



*GET*

**ON THE AIR**

**BEGINNERS CAROUSEL,  
INTERMEDIATE, AND ADVANCED  
CURRICULUMS**

*The LICW Method*

**STUDENT AND INSTRUCTOR GUIDE**

VERSION 5.3



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LICW hosts a Hams with Disabilities Session with Chris VE3RWJ on the first Monday of the month at 7 PM Eastern in Zoom C. Members with any disability that affects learning or operating CW are encouraged to attend.

Members with hearing impairments may benefit from our revolutionary haptic device. Members may learn more [here](#).



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## ***LIST OF ABBREVIATIONS:***

ADV	Advanced
AGN	Again
ARRL	American Radio Relay League
BC	Beginners Carousel
BK	Break
CFR	Character Flow Recognition
CQ	Calling any station
CW	Continuous Wave - synonymous with Morse Code
DX	Distance - synonymous with long distance station
FWPM	Farnsworth Words Per Minute
GOTA	Get On The Air
HST	High-Speed Telegraphy
IARU	International Amateur Radio Union
ICR	Instant Character Recognition
IER	Instant Error Recovery
INT	Intermediate
IWR	Instant Word Recognition
LICW	Long Island CW Club
MAC	A family of desktop and laptop computers from Apple
MPP	The LICW Morse Practice Page
PC	Personal Computer
POTA	Parks On The Air
QRS	Send slower
QRQ	Send faster - synonymous with High-Speed Telegraphy
QSO	Communication with - synonymous with a contact
RR	Roger Roger - synonymous with understood
SKCC	Straight Key Century Club
SOTA	Summits On The Air
SST	Slow Speed conTest
VET	Variable Effective Speed Training
VST	Variable Speed Training
WPM	Words Per Minute
WWII	World War Two



## **PREFACE:**

LICW looked to the past for ways it might improve its curriculum and teaching methods. Many historical documents were analyzed. Of particular interest were the 1936 study by Ludwig Koch<sup>1</sup> at the Technical University in Braunschweig Germany, and the 1943 PhD thesis by Donald Taylor<sup>2</sup> at Harvard. This curriculum is a unique blend of vintage training methods further modernized with techniques and exercises based on our collective teaching experience.

## **INTRODUCTION:**

Welcome to LICW academics. We are committed to helping you achieve your Morse Code (CW) goals from initial learning to conversational head copy and high-speed telegraphy. As you begin your CW journey, we recommend you adopt these goals:

1. Learn how to learn CW with the LICW method: This means understanding and following the LICW teaching methods.
2. Learn how to practice productively: Productive practice is about making quantifiable progress toward clearly defined learning objectives.
3. Get on the air: Getting and staying on the air is the ultimate goal of the Beginners Carousel curriculum.
4. Learn how to make progress: Progress toward faster and more accurate and effortless recognition and achieving higher-level learning objectives.
5. Have fun: Fun makes the CW journey enjoyable, rewarding, and sustainable.

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<sup>1</sup> L. Koch, Arbeitspsychologische Untersuchung der Tätigkeit bei der Aufnahme von Morsezeichen, zugleich ein neues Anlernverfahren für Funker, A. angew. Psychol., 50, 1936, 1-70.

<sup>2</sup> Taylor, D. W. (1943). Learning Telegraphic Code. Psychological Bulletin, 40(7), 461- 487.



## **OVERCOMING FEAR:**

Many students of Morse Code face a psychological barrier of fear which often originates from a deep concern about others' perceptions. Fear can stifle learning by discouraging students from pushing into the uncomfortable and vulnerable learning zone where limits are raised by exceeding them. Fear may also hinder the joy of getting on the air.

Perfectionism exacerbates fear. The pursuit of flawlessness is counterproductive to learning Morse Code. Telegraphy is not a game of perfect. Even the most skilled telegraphers miss characters and words. Missed characters are not failure, they are practice and part of the human experience of communicating in Morse Code.

Overcoming fear requires embracing vulnerability and cultivating a supportive environment. The LICW culture of treating others with respect and encouragement promotes an ideal learning environment.

## **STUDENT PERFORMANCE:**

Determinant factors responsible for differences in student performance are:

1. **Aptitude:** LICW believes every student is capable of learning CW. We accept there will be a variance in time to achieve proficiency based on aptitude and we design our curricula accordingly. Our students should feel totally comfortable regardless of how long it takes to achieve their CW goals.
2. **Degree of motivation:** Motivation is one of the dominant forces affecting the learning process. Students should evaluate their CW goals, assess their motivation, and set realistic expectations before commencing with our academics.
3. **The distribution and quality of practice:** The distribution and quality of practice are the most important variables affecting student performance. Learning to practice effectively and following a [Productive Practice](#) regimen are critical success factors.



# ACADEMIC FLOW:

The following chart represents the LICW Academic Flow and typical progression from beginner to advanced levels of proficiency.

