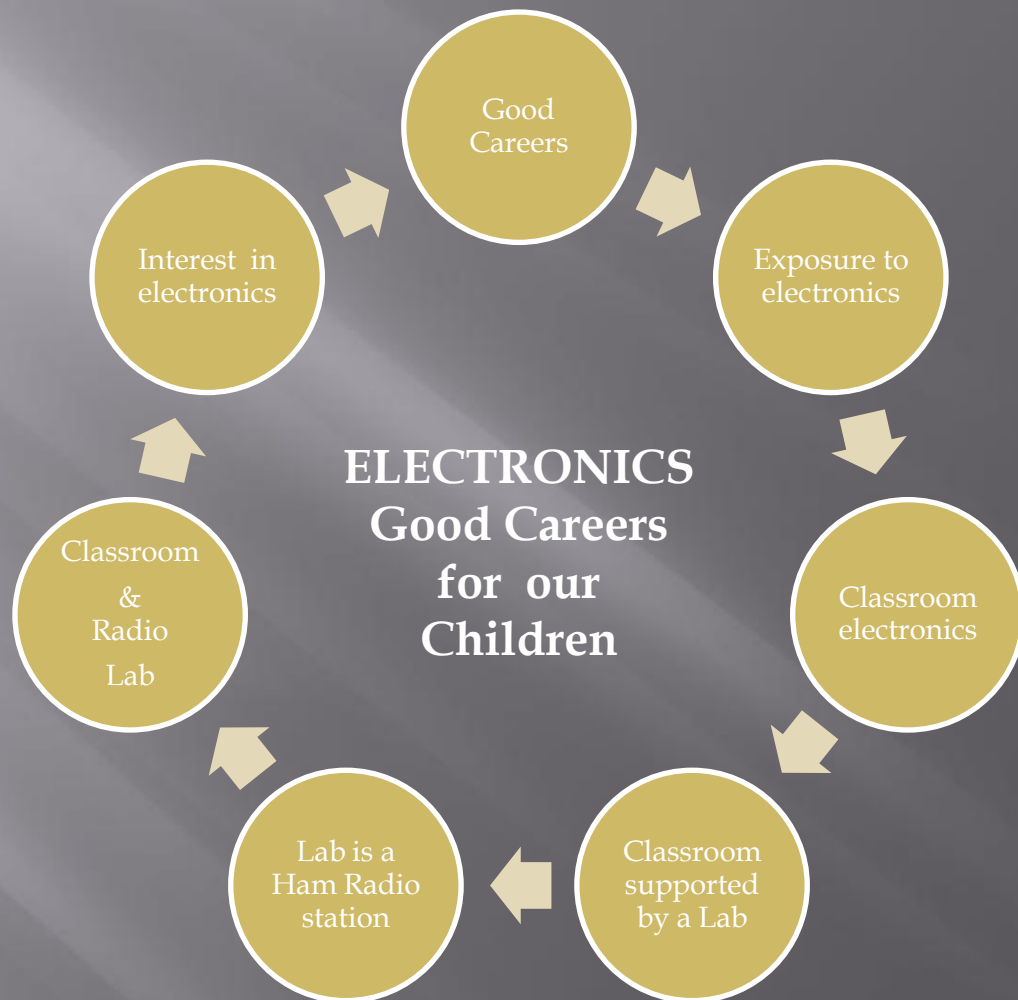


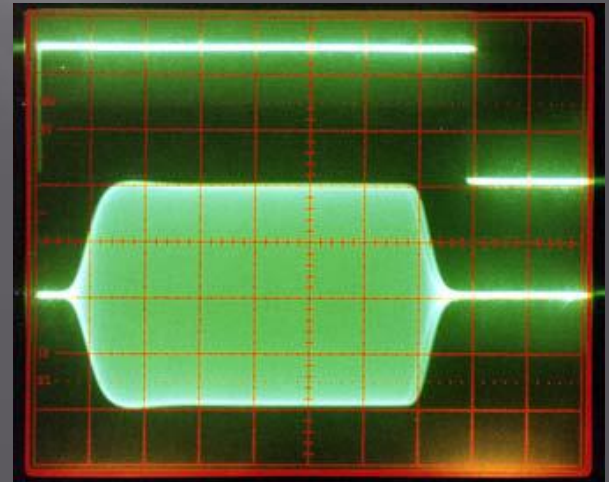
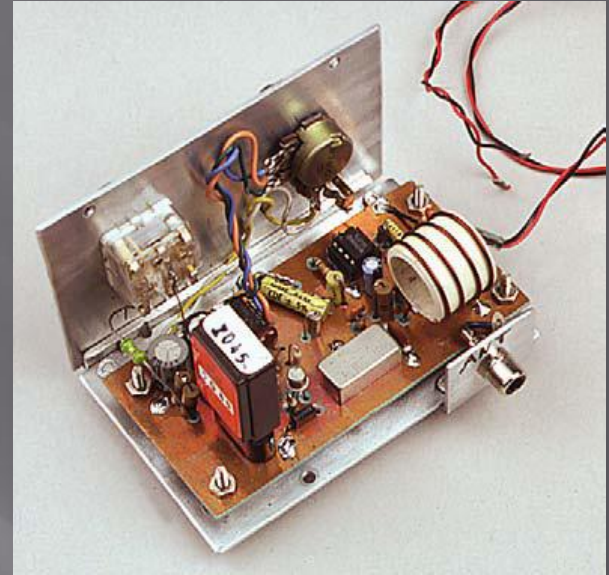
# Jobs For The 21st Century

By Ken Muggli KØHL



# Options for our Children

- ❖ Many jobs of the future are likely to be in electronics, communications, and computing.
- ❖ Electronics, communications, and computing are growth industries.
- ❖ Exposure to electronics, communications, and computing will be good for our children.



# CAREER PATHS FOR OUR CHILDREN

Amateur Radio (Ham Radio) and its role in introducing children to electronics, leading to careers in engineering and technical support in the telecommunications industry.



**-- Danny, KD4HQV,  
appreciates the  
simplicity that his  
operating position  
affords.**

# WHAT IS HAM RADIO?

Ham radio provides the broadest and most powerful wireless communications capability available to any private citizen anywhere in the world.



— Hams are always willing to help others who are excited about becoming ham radio operators.



# What is Ham Radio?

Ham radio is the personal use of radio for self-training and technical investigation in worldwide radio communications.



– Bill Carter, KG4FXG, helps young Andrea Hartlage, KG4IUM, work her way through her first CW contact.

# The Essence of Ham Radio

There is a definite romance to communication with someone on the other side of the country – even the world – with nothing between you and that person but thin air.



— Computers are an integral part of ham radio, and the Internet plays a large role.

# Ham Radio

## What Does It Have To Offer?

- ❖ Fun and learning about electronics
- ❖ The start of lifelong learning
- ❖ Camaraderie, events, and activities
