C. An upright vacuum cleaner requires extra care.**

1. Adjust the nozzle properly. If the adjustment is not taken care of automatically, a small pedal or lever is generally located at the back of the nozzle assembly to make this adjustment. See instructions with cleaner for making adjustment.
2. Replace the belt if it is worn, frayed, or stretched, and will not properly drive the rotating brush.
3. Empty the dust bag after every general cleaning. Turn the bag inside out every few weeks and brush thoroughly with a stiff brush. Do not puncture bag.

**D. Tank or cylinder vacuum cleaners require little additional care.**

1. Empty bags often.
2. Check for clogged hose if cleaner is not cleaning properly.
3. If your cleaner uses throw-away filter bags, dispose of bag before it is completely full. Replace with a new bag.

**E. Pot-type vacuum cleaners require some additional care.**

1. Throw away filter bags before they are completely filled. Replace with a new bag.

2. If cleaner has filter cloth and allows the dirt to accumulate at the base, make sure this dirt is dumped out often.
3. If dirt is filtered by water, pour out dirtied water. Rinse and dry pan after each use.

## **Toaster**

**A. Read and follow manufacturer's instructions.**

**B. All types of toasters require cleaning.**

1. Disconnect the toaster before cleaning it.
2. Remove the crumbs that gather in the toaster.
3. Use a damp, **not** wet, cloth to wipe off the outside.

**C. The manual toaster can be easily cleaned and repaired, since the doors open out and leave the heating element easy to get to. Remove the crumbs that gather in the toaster. You can shake them out or use a soft, long-handled brush to remove them. A clean, dry pastry brush is a good choice.**

**D. Automatic toasters generally have a removable bottom panel for easy cleaning. When removing small slices from the automatic toaster with a fork, disconnect toaster and take care not to damage heating element with the fork.**

**E. Keep toaster in repair and handle it properly.**

1. Never clean or store a hot toaster.
2. Do not try to clean the heating element. It cleans itself when the current is on.
3. Do not let fats get on the heating element. Don't butter bread before toasting it.

**F. How to care for toaster cords.**

1. Never wrap cord around base unless toaster has completely cooled.
2. Keep cord free from knots and kinks. If the cord is detachable, hang it loosely over a cord holder.

## **Electric Food Mixers**

**A. Read and follow manufacturer's instructions.**

**B. Clean and handle the mixer with care.**

1. Disconnect the cord before cleaning mixer parts. Never submerge mixer in water.
2. Handle mixer bowls with care. To prevent cracking, avoid sudden temperature changes.
  - a. For mixing, use the bowl which comes with the mixer. The shape of the bowl is important and helps determine the efficiency of mixing.



- b. When you use the mixer, see that the blades just clear the bottom of the bowl on the turntable.
  - c. When you finish, remove the bowl and wash it like other kitchen utensils.
3. Remove the beater blades for washing, or rotate them in a bowl of warm soapy water and then rinse them in clear water. Wipe mixer with a damp cloth after each use.

**C. Your mixer needs oil to operate properly. Lack of oil may make the mixer noisy, or slow, and not have enough power. Too much oil may be just as bad as too little.**

1. Follow manufacturer's directions for oiling the motor. The right kind of oil, the right amount, and the frequency of oiling are important.
2. There is no risk of overoiling a motor if a wick is installed in the oil tube. The wick feeds the oil to the parts as needed.

## Care of Major Appliances

### Electric Refrigerators

**Suggested questions to be covered in scrapbook.**

1. What type of an electric refrigerator do you have in your home?
2. Does it have automatic defrosting?
3. What type of freezing compartment does it have?
4. Does your refrigerator have a special compartment for meats, poultry, fish, etc.?
5. Does your refrigerator have a special butter compartment?
6. Does your refrigerator have shelves in the door?

**Things to be done.**

1. List the features you would consider if you were buying an electric refrigerator for your family. The size. The type. Special features.
2. Defrost and clean a refrigerator.
3. Replace foods correctly in refrigerator.

**Exhibit — — Scrap Book.**

1. Pictures of both types of electric refrigerators.
2. Picture of an electric refrigerator showing food properly stored in correct positions.

**Demonstrations.**

1. Clean a refrigerator inside and out.
2. Show proper placement of food for storing in an electric refrigerator.

### Refrigerator

**A. Read and follow manufacturer's instructions.**

**B. Defrost refrigerators often with an automatic thermostat or by manually controlled dial.**

1. When defrosting by automatic thermostat, leave the bottom tray of ice in the evaporator.

2. If you use manual defrosting, never let frost get over ¼ inch thick.
3. Never use sharp instruments to dislodge frost. Let it melt when defrosting.
4. Promptly empty drip water from defrosting. Clean the inside of refrigerator.