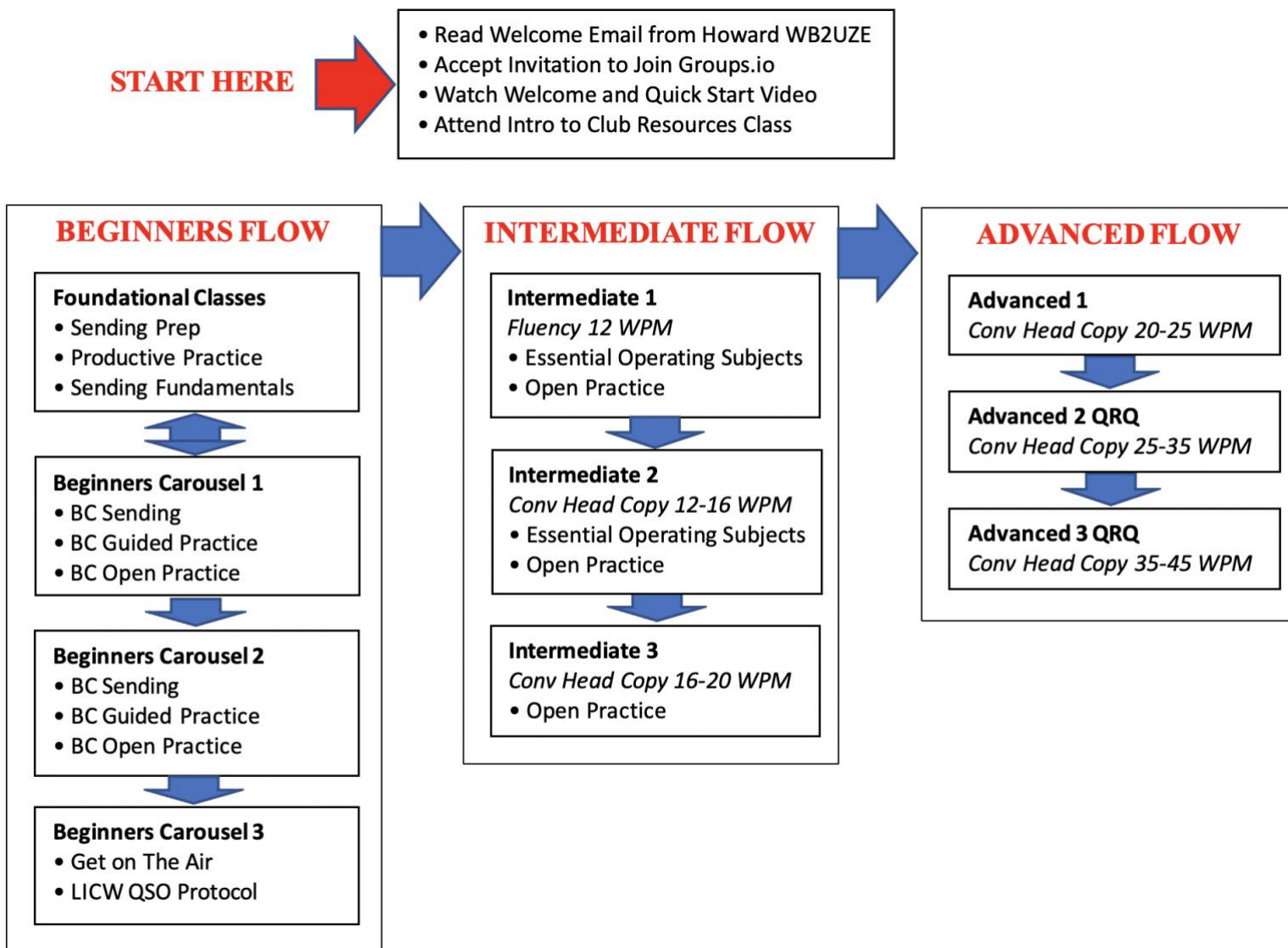


Figure 1 LICW Academic Flow and Progression





## ***BEGINNERS CURRICULUM – THE LICW METHOD:***

### **THE KOCH REPORT:**

The recurring theme and focal point of the Koch report was that CW should be learned as total acoustic patterns and not by visual reference to a chart.

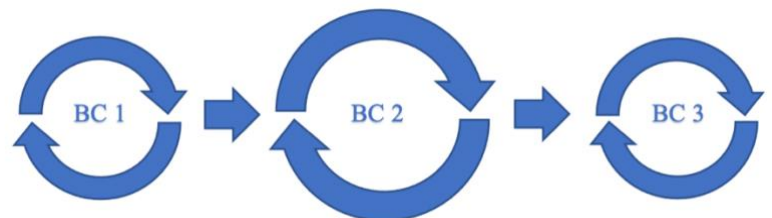
Koch experimented with methods to enhance sound patterns and rhythm in new students. One such experiment involved having students listen to code without being told what characters the sounds corresponded to. Students were asked to mark a sheet of paper by placing a dot each time they heard an acoustic shape. This introduced the learner to the rhythm and formed a connection between the acoustically recorded rhythm and the rhythm of the writing hand. We adopted the technique into the Beginners Carousel Curriculum.

Koch conducted sending and receiving experiments in order to determine the optimum character speed for learning CW. Anything less than 10 WPM did not allow the student to perceive the characters as total acoustic patterns. Koch's ultimate goal was for his students to achieve proficiency at 20 WPM, but the Koch Method is to establish initial proficiency at 12 WPM and then ramp toward 20. We adopted Koch's recommended 12 WPM in the Beginners Carousel Curriculum and increase speed from 12 to 20 WPM in the Intermediate Curriculum.

Koch offered guidance on how a sequence of characters should be constructed to learn CW. We followed his guidance and developed a sequence based on the frequency each character is used in our QSO protocol. The more often a letter appears in the QSO protocol, the earlier it is introduced. This unique methodology allows us to tightly integrate QSO abbreviations and protocol into the curriculum.

### **CURRICULUM OVERVIEW:**

The Beginners curriculum groups lessons into three carousels and culminates with getting on the air.





