Radio Merit Badge

Module 1
Req. 1.: What is Radio?
Req. 1.: What is Radio?
Req. 1.: What is Radio?
Req. 1.: What is Radio?
Req. 1.: What is Radio?
Req. 1.: What is Radio?
What is Radio?
Radio?

Communication system, using electromagnetic waves
What is Radio?

Radio?
Communication system, using electromagnetic waves

Wireless
Req. 1.: What is Radio?
Radio?

Communication system, using electromagnetic waves

"Off The Grid"
The wireless telegraph is not difficult to understand. The ordinary telegraph is like a very long cat. You pull the tail in New York, and it meows in Los Angeles. The wireless is the same, only without the cat.

(Albert Einstein)
Lot’s of things we use every day could be considered forms of radio...
Req. 1.: What is Radio?
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Req. 1.: What is Radio?
Req. 1.: What is Radio?
Req. 1.a.: Hobby Radio
Req. 1.a.: Hobby Radio
Req. 1.a.: Hobby Radio
Req. 1.b.: Broadcasting vs. Two-Way Radio
Req. 1.b.: Broadcasting vs. Two-Way Radio
Call Signs
Req. 1.c.: Call Signs

KBSA

FM 102

TOTAL TV COVERAGE

WNGH
CH 14
CHARLESTON

WGT
CH 8
ATLANTA

WCES
CH 20
ALBUQUERQUE

WMUM
CH 29
MACON

WJSP
CH 28
AUGUSTA

WMUM
CH 29
MACON

WACS
CH 25
COLUMBUS

WAY
CH 9
SAVANNAH

WABW
CH 14
PELHAM

WXGA
CH 9
WAYCROSS
Req. 1.c.: Call Signs

SLIDE 8

TOTAL TV COVERAGE

- WNGH CH 12
  - CHABAHUH

- WGTVD
  - CH 4 ATALANTA

- WCES
  - CH 20 AUGUSTA

- WJSP
  - CH 29 WAYCROSS

- WMUM
  - CH 29 MACON

- WVAN
  - CH 9 SAVANNAH

- WABW
  - CH 14 PELHAM

- WXGA
  - CH 8 WAYCROSS

- GPB
Req. 1.c.: Call Signs

K2GW
AD4UM
N7QR
WB8AXP

AA - AL
K
KA - KZ
N
NA - NZ
W
WA - WZ
Req. 1.c.: Call Signs

K2GW
AD4UM
N7QR
WB8AXP

0 - 9
Req. 1.c.: Call Signs
Create Your Own Imaginary Call Sign!
Global Call Signs

5R8UI
Global Call Signs

 Req. 1.c.: Call Signs

5R8UI

PW8S
Phonetic Alphabet
Req. 1.d.: Phonetic Alphabet

B C D E G P T V Z
Req. 1.d.: Phonetic Alphabet

Phil    Bill
Alfa
Bravo
Charlie
Delta
Echo
Foxtrot
Golf
Hotel
India
Kilo
Lima
Mike
November
Oscar
Papa
Quebec
Romeo
Sierra
Tango
Uniform
Victor
Whiskey
X-ray
Yankee
Zulu
How Radio Waves Carry Information
Req. 4.: How Radio Waves Carry Information
Req. 4.: How Radio Waves Carry Information
Req. 4.: How Radio Waves Carry Information
Our Wireless System
Req. 4.: How Radio Waves Carry Information

Radio Transmitter

Radio Receiver
Req. 4.: How Radio Waves Carry Information
Req. 4.: How Radio Waves Carry Information

United States

Europe

Transmitting Antenna

Radio Transmitter

Radio Receiver
Req. 4.: How Radio Waves Carry Information

Transmitting Antenna

Radio Transmitter

United States

Europe

Receiving Antenna

Radio Receiver
Req. 4.: How Radio Waves Carry Information

Voice Into Microphone

Radio Transmitter

Transmitting Antenna

United States

Europe

Receiving Antenna

Radio Receiver
Req. 4.: How Radio Waves Carry Information

United States

Voice Into Microphone

Transmitting Antenna

Radio Transmitter

Europe

Receiving Antenna

Radio Receiver
Req. 4.: How Radio Waves Carry Information

Voice Into Microphone

Transmitting Antenna

Radio Transmitter

United States

Europe

Receiving Antenna

Radio Receiver
Req. 4.: How Radio Waves Carry Information

Voice Into Microphone

Radio Transmitter

Transmitting Antenna

United States

Europe

Radio Receiver

Receiving Antenna
Req. 4.: How Radio Waves Carry Information

Voice Into Microphone → Transmitting Antenna → Radio Transmitter → Radio Receiver → Loud Speaker

United States → Europe
How Radio Waves Travel
Req. 2.a.: Introduction to How Radio Waves Travel
Req. 2.a.: Introduction to How Radio Waves Travel
Req. 2.a.: Introduction to How Radio Waves Travel
186,000 miles per second!
Req. 2.a.: Introduction to How Radio Waves Travel
Req. 2.a.: Introduction to How Radio Waves Travel

EARTH
Req. 2.a.: Introduction to How Radio Waves Travel
Req. 2.a.: How Radio Waves Travel

EARTH
Req. 2.a.: How Radio Waves Travel
Req. 2.a.: How Radio Waves Travel
Req. 2.a.: How Radio Waves Travel

IONOSPHERE

EARTH

SAN FRANCISCO

GROUND WAVES

DENVER

CHICAGO

NEW YORK CITY
Req. 2.a.: How Radio Waves Travel
Req. 2.a.: How Radio Waves Travel

EARTH

IONOSPHERE

SAN FRANCISCO

GROUND WAVES

DENVER

CHICAGO

NEW YORK CITY
Req. 2.a.: How Radio Waves Travel
Req. 2.a.: How Radio Waves Travel

Ionosphere

Earth

San Francisco

Ground Waves

Skip Zone

Denver

Skip Distance

Chicago

New York City
Req. 2.a.: How Radio Waves Travel

IONOSPHERE

EARTH

SAN FRANCISCO
GROUND WAVES
DENVER
SKIP ZONE
SKIP DISTANCE
CHICAGO
NEW YORK CITY
Req. 2.a.: How Radio Waves Travel

- **IONOSPHERE**
- **EARTH**
- **SAN FRANCISCO**
- **DENVER**
- **NEW YORK CITY**
- **CHICAGO**
- **GROUND WAVES**
- **SKIP ZONE**
- **SKIP DISTANCE**
- **2ND HOP**
Req. 2.a.: How Radio Waves Travel

IONOSPHERE

EARTH

SAN FRANCISCO
GROUND WAVES
DENVER
SKIP DISTANCE

SKIP ZONE

2ND HOP

CHICAGO
2ND SKIP ZONE

NEW YORK CITY
Req. 2.a.: How Radio Waves Travel
Req. 2.a.: How Radio Waves Travel
Req. 2.a.: How Radio Waves Travel
Req. 2.a.: How Radio Waves Travel
Req. 2.a.: How Radio Waves Travel
Req. 2.a.: How Radio Waves Travel
Req. 2.a.: How Radio Waves Travel
Finish Drawing!
Req. 2.b.: WWV and WWVH
Req. 2.b.: WWV and WWVH
Req. 2.b.: WWV and WWVH
Req. 2.b.: WWV and WWVH
<Click for WWV audio>
Req. 2.c.: DX
= “DISTANCE”
Req. 2.c.: DX

DXpedition

= "DISTANCE"
International Treaty

International Telecommunication Union
Radio Merit Badge