**C. Refrigerators need frequent cleaning both inside and out:**

1. Keep outside coils and exposed parts of the mechanism dust free.
  - a. Always disconnect the refrigerator from the outlet before cleaning the mechanism.
  - b. Use a long-handled brush, whisk broom, or the vacuum cleaner attachment which is used for cleaning pictures and walls.
2. Keep the inside clean and dry.
  - a. Wipe the unit and inside walls with soda or borax water. A solution of 1 tablespoon of baking soda in 3 quarts of warm water is recommended.
  - b. Never use soap on the inside.
3. Wipe up spilled foods immediately. Those containing acid may injure the glaze, making the surface hard to clean.
4. Wash the outside with mild soap and water. Rinse, using a cloth wrung out of clean warm water. Dry well with a clean cloth.
5. With soap and water promptly clean off grease or oil from the gasket around the door.

**D. Use the refrigerator with care.**

1. Do not overload the refrigerator with food which does not require refrigeration.
2. Use refrigerator dishes for storing foods which must be covered. Do not store in original paper wrapping unless the package is so labeled.

3. Do not place food in the refrigerator up against the walls. Place so that air can circulate in the refrigerator.
4. Fill ice trays to within  $\frac{1}{4}$  inch of the top.
5. If yours is an older-type refrigerator, do not place it in close recessed wall space. Place it so air is free to circulate behind and over the refrigerator.
6. Open-type refrigerator mechanism requires periodic oiling and adjusting. Follow manufacturer's instructions.
7. Airtight-sealed units do not require oiling or adjusting. Most mechanisms should be cleaned occasionally.
8. Refrigerator motors generally operate from 15 to 30 percent of the time when the thermostat is set for the evaporator to maintain a maximum temperature of  $28^{\circ}$  F. and a minimum of  $5^{\circ}$  to  $10^{\circ}$  F. If the motor runs much more than a third of the time, check for air leaks or have a serviceman check the refrigerator.
9. Make sure that the gasket around the door fits snugly. Check as follows: Close the door on a new dollar bill. If the bill pulls out easily, there is too much air leakage. Have the door adjusted or the gasket replaced.

### Home Freezers

#### Suggested questions to be covered in scrap book.

1. Do you have a Home Freezer?
2. If so, is it the chest, upright, or walk-in type?
3. How often do you need to defrost a freezer?
4. Do you need to remove frozen food while defrosting?
5. What is meant by "sharp-freeze"?
6. How much food can you safely "sharp-freeze" at one time?
7. How large a freezer should you have for your size family?

#### Things to be done.

1. List the things you would consider important if you were buying a Home Freezer.

2. (a) Completely defrost a freezer, or  
(b) Scrape the accumulated frost from the walls of a freezer.
3. Check the temperature in your freezer. What degree does it maintain?

#### Exhibits.

1. Pictures of two types of Home Freezers.
2. Picture of a Home Freezer well stocked with a variety of frozen foods.

#### Demonstrations.

1. Show how you protect frozen foods from thawing during the time freezer is being defrosted.
2. Show tools that can be used in scraping frost from walls of freezer and explain how to use them.

### Home Food Freezer

#### A. Read and follow manufacturer's instructions.

#### B. Completely defrost the freezer once each year or according to the manufacturer's instructions.

1. Remove the frost when it is over  $\frac{1}{4}$  inch thick. Use a dull-edged scraper to remove the frost from the plates and inside surfaces. This can usually be done without removing food from the freezer.
2. Clean the inside of the cabinet thoroughly. When there is the least amount of food storage, remove the packages of frozen food and cover them with a blanket or similar material to keep them cold.

Some people prefer to defrost a freezer in winter when they are sure the food will stay frozen. Cut off the power to the freezer. Leave the doors open and allow the ice and frost to melt. After defrosting, wash the interior surfaces with a solution of 1 teaspoon of baking soda in 1 quart of warm water. Dry all surfaces with a clean, dry cloth. Put the unit into operation and return the packages of frozen food to the cabinet.

#### C. With the exception of defrosting, follow the same general care suggestions as for the refrigerator.

Cooperative extension work in agriculture and home economics. Michigan State University and the U. S. Department of Agriculture cooperating. Paul A. Miller, Director, Cooperative Extension Service, Michigan State University, East Lansing. Printed and distributed under Acts of Congress, May 8 and June 30, 1914.

2P-7:63-5M-ET