- ❖ A path to a career in electronics
- ❖ Personal enrichment by doing
- ❖ Ham radio has something for everyone



— Many hams enjoy talking to far away stations, and learn geography in the process. Here Bill, KB7JAH, and William, KB7JAG, chat with a ham in Kiribati. Do you know where Kiribati is?



# Why Ham Radio Exists

## FCC Rules - Part 97.1 Subpart A



### 97.1 Basis and Purpose.

- ❖ The rules and regulations in this part are designed to provide an amateur radio service having a fundamental purpose as expressed in the following principals:
- ❖ (a) Recognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial communications service, particularly with respect to providing emergency communications.

# Why Ham Radio Exists

## FCC Rules - Part 97.1 Subpart A



(b) Continuation and extension of **the amateur's proven ability to contribute to the advancement of the radio art.**

(c) Encouragement and improvement of the amateur service through rules which provide for advancing skills in both the communications and technical phases of the art.

# Why Ham Radio Exists

## FCC Rules - Part 97.1 Subpart A



(d) Expansions of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts.

(e) Continuation and extension of the amateur's unique ability to enhance international goodwill.

# Why Ham Radio?

In our school

1 of 2

- ❖ The FCC gives frequencies worth Billions of dollars to ham radio because **they recognize that children who become involved in ham radio very likely will end up as engineers or technicians in the telecommunications industry.**
- ❖ **Ham radio is a stepping stone** - to good jobs in industries with strong growth potentials.