There is no designated entry point and no reset. Students get on the carousels whenever they wish and progress when they feel ready. The carousel concept accommodates a broad range of student performance. Fast learners may take just one rotation while those wanting a more relaxed pace may take a couple of rotations before progressing.

### BEGINNERS CAROUSEL 1:

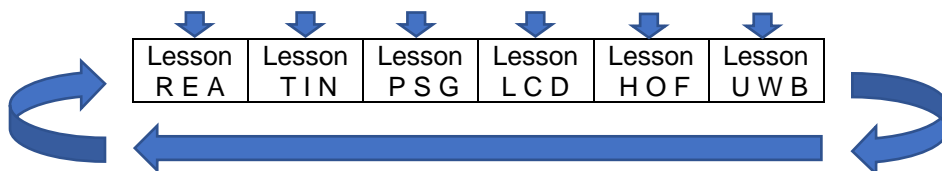


Figure 3 Beginners Carousel 1

BC1 is comprised of 18 characters in six lessons with a broad objective of learning how to learn CW in the LICW Method. Students learn to hear and associate the acoustic CW sounds with a character. We begin at a character speed of 12 WPM and an effective speed of 8 FWPM (Farnsworth WPM) 12/8. Three new characters are introduced per lesson using the Koch<sup>3</sup> Method. New characters are played without identifying what character the acoustic sound is associated with. Students are directed to mark a paper with a dot when they recognize the acoustic sound. Then the acoustic sound is associated with a character. From then on, students are directed to say, write, or type the character when they recognize it. The process is repeated with each new character. After the new characters have been introduced, students will send them on a straight key or verbalize them for the instructor to ensure they are being heard as single acoustic sounds.

### CODE TALKING:

Verbalizing characters or Code Talking is an effective aid in learning and practicing the code. It was introduced to LICW by Chris Rutkowski<sup>4</sup> NW6V.

The primary advantages of Code Talking are that it does not require any peripherals such as a key and oscillator, and it uses acoustic sounds in

<sup>3</sup> Koch, *op. cit.*

<sup>4</sup> Rutkowski, C (2023). The CW Way of Life.



alignment with the received Morse Code. This makes it easy to integrate into early portions of the curriculum, but Code Talking is only a bridge to actual receiving and sending with a key.

The LICW method of Code Talking uses only three sounds, “di, DAH, and dit.” The di and DAH correspond directly with the character elements and the last dot is verbalized as “dit.” The DAH is capitalized indicating emphasis.

For example:

R	. _ .	“di-DAH-dit”
E	.	“dit”
A	. _	“di-DAH”

We are purposely omitting the rest of the chart. Koch<sup>5</sup> was very critical of efforts to teach CW by requiring students to memorize optical symbols on a chart, which he referred to as the analytical method. The mental process of copying code by that process requires counting the elements and reassembling them for comparison to the symbols imprinted in memory. That is inefficient but possible at a low tempo, but it is unachievable at faster speeds.

### **CHARACTER FAMILIARIZATION:**

Character sound familiarity is the foundation of accuracy in character recognition. Our approach to achieving accurate and quick recognition of characters is to focus on familiarity first (for as long as it takes) then accuracy and speed naturally follow. This is a gradual and relaxed process of exposure, practice, and reinforcement of new characters.

Three new characters are introduced per lesson using the Koch Method in a relaxed manner. After the new characters have been introduced, students will send them on their straight key or verbalize them with Code Talking for the instructor to ensure they are being heard as single acoustic sounds. Then the instructor will conduct character familiarization exercises

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<sup>5</sup> Koch, *op. cit.*



to begin reinforcing the new character sounds. This concludes the first portion of class. Students are expected to continue home practice with character familiarization exercises until they feel strong character sound familiarity has been achieved, then they should shift to character recognition exercises (e.g., MPP - Recognition, groups of 3, ICR, and Variable Speed) and begin to focus on accuracy and speed.

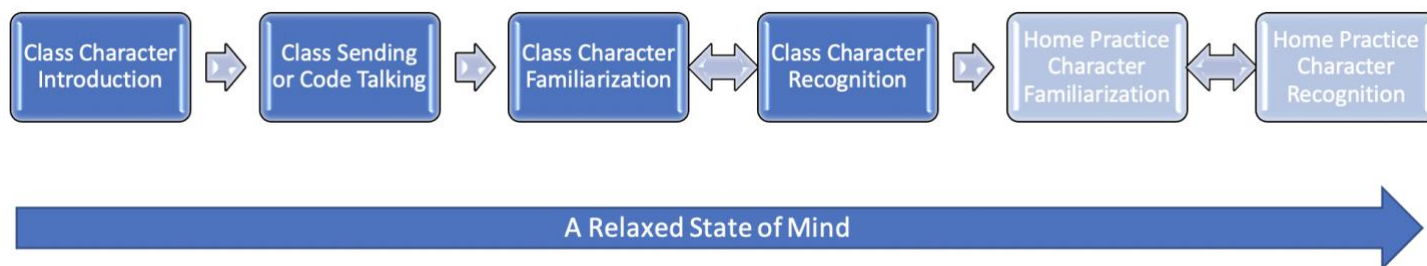


Figure 4 Character Familiarity Model

Assuming a relaxed state of mind with a loose focus enhances the learning process. New characters are more easily learned, and character sound familiarity established. Loose focus yields more effortless copy and the ability to decode for longer periods of time without becoming fatigued.

NOTE: During their first BC1 lesson students are encouraged to focus exclusively on the new characters introduced in the first portion of the lesson. Their homework assignment for the week is to become intimately familiar with the character sounds of those new characters. Students may stay for the second half of the lesson but doing so may prove counterproductive as characters not yet learned will be reviewed.

