

# Unit 1

## Introduction to Wireless Communication

### Lesson 1.2

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**Lesson Title** Introduction to Wireless Communication

**Curriculum Area(s)** Technology  
Social Studies

**Grade(s)** 6 – 8

**Duration** 2 class periods

**Content Standard(s)** T-1, T-2, T-3  
SS-1

**Benchmark(s)** T-1.1, T-2.1, T-3.1  
SS-1.1

#### **Goals**

- Develop the students understanding of the variety of wireless communication systems in use today and how they are used.

#### **Objectives**

- To identify which organizations use wireless communications.
- To identify the different types of modes of wireless technology used today.

#### **Resource Materials**

*Now You're Talking*

*Operating Your Amateur Station*

*ARRL Operating Manual*

*ARRL 200 Meters and Down*

#### **Content**

Who Uses Wireless Technology?

Commercial Radio & TV

Public Safety Agencies & Organizations

Military

Government

Marine Radio Service

Amateur Radio Service

Citizen Band Radio

Family Radio Service

#### **What are the Different Types and Modes of Wireless Technology?**

AM Radio

FM Radio

Single-sideband Radio

CW (Morse Code)  
RTTY  
Packet Radio  
Citizens Band Radio  
Television  
Paging Systems  
Cell Phone Systems  
Radio Astronomy  
Satellite Communication  
Wireless Internet  
Software Defined Radio

### **Suggested Activities**

1. Phonetic Alphabet Activity – Activity Sheet #1.2.
2. The teacher/ham volunteer demonstrate (as much as possible) examples of each of the above mentioned modes and equipment.
3. Students research to find what local organizations (fire, police, government, telephone co.), use radio for communications. What mode of communication is used?
4. Students research ARRL Club Search Web site ([www.arrl.org](http://www.arrl.org)) to find a local Amateur Radio Club contact person, to locate a local ham using Internet Remote Base radio. Students coordinate a demonstration of Internet Remote Base radio for the class.
5. Students research to find the location of at least three Cell Phone Base Stations in you area. What is the total area of coverage in square miles, for: 1) One cell, 2) All three cells.
6. Using a GPS system, determine the exact location of the classroom. Map out the GPS location of the perimeter of the school
7. Develop a Communication Career List – Pick five careers in communications and write a short paragraph describing roles and responsibilities for each career. What kind of training is required for these careers?

# Activity Sheet #1.2

## Communication Practice

### The Phonetic Alphabet

*Student Worksheet*

#### **Introduction:**

Have you ever tried to talk with your mouth full of food? Did you have to repeat yourself? Why? Most likely it was because others could not understand what you were saying. The ability to speak clearly is very important when trying to communicate with others, especially when using a telephone or radio. In an emergency, for example, speaking clearly could mean the difference between life and death. If you were injured and a friend called 911 for you, would you want them to speak clearly so the operator could understand them? You get the picture?

Often during emergencies there are several things going on at the same time. People from several different agencies may be working at the site at the same time (Fire Dept., Police, News People etc.). Communicating clearly may be difficult so these organizations use what is called the "Phonetic Alphabet" to be understood, in less than ideal conditions. The phonetic alphabet is nothing more than a series of easily recognizable words to represent letters of the alphabet.

#### **Sidebar**

A = Alfa	G = Golf	M = Mike	S = Sierra	Y = Yankee
B = Bravo	H = Hotel	N = November	T = Tango	Z = Zulu
C = Charlie	I = India	O = Oscar	U = Uniform	
D = Delta	J = Juliet	P = Papa	V = Victor	
E = Echo	K = Kilo	Q = Quebec	W = Whiskey	
F = Foxtrot	L = Lima	R = Romeo	X = X-ray	

#### **Materials**

FRS radio set  
Paper and pencil

#### **Procedure**

Write your name down the left margin of a sheet of paper (see example). Write in the correct phonetic word next to each letter along side the letter. Now practice saying the phonetic word for each letter.

Example:

J	=	Juliet
O	=	Oscar
H	=	Hotel
N	=	November

# Activity Sheet #1.2

## Communication Practice

### The Phonetic Alphabet

*Teachers Guide*

#### **Introduction:**

Have you ever tried to talk with your mouth full of food? Did you have to repeat yourself? Why? Most likely it was because others could not understand what you were saying. The ability to speak clearly is very important when trying to communicate with others, especially when using a telephone or radio. In an emergency, for example, speaking clearly could mean the difference between life and death. If you were injured and a friend called 911 for you, would you want them to speak clearly so the operator could understand them? You get the picture?

Often during emergencies there are several things going on at the same time. People from several different agencies may be working at the site at the same time (Fire Dept., Police, News People etc.). Communicating clearly may be difficult so these organizations use what is called the "Phonetic Alphabet" to be understood, in less than ideal conditions. The phonetic alphabet is nothing more than a series of easily recognizable words to represent letters of the alphabet.

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#### **Materials**

FRS radio set  
Paper and pencil

#### **Procedure**

Have the students write their name down the left margin of a sheet of paper (see example). Instruct them to write in the correct phonetic word next to each letter along side the letter. Then have them practice saying the phonetic word for each letter.

Example:

J	=	Juliet
O	=	Oscar
H	=	Hotel
N	=	November

Other examples: School name, name of the city, name of the county or state. Now practice using the phonetic alphabet

One suggestion is to have a "Spelling Bee" using the phonetic alphabet.