# Why Ham Radio?

In our school

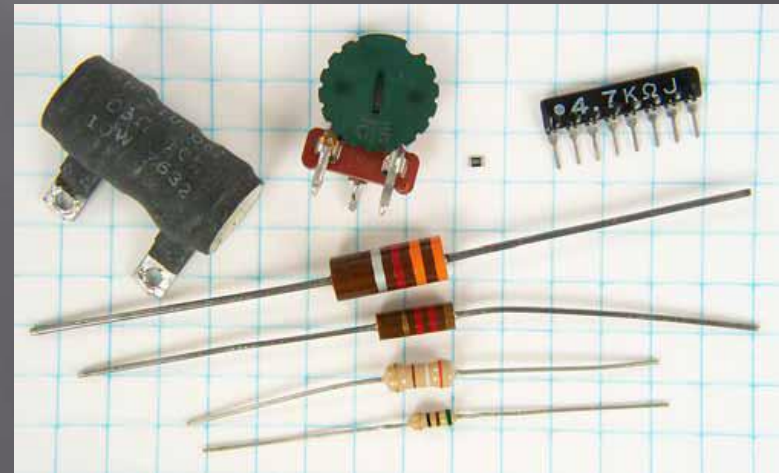
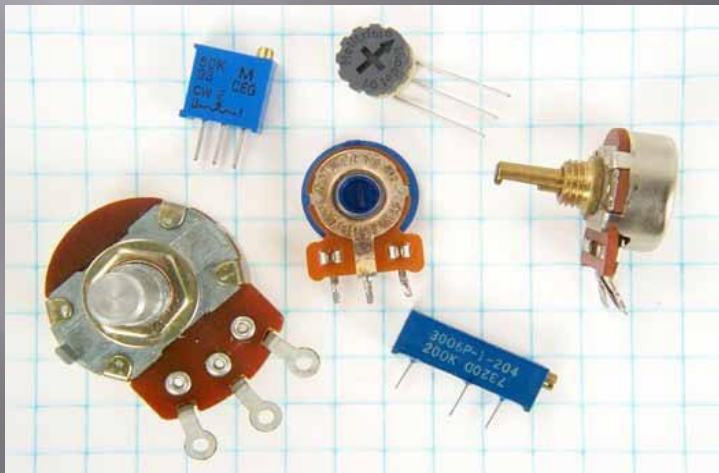
2 of 2

- ❖ Engineers create wealth for the nation. The FCC recognizes that ham radio helps America lead in science and technology.
- ❖ Good jobs for our children.
- ❖ Ham radio is good for our children, good for our school, good for our community, and good for our nation.

# What is in it for the children

1 of 9

- ❖ Ham Radio provides integration of technology, math, science, geography, writing, reading, and speaking through hands-on application of these concepts either individually or in a group. Teachers will have many opportunities to use ham radio to increase student interest in subject matter.



# What is in it for the children

2 of 9

❖ Ham radio encourages investigation and experimentation as a basis for understanding technical subjects.



— There were no computers, satellites or TV when Clarice, W7FTX, was first licensed in 1935. One thing has not changed — the friendship of her fellow hams.

# What is in it for the children

3 of 9

- ❖ Ham radio encourages public service through the links with state and federal preparedness agencies.
- ❖ Ham radio through its involvement in community activities will teach children there is value in being active in community events.



# What is in it for the children

4 of 9

Ham radio encourages communications via a variety of methods; voice, various digital techniques, Morse code, and even Amateur Television. Radio amateurs also communicate with the International Space Station, hams use satellites, and bounce signals off the moon.



— Amateur Radio operators on the International Space Station (ISS) enjoy using its on-board ham station during their off-duty hours. They talk to friends, school students and hams around the world by voice and packet radio. Many astronauts are ham radio operators.

# What is in it for the children

5 of 9

- ❖ Ham radio makes extensive use of computers. Computers are used in the design of radios, a wide variety of digital modes of communications; computers are used to control radio hardware as well as fostering an interest in the development of software used in radio and communications.
- ❖ Ham radio is a step along the path to a good job.

# What is in it for the children

6 of 9

- ❖ Ham radio provides exposure to other nations and cultures; by communication with hams in other nations, ham radio contributes to international goodwill.
- ❖ Ham radio offers a platform for life-long learning through an active hobby that encourages experimentation, technical investigation and the advancement of electronics, and competition in contesting.