## BC SENDING:

BC Sending focuses on foundational skills such as suggested key adjustments and hand and arm placements. The straight key is our key of choice for initial learning of code because of its inherent ON/OFF nature. It perfectly mirrors the ON/OFF pulses of the Morse Code signals. There is a 1:1 correlation. All other forms of keying require the addition of another skill, another layer of translation, and thus complicate the process. Learning to practice by comparing one's sending against a standard is critically important to ensure mistakes are not repeated and reinforced. Techniques such as hear a letter, say a letter, and send a letter are taught. The focus is on sending with proper element formation, spacing, and rhythm. Each class sends the previous week's characters in the carousels.



BC1 students should attend BC Sending classes as soon as possible and begin sending in class with a key.

## BEGINNERS CAROUSEL 2:

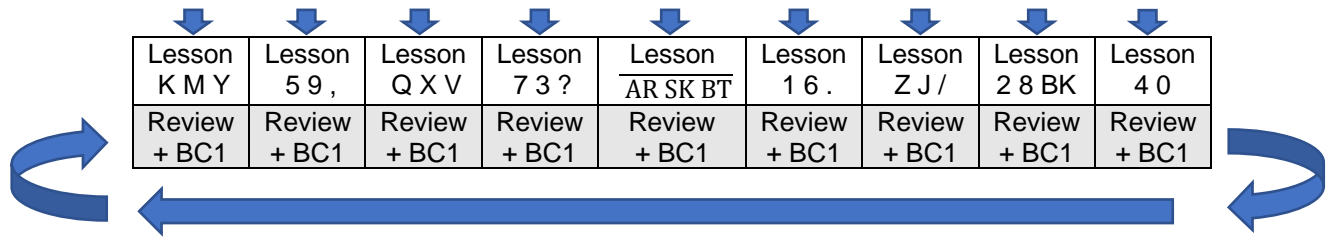


Figure 5 Beginners Carousel 2

BC2 is comprised of 26 characters in nine lessons (including numbers, prosigns, and BK) bringing the total number of characters up to 44 with a broad objective of learning how to practice productively. Character speed remains at 12 WPM. Effective speed is increased to 10 FWPM (12/10). Koch found that once students learned how to learn code as acoustic sounds, it was unnecessary to introduce new characters without identifying what character the acoustic sound was associated with. The new characters combined with the 18 carried forward from BC1 enable QSO words to form.

## BC GUIDED PRACTICE:

BC Guided Practice sessions are held immediately following each BC2 class. BC1 and BC2 students are encouraged to attend. These relaxed practice sessions are designed to consolidate newly acquired knowledge and skills through practice and practical experience. Students will begin communicating with each other in CW by sending call signs, names, and whatever comes to mind. Short and simple exchanges are effective at the beginner level such as: “What is your favorite color? BK” with a response of “BK RR BLUE BK” or “BK AGN? BK”.



## BC OPEN PRACTICE:

BC Open Practice sessions are held each weekday. BC1 and BC2 students are encouraged to attend. There is no instructor. Students are free to practice copy and sending in a relaxed atmosphere. Session structure and content are completely up to the attendees, but the guided practice sessions should serve as a model.

## BEGINNERS CAROUSEL 3:

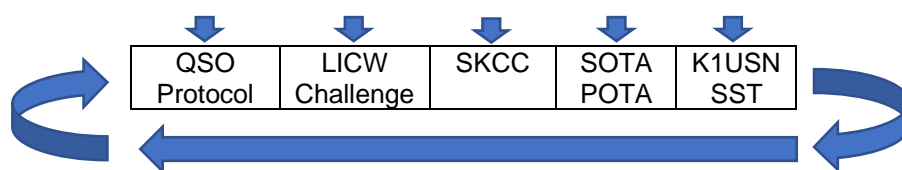


Figure 6 Beginners Carousel 3

BC3 is the culminating portion of the Beginners Carousel curriculum. It is comprised of five preparatory lessons for on-air activities. Like BC1 and BC2, there is no designated entry point and no reset. Each lesson is comprised of a briefing followed by interactive practice of the associated exchange:

- LICW QSO Protocol (download [here](#))
- LICW Challenge
- SKCC (download [here](#))
- SOTA/POTA (Summits and Parks on the Air)
- K1USN SST (Slow Speed Contest)

Getting and staying on the air is the ultimate goal of the Beginners Carousel curriculum. The first on-air QSO is a significant and celebrated achievement, but it is not a “one and done” event. Being on the air opens the door to experiential learning, which is the process of learning by doing. Being on the air forces you to accept missed characters, an essential skill needed to progress. Being on the air builds confidence and broadens your skills by adapting to unknowns such as changing band conditions, various fists, speeds, and key types. Being on the air is rewarding. It connects you to radio history and heritage and demonstrates hard earned skills.

Students are highly encouraged to continue making regular on-air contacts as they proceed on their CW journey.



## **GET ON THE AIR:**

LICW hosts five Get on The Air (GOTA) classes weekly. These are instructor led gateways to on-air activities, which are ideally suited for first on-air QSOs. Students are encouraged to continue participating even after progressing to the Intermediate curriculum.

- Live QSO Assistance on Tuesdays
- Live DX QSO Training on Wednesdays
- SKCC Night on Thursdays
- LICW Challenge Assistance on Saturdays
- K1USN SST (Slow Speed Contest) on Sundays

## **LICW QSO PROTOCOL CLASS:**

LICW developed a QSO protocol class to teach students the proper way to conduct a QSO outside the tightly scripted and abbreviated contest exchanges.

