

# 4-H

## Ham Radio Communication Proficiency Program

### A Member's Guide

#### OVERVIEW

The **4-H Ham Radio Communication Proficiency program** helps you learn what you need to know about your 4-H project. Your project leader will assist you in setting and achieving your goals. Through the project you will learn Ham Radio operations, laws and regulations of radio communications, and techniques such as morse code. You will also obtain a Technician Class License, and a General Class License.

There are many resources to help you learn more about your project:

- ◆ The *4-H Publications Catalog* lists a variety of project materials and resources recommended for use in your project.
- ◆ The *Region 4-H Educational Resources Lending Library* at your county 4-H office includes other books, videos and reference materials that can be checked out by members and leaders.
- ◆ Check to see if there are any local amateur radio groups in your community that conduct educational activities, and field days.

There are five levels in the Project Proficiency Program. You may choose how many levels you wish to complete:

- **Level I – “Explorer”**, you begin to learn about many different aspects of Ham Radio communications.
- **Level II – “Producer”**, you practice and refine the many skills involved in learning about Ham Radio Communications.
- **Level III – “Consumer”**, you become an experienced radio operator.
- **Level IV – “Leader”**, allows you to show your own leadership potential.
- **Level V – “Researcher”**, you carry out a demonstration on some aspect of Ham Radio Communications, and prepare a paper or portfolio.

As you work through the proficiency program, your leader will date each skill item as you complete it. When all items in a proficiency level are completed, your leader will sign the Certificate of Achievement and notify your 4-H office.

# HAM RADIO COMMUNICATION

## Level I – Explorer

Date

Completed

- \_\_\_\_\_ 1. Tell who regulates radio communications.
- \_\_\_\_\_ 2. Name 6 types of radio emissions.
- \_\_\_\_\_ 3. Name 7 types of radio wave propagation.
- \_\_\_\_\_ 4. What is needed for 2 way radio communication?
- \_\_\_\_\_ 5. What safety hazards are associated with radio transmissions?
- \_\_\_\_\_ 6. State Ohm's law.
- \_\_\_\_\_ 7. Name 6 types of antennae.
- \_\_\_\_\_ 8. What do AM and FM stand for?
- \_\_\_\_\_ 9. What is broadcasting?
- \_\_\_\_\_ 10. What is the function of a repeater?
- \_\_\_\_\_ 11. What is a ground connection?
- \_\_\_\_\_ 12. What are harmonics?
- \_\_\_\_\_ 13. What does NEC stand for and what is its purpose?
- \_\_\_\_\_ 14. What function does an antenna serve?
- \_\_\_\_\_ 15. Explain what bandwidth is?

Identify the following schematic symbols.

- \_\_\_\_\_ 16.



**KEEP IN YOUR RECORD BOOK WITH YOUR PROJECT RECORDS.**

*Approved by Lake County 4-H Council, December 2002  
Developed By: Roger Rosenthal, 4-H Volunteer*

\_\_\_\_\_17.



\_\_\_\_\_18.



\_\_\_\_\_19.



\_\_\_\_\_20.



Member's Name: \_\_\_\_\_

Date: \_\_\_\_\_

Project Leader's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

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# HAM RADIO COMMUNICATION

## Level II – Producer

Date \_\_\_\_\_  
Completed \_\_\_\_\_

- \_\_\_\_\_ 1. Be able to pass the Technician Class License exam.
- \_\_\_\_\_ 2. Participate as a volunteer helping local Ham radio operators.
- \_\_\_\_\_ 3. Give demonstration on radio communications at club or county level, OR, do a presentation or display at a school, service club or fair.
- \_\_\_\_\_ 4. Visit a local Ham radio operator and observe him making two-way communications.

Member's Name: \_\_\_\_\_ Date: \_\_\_\_\_

Project Leader's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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# HAM RADIO COMMUNICATIONS

## Level III – Producer

Date \_\_\_\_\_  
Completed \_\_\_\_\_

- \_\_\_\_\_ 1. Be able to pass the General Class License exam and Morse Code test.
- \_\_\_\_\_ 2. Explore some historical aspect of the project and report to your project group.
- \_\_\_\_\_ 3. Explore career and industry related options and report to your project group.
- \_\_\_\_\_ 4. Participate in, or organize a community service or citizenship activity related to radio communications.
- \_\_\_\_\_ 5. Gather resources by starting a reference library related to radio communications.

Member's name: \_\_\_\_\_ Date: \_\_\_\_\_

Project Leader's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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# HAM RADIO COMMUNICATION

## Level IV – Leader

Date

Completed

- \_\_\_\_\_ 1. Complete 1 year of Junior or Teen Leadership in this project.
- \_\_\_\_\_ 2. Assist younger members in obtaining and installing needed equipment.
- \_\_\_\_\_ 3. Prepare teaching materials for use at project meetings.
- \_\_\_\_\_ 4. Develop and put on a demonstration or judging event or train a junior team for a judging activity.
- \_\_\_\_\_ 5. Speak on a Ham Radio based subject to an organization other than your 4-H group.
- \_\_\_\_\_ 6. Assist at community event regarding Ham Radio Communication.
- \_\_\_\_\_ 7. Teach younger members about learning a specific topic regarding Ham Radio Communication.
- \_\_\_\_\_ 8. Develop own special project related activity. Chart your progress, plan the activities, analyze successes and problems, and report on your accomplishments to your club.

Member's name: \_\_\_\_\_

Date: \_\_\_\_\_

Project Leader's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

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# HAM RADIO COMMUNICATION

## Level V – Researcher

Date \_\_\_\_\_  
Completed \_\_\_\_\_

- \_\_\_\_\_ 1. Report on the results of a demonstration comparing measurable differences in some aspect of your project.
- \_\_\_\_\_ 2. Prepare a paper of 300 words or more on a subject related to Ham Radio Communication.
- \_\_\_\_\_ 3. Prepare a speech or illustrated talk to orally summarize your findings and present at a club, project meeting or other educational event.

Member's name: \_\_\_\_\_ Date: \_\_\_\_\_

Project Leader's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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# Certificate of Achievement

*This certifies that*

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*has completed the* \_\_\_\_\_  
*Proficiency*

*in* \_\_\_\_\_ *County.*

*Explorer*

*Producer*

*Consumer*

*Leader*

*Researcher*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Date*

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*Date*

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*Leader's Signature*

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*Leader's Signature*

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*Leader's Signature*

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*Leader's Signature*

\_\_\_\_\_  
*Leader's Signature*



# *NOTES*

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**Developed By: Roger Rosenthal, 4-H Volunteer**

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