# What is in it for the children

7 of 9

- ❖ Ham radio is not as easy as using the landline or the cell. You must put out effort to use a ham radio, it just doesn't happen all by itself. One of the greatest rewards in doing anything, is to experience joy in doing it. Ham radio will provide personal satisfaction for effort expended, pleasure, a good feeling.
- ❖ Ham radio requires incremental, constant effort, never giving up, never relenting. Exposing our children to ham radio will be good for them.



# What is in it for the children

8 of 9

❖ Ham radio holds few roadblocks for people with disabilities. Many people who are physically challenged or visually impaired are able to participate in communication with simple adaptive devices.



— Dry run just before an International Space Station pass. Keilah Meuser is practicing with others looking on.

# What is in it for the children

9 of 9

- ❖ Ham radio is a way of learning basic electronics on the way to a career in electronics and engineering in the telecommunications industry.
- ❖ **Ham radio is a means to an end** – good careers for our children.
- ❖ **Ham radio is a proven path to a good job.**

# What is in it for the school

- ❖ Ham radio will be an afterhours enrichment class.
- ❖ Ham radio will provide a focal point for student involvement, increasing interest in education.

# What is in it for the school

Ham radio will draw students like a magnet draws iron filings. This involvement will expose the children to possible careers in radio and TV broadcasting, technical and professional fields in electronics, computer science, astrophysics, other science and technical fields. Teachers will have many opportunities to use ham radio to increase student interest in subject matter.

# Career Opportunities in Electronics

Partial list of opportunities

- ❖ TV & Radio station technicians
- ❖ TV & Radio station engineers
- ❖ Telecommunications engineers
- ❖ Telecommunications technicians; land-line & cell
- ❖ Military careers in communications
- ❖ Military intelligence
- ❖ Military security
- ❖ CIA & FBI
- ❖ Shipboard radio operators



# Career Opportunities in Electronics

Partial list of opportunities

- ❖ Homeland Security radio technicians
- ❖ Homeland Security intelligence
- ❖ State DOT
- ❖ State Police
- ❖ Radar technicians
- ❖ Medical & hospital (X-ray repair)
- ❖ Security installation technicians
- ❖ Computer technicians
- ❖ Computer programmers

# Scholarships

- ❖ Many scholarships are available
- ❖ Electronics technicians and engineers are in demand.

# Benefits For The Community

When an emergency or natural disaster strikes, Ham Radio is often called into the limelight of public service to establish a line of communications to and from the stricken areas. Ham Radio networks, once established, sustain communications during the emergency efforts by helping the disaster relief workers and public with point-to-point communications, or health and welfare messages. During weather related threats or during the actual occurrence of severe weather, Ham Radio networks and their operators are commonly on standby to gather information and report this data to the National Weather Service or other pertinent authorities.

# Hams helping during a disaster



— Ham Radio on the scene after terrorists attack New York City in September 2001. On the left, in the American Red Cross radio room in Brooklyn, Mark Dieterich, N2PGD (standing), and Simone Lambert, KA1YVF, check the volunteer shift schedule and handle schedule management from the World Trade Center Disaster Relief Communications Website. On the right, Ed Cravey, KF4HPY, at the controls of the Chattahoochee Baptist Association's W4CBA mobile unit in Edison, New Jersey. The W4CBA station used a local 2-meter repeater to communicate with deployed kitchens and showers in the old Brooklyn Navy Yard and near Ground Zero in Manhattan.

# Ham Radio Supports

Good for our community

- ❖ The Amateur Radio Emergency Service, the Radio Amateur Civil Emergency Service, the National Traffic System, the National Weather Service's SKYWARN, the Salvation Army Team Emergency Radio Network (SATURN), FEMA, the National Guard, and police agencies.
- ❖ Emergency preparedness will be enhanced by having a cadre of skilled Radio communicators in the community. These youngsters will be a valuable asset in the event of a civic emergency.
- ❖ Amateur Radio will foster community support and interest in the activities of the community.



# Summary

Let's provide our children another career option - by exposing them to electronics, broadcasting, and ham radio.

# Summary

An opportunity to enhance the education of our children is within our grasp – what shall we do?