QSOs can be short with basic information exchanged or longer discussion-oriented “rag chews”. The QSO protocol is steeped in tradition. From calling or answering a CQ to a proper and cordial close, the QSO protocol class will have you sounding like an experienced operator. Download the QSO protocol document [here](#).

Once students become familiar with the QSO protocol, they are highly encouraged to attend Recorded QSO Copy class with Bob WO6W on Thursday’s where interesting recorded QSOs are decoded and reviewed leading to better understanding of different fists and actual radio conditions.

## **THE STRAIGHT KEY CENTURY CLUB:**

The Straight Key Century Club (SKCC) is the premier organization dedicated to promoting and preserving mechanical key CW operators. Mechanical keys are straight keys, side-swipers (cooties) or bugs. LICW recommends a straight key for initial learning of CW. Membership in the SKCC is free and we encourage all our members to join and get your SKCC number: [www.skccgroup.com](http://www.skccgroup.com)



The SKCC operates monthly and special contests ideally suited for new CW operators. LICW and the SKCC are collaborating on several initiatives to help our students get (and stay) on the air with their mechanical keys.

## MORSE CODE NINJA:

Our friend, Kurt<sup>6</sup> AD0WE, is the Morse Code Ninja. His [website](#) is a comprehensive resource for CW training resources, including [Software](#), [Interactive Online Training](#), [On-air Practice](#), [Hardware](#), [Books](#), and [Instruction and Advice](#). LICW and Kurt are collaborating on several initiatives to help our students learn Morse Code and increase proficiency more effectively. An LICW tab on the Morse Code Ninja homepage links to lessons which support the LICW curricula. Ninja lessons are closed captioned in direct support of our joint commitment to ensuring accessibility for people with disabilities.

## MORSE CODE THEORY:

This graphic designed by Michael Maynard<sup>7</sup> K4ICY depicts properly spaced Morse code timing.

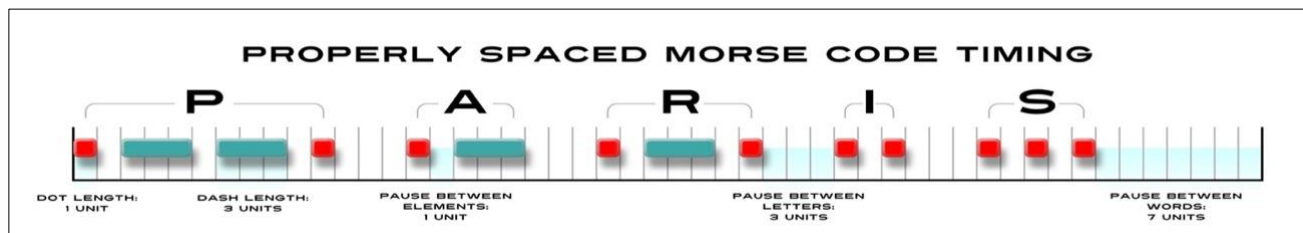


Figure 7 Properly Spaced Morse Code Timing

The following Morse Code standard, codified by the ITU, and recommended by ARRL and LICW is:

- A single dot is one unit.
- A dash is a period of three units.
- One unit separates each element (dot or dash) within a character.

<sup>6</sup> Zoglmann, Kurt. *Morse Code Ninja*, 11 Oct. 2020, <https://morsecode.ninja/practice/index.html>.

<sup>7</sup> Maynard, M. A., 2022. *Home – K4ICY - properly spaced Morse code timing*. [online] Available at: <<http://www.k4icy.com/cw.html>> [Accessed 4 August 2022].





- Three units separates each character within a word.
- Seven units separates each word.

Spacing is one of the critical skills necessary to transmit intelligible CW. Often characters or words that are run together become meaningless. As our instructor John W2JSJ says “send the spaces.”

### **CODE BUDDY:**

LICW hosts the KN6EY Memorial Code Buddy Class with Jay NK2Y [jspfox@gmail.com](mailto:jspfox@gmail.com) on the first Tuesday of the month at 8:00 PM ET in Zoom E.

We encourage our students to practice with a Code Buddy. Doing so provides motivation, feedback, and support.

BC Classes and Practice sessions are excellent places to meet like-minded people. Look for someone with the same goals, schedule, and commitment you have.

### **THE LICW MORSE PRACTICE PAGE:**

The LICW Morse Practice Page is a web-based, cross-platform tool that will function on any PC, Mac, tablet, or smart phone. It was designed and developed by Randy KN4YRM. Exercises and setups were developed for all LICW class levels and are continually updated.

[To open the LICW Morse Practice Page](#)

### **MORSE PRACTICE PAGE ACCESSIBILITY:**

The LICW Morse Practice Page has been optimized for screen readers used by the visually impaired and contains functions to assist the hearing impaired using our haptic device.



