

# Radio Day Description/Agenda

## Setup-

1. Use web page- <http://www.mogadore.net/radio-day.html> for resources & activities.
2. If you are not an Licensed Amateur Radio operator, recruit local licensed ham volunteers and plan day with them. To find volunteers-
  - a. Find a local Amateur Radio Club. In US- [www.arrl.org/find-a-club](http://www.arrl.org/find-a-club), in UK- [www.rsgb.org/local](http://www.rsgb.org/local), in Europe- [www.dxzone.com/catalog/Ham\\_Radio/Clubs/Europe](http://www.dxzone.com/catalog/Ham_Radio/Clubs/Europe) or find your national organization at *International Amateur Radio Union*- [www.iaru.org/iaru-soc.html](http://www.iaru.org/iaru-soc.html)
  - b. Find individual hams- [www.qrz.com/](http://www.qrz.com/)
3. I setup an HF station with Transceiver in large classroom or common room and Vertical antenna in grass outside window. Use antenna that best matches your location/situation
4. I provide a few keys and code oscillators
5. We have access to computer lab to do online stuff (see below and web link)
6. I have hanging displays of QSL cards from around the world and give a copy of my QSL card to each
7. Each student receives a paper copy of the first two comic books in series from ICOM ([http://www.icomamerica.com/en/amateur/comic\\_book/default.aspx](http://www.icomamerica.com/en/amateur/comic_book/default.aspx)). I also provide link for them to read the rest online along with providing 3 of each printed in color to school Library. I also have created Accelerated Reading Quizzes for them
8. Each student receives a printed handout- <http://www.mogoodle.net/webpage/radio/radioday-10.pdf>

## Science-

1. Go over Electromagnetic Spectrum Chart
2. Define Frequency and Wavelength
3. Discuss various frequency bands and uses
4. Describe how signals are propagated.
5. Simple block diagram of how a receiver works
6. Describe Radio setup in the room
7. Demonstrate HF radio & Hopefully make a few contacts both Phone and CW

## Math-

1. Discuss Exponents with focus on 10's
2. Talk about relationship of Frequency To Wavelength
3. Demonstrate how to calculate wavelength and frequency
4. Demonstrate use of Inverse Proportions and Ratios for determining relationship between wavelength and frequency
5. Calculate lengths and angles of guide ropes from antenna to ground and distance from base

## Language Arts-

1. Phonetic Alphabet- explain why, how and demonstrate
2. Q codes & CW Abbreviations compare with Texting and Twitter
3. Practice sending receiving code with keys/oscillators or online program (<http://boyslife.org/games/online-games/575/morse-code-machine/>)

## Music-

1. Discuss relationship of frequency to musical notes.
2. Demonstrate variable frequency audio oscillator
3. Use drums with high note and low note to send Morse code.

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## Social Studies-

1. Compare variety of different types of Map projections versus globes
2. Generate Azimuth/Polar maps center on various locations (<http://www.wm7d.net/azproj.shtml>)
3. Discuss distances and bearings for radio signals
4. General Geography facts with a "stump the instructor" with Geo Facts by students (see also web sites on Geography)

## Physical Education-

1. Use Jump Ropes to simulate radio waves
2. Setup antenna- use pacing to estimate required distances on ground

## Art-

1. View QSL Cards
2. Create their own QSL card with funny fake call signs like SN0W, N0UN, K1NG,GN0ME, etc.

## Computers-

1. Demonstrate Radio control with computer
2. Demonstrate CW decoding with computer
3. Use QRZ to look up call signs
4. View online radio resources

## Radio-

1. Demonstrate Radio operation
2. Let students hear variety of signal types -
  - a. AM (WWV)
  - b. SSB
  - c. CW
  - d. RTTY
  - e. PSK
3. Explain why different band (frequencies) can be helpful for success contacts
4. Make a voice contact to demonstrate
5. If you can get a solid QSO with willing participant have kids talk on radio (have them pre-write cue cards)

## Question & Answer Session

## Follow-up-

Provide students with the Radio Web page link - <http://www.mogadore.net/radio-day.html>