## PRACTICE EXERCISE CATEGORIES AND OBJECTIVES:

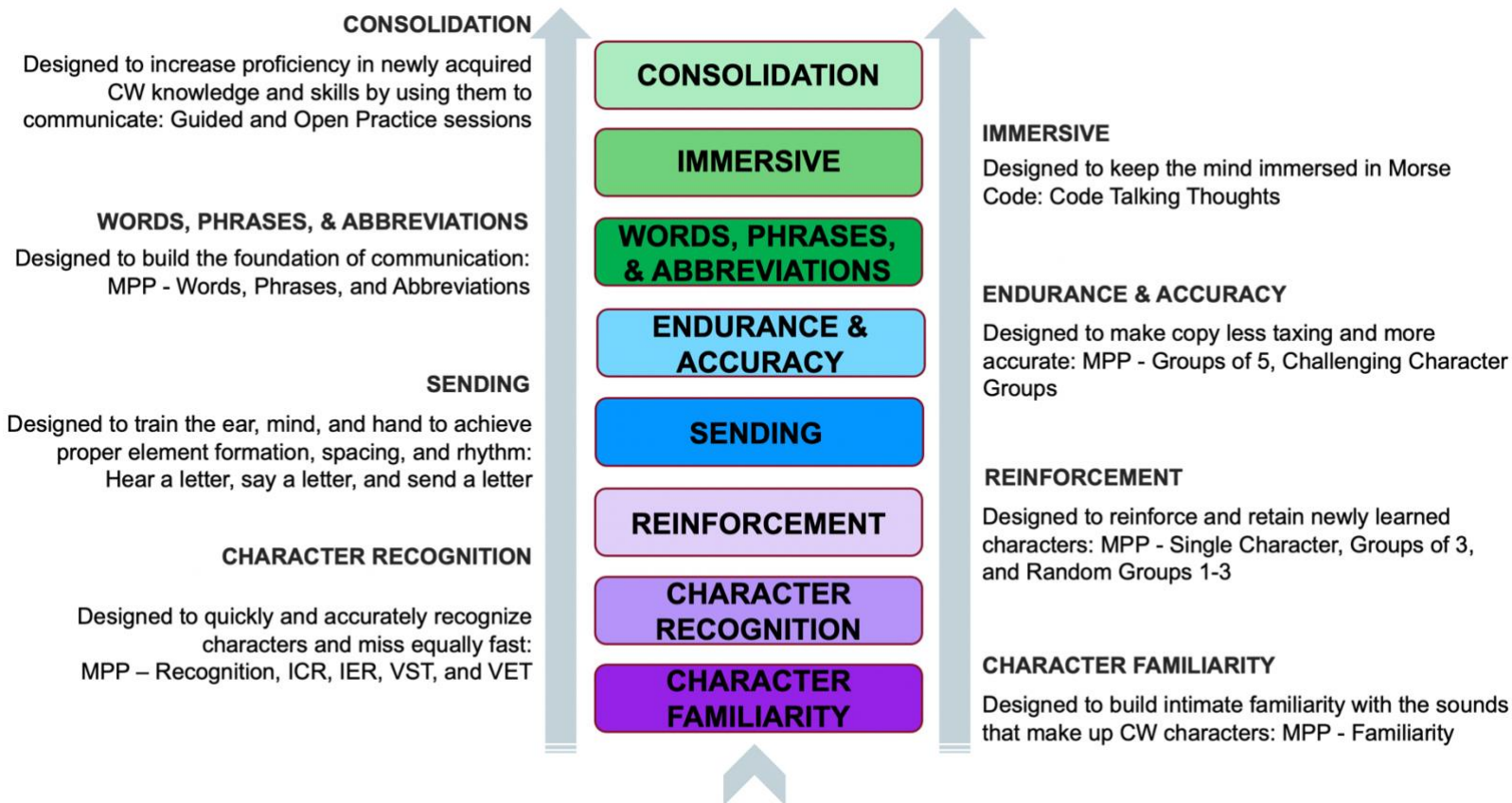


Figure 8 Exercise Categories and Objectives

## PRODUCTIVE PRACTICE:

Practice is not just about putting in time and going through motions, it's about making quantifiable progress. That's the difference between practice and productive practice. To make progress, clear objectives are needed. Knowing the skills and goals you are working toward makes it easier to choose the exercises that move you in the desired direction.

Set realistic goals and expectations and work on a few things at a time. Choose one to three things to practice in any given session. At least a quarter of practice should be sending. Find a time and place to practice that is conducive to learning without distraction. Assuming a [Loose Focus](#) (lean-back copy) enhances the learning process. Loose focus yields more effortless copy and the ability to decode for longer periods of time without



becoming fatigued. Too much practice or practice when fatigued is ineffective and counterproductive. According to Koch,<sup>8</sup> half an hour of continuous practice is the most favorable duration. Furthermore, practice in the morning and in the afternoon for half an hour each yields the best and fastest success. Modern training methods can be intense. Many students prefer to break their practice up into shorter sessions of about fifteen minutes to prevent fatigue.

Rest and recovery are critical components of the learning process. Find a sustainable pace and don't burn out. Progress is not linear. Progress is usually steady at first but then no perceptible progress is made for a period of time. Short periods of regression are common. Everyone experiences learning plateaus. Take the long view, stay the course, continue productive practice habits and you will achieve your CW goals.

### **RECOMMENDED DAILY PRACTICE REGIMEN:**

Below is a recommended set of exercises for your daily CW practice sessions using the [Morse Practice Page](#). Tutorial videos on exercise setup are available on LICW's [Morse Practice Page Tutorials](#) playlist.

The tables below refer to the five setup columns on the Morse Practice Page: TYPE, CLASS, LETTER GROUP, LESSON, and PRESET.

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<sup>8</sup> Koch, *op. cit*



## BUILD CHARACTER FAMILIARITY AND RECOGNITION

For each new week's characters, spend as much time as you need to become familiar with and start recognizing the characters. This can be as little as 5 minutes or multiple sessions over the course of a few days. Practice Character Familiarity and Character Recognition exercises below until you start recognizing the characters ("saying the character before the computer does") about 80% of the time. Then continue with the accuracy building exercises in the next section.

Character Familiarity (~2 mins):

Exercise: "hear the character, say the character, send the character"

Settings: Student - BC1 - REA - REA FAMILIARITY - (Familiarity Spelling)

<b>Exercise:</b> Character Familiarity				
<b>Objective:</b> Become so familiar with the characters that they become natural to you.				
<b>Do:</b> "hear the character, say the character, send the character"				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>This week's letters</i> FAMILIARITY	Familiarity Spelling

Character Recognition (~2 min):

Exercise: "hear the character, say the character before the computer says it" Settings: Student - BC1 - REA - REA FAMILIARITY - (Recognition)

<b>Exercise:</b> Character Recognition				
<b>Objective:</b> Practice recognizing the characters in a relaxed state of mind.				
<b>Do:</b> "hear the character, say the character before the computer says it"				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>This week's letters</i> FAMILIARITY	Recognition



## BUILDING ACCURACY

Once you're familiar with this week's new characters, continue practicing all your characters you know via the reinforcement, accuracy and endurance.

## INSTANT CHARACTER RECOGNITION (ICR) AND INSTANT ERROR RECOVERY (IER) EXERCISES

The following exercises help you recognize the characters more accurately, quicker, and at more ease, while also improving your ability to quickly recover from errors.

To get better at recognizing individual characters faster, the ICR exercise pushes you to recognize the character as fast as you can. It's intended that you copy about two-thirds of the characters. If you are copying more than 80% of the characters, decrease the "Delay Before" setting underneath the "More Settings" heading on the Morse Practice Page. Underneath the LESSON column, select all of the characters you have studied so far.

<b>Exercise:</b> Instant Character Recognition (ICR)				
<b>Objective:</b> Improve your accuracy, quickness, and easiness of recognizing characters.				
<b>Do:</b> "hear the character, say the character before the computer says it"				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>ALL your characters</i>	ICR

Variable Effective Speed Training improves your character recognition speed by slowly decreasing inter-character spacing until all Farnsworth spacing is removed. Write the characters down that you hear and compare it with the letters on the MPP.

<b>Exercise:</b> Variable Effective Speed Training (VET)				
<b>Objective:</b> Improve your accuracy, quickness, and easiness of recognizing groups of characters.				
<b>Do:</b> Write the characters that you hear. If you miss any character, quickly write a line and listen for the next character. Let go of missed characters quickly. Missing fast is good practice.				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>ALL your characters</i>	VET



## REINFORCEMENT EXERCISES

The following exercise helps to reinforce the association between code sounds and the letters.

The groups of three exercise (“default”) plays the characters in groups of three at a time at the same speed.

<b>Exercise:</b> Groups of 3 (Default)				
<b>Objective:</b> Improve your accuracy, quickness, and easiness of recognizing characters.				
<b>Do:</b> Write the characters that you hear. If you miss any character, quickly write a line and listen for the next character. Let go of missed characters quickly. Missing fast is good practice. Compare what you wrote with the characters in the MPP. Note any difficult characters.				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>ALL your characters</i>	Default 12/8 or Default 12/10

The random groups of 1-3 characters exercise help you develop a sense of the spacing between characters and groups of characters (or words).

<b>Exercise:</b> Random Groups of 1-3				
<b>Objective:</b> Improve your accuracy, quickness, and easiness of recognizing characters and group spacing.				
<b>Do:</b> Write the characters that you hear. If you miss any character, quickly write a line and listen for the next character. Let go of missed characters quickly. Missing fast is good practice. Compare what you wrote with the characters in the MPP. Note any difficult characters.				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>ALL your characters</i>	Random Groups 1-3 or Random Groups 1-4



## SENDING EXERCISES

Practicing sending is as important as practicing copying code. The below exercise helps you to mimic the character's sound from a true standard and develop good sending habits.

<b>Exercise:</b> Sending Practice				
<b>Objective:</b> Improve your accuracy, quickness, and easiness of sending characters.				
<b>Do:</b> The computer will play a character's sound with a long delay. After the character sound is played, mimic the sound of the character with your key.				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>ALL your characters</i>	Sending Practice

## ENDURANCE EXERCISES (OPTIONAL)

The following exercises will help improve your ability to copy long groups of characters.

<b>Exercise:</b> Groups of 5				
<b>Objective:</b> Improve your endurance of copying characters in large groups.				
<b>Do:</b> Copy as many characters as you can. Quickly let go of characters you don't recognize, write a line down, and be ready for the next character. Compare your letters with what is shown on the MPP. Note any troublesome characters.				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>ALL your characters</i>	Groups of 5



## WORDS, PHRASES, AND ABBREVIATIONS (OPTIONAL)

The next exercises reinforce your character recognition and endurance while helping to build recognition of common words, phrases and abbreviations.

<b>Exercise:</b> Words, Phrases, Abbreviations and States				
<b>Objective:</b> Enforce your character recognition and improve your copy of words.				
<b>Do:</b> Copy as many characters as you can. Quickly let go of characters you don't recognize, write a line down, and be ready for the next character. Compare your letters with what is shown on the MPP. Note any troublesome characters.				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1	<i>This week's letters</i>	(select one) * Abbreviations or * Phrases or * States/Provinces or * Words or	Default 12/8
OR				
STUDENT	BC2	<i>This week's letters</i>	(select one) * States/Provinces or * QSO Abbreviations or * QSO Phrases	Default 12/10

## COOL DOWN AND MORSE CODE NINJA PRACTICE

After a great session, reward yourself with your favorite exercise. Also, the Morse Code Ninja and LICW have a great partnership with a Morse Code Ninja site designed around the LICW curriculum.

Visit the [Morse Code Ninja's LICW Page](https://morsecode.ninja/licw/index.html) at <https://morsecode.ninja/licw/index.html> and review the available exercises available. Pick one that will help you with this week's characters or any troublesome characters. Try head copying one letter at a time, and then try recognizing two or three characters at a time. Additional exercises are at the bottom of the page.





## EXERCISE SETUP QUICK REFERENCE CHART:

<b>Exercise:</b> Character Familiarity				
<b>Objective:</b> Become so familiar with the characters that they become natural to you.				
<b>Do:</b> “hear the character, say the character, send the character”				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>This week's letters</i> FAMILIARITY	Familiarity Spelling
<b>Exercise:</b> Character Recognition				
<b>Objective:</b> Practice recognizing the characters in a relaxed state of mind.				
<b>Do:</b> “hear the character, say the character before the computer says it”				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>This week's letters</i> FAMILIARITY	Recognition
<b>Exercise:</b> Instant Character Recognition (ICR)				
<b>Objective:</b> Improve your accuracy, quickness, and easiness of recognizing characters.				
<b>Do:</b> “hear the character, say the character before the computer says it”				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>ALL your characters</i>	ICR
<b>Exercise:</b> Variable Effective Speed Training (VET)				
<b>Objective:</b> Improve your accuracy, quickness, and easiness of recognizing groups of characters.				
<b>Do:</b> Write the characters that you hear. If you miss any character, quickly write a line and listen for the next character. Let go of missed characters quickly. Missing fast is good practice.				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>ALL your characters</i>	VET
<b>Exercise:</b> Groups of 3 (Default)				
<b>Objective:</b> Improve your accuracy, quickness, and easiness of recognizing characters.				
<b>Do:</b> Write the characters you hear. Let go of missed characters quickly, and quickly write a line and listen for the next character. Missing fast is good practice. Check your work. Note difficult characters.				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>ALL your characters</i>	Default 12/8 or Default 12/10



<b>Exercise:</b> Random Groups of 1-3				
<b>Objective:</b> Improve your accuracy, quickness, easiness recognizing characters and group spacing.				
<b>Do:</b> Write the characters you hear. Let go of missed characters quickly. If you miss any character, quickly write a line and listen for the next character. Missing fast is good practice. Check your work.				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>ALL your characters</i>	Random Groups 1-3 or 1-4
<b>Exercise:</b> Sending Practice				
<b>Objective:</b> Improve your accuracy, quickness, and ease of sending characters.				
<b>Do:</b> The computer will play a character's sound, and mimic the sound with your key.				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>ALL your characters</i>	Sending Practice
<b>Exercise:</b> Groups of 5 (optional)				
<b>Objective:</b> Improve your endurance of copying characters in large groups.				
<b>Do:</b> Copy as many characters as you can. Let go of those you don't recognize quickly. Write a line down, and be ready for the next character. Check your work.. Note any troublesome characters.				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1 or BC2	<i>This week's letters</i>	<i>ALL your characters</i>	Groups of 5
<b>Exercise:</b> Words, Phrases, Abbreviations and States				
<b>Objective:</b> Enforce your character recognition and improve your copy of words.				
<b>Do:</b> Copy as many characters as you can. Let go of those you don't recognize quickly. Write a line down, and be ready for the next character. Check your work.. Note any troublesome characters.				
TYPE	CLASS	LETTER GROUP	LESSON	PRESET
STUDENT	BC1	<i>This week's letters</i>	(select one) * Abbreviations or * Phrases or * States/Provinces or * Words or	Default 12/8
OR				
STUDENT	BC2	<i>This week's letters</i>	(select one) * States/Provinces or * QSO Abbreviations or * QSO Phrases	Default 12/10



## COMPREHENSIVE LEARNING STRATEGY:

Productive practice is only one component of a comprehensive learning strategy. The following is a suggested optimum learning schedule:

- Attend one or two BC classes weekly
- Attend one BC Sending class weekly
- Practice at home daily
- Keep the mind immersed in Morse Code throughout the day
- Attend one or two BC Guided Practice sessions weekly
- Attend two or more BC Open Practice sessions weekly
- Listen to real CW on the air. If you don't have a radio use [webSDR](#).
- Attend Recorded QSO Copy class with Bob WO6W Thu 6:00 PM ET



## ***INTERMEDIATE CURRICULUM:***

### **A COMPREHENSIVE AND STRUCTURED APPROACH TO ACHIEVING CONVERSATIONAL HEAD COPY PROFICIENCY:**

Head copy is the skill of mentally understanding and interpreting Morse code messages as they are received without the need to write down each character. The term is widely used and conveys different meanings. For example, we conduct basic head copy exercises in the Beginners Carousel to introduce the concept. But becoming conversational is the level of proficiency or fluency that enables an operator to engage in conversations with others. It goes beyond basic CW skills and involves the ability to understand and respond effectively without reference to a script or any written material. Conversational head copy is transformative. It fundamentally and positively alters the way CW is experienced.

The early stages of the intermediate curriculum focus exclusively on achieving effective and effortless communication skills we term fluency and fluidity. Particular emphasis is placed on quality sending with proper element formation, spacing, and rhythm.

Increasing effective speed is critical to achieving proficiency in conversational head copy. Speed is time. Slow speed means more time is needed to hold characters during word building, which can overtask mental capacity.

Once sufficient effective speed is achieved, the slow and methodical ramp-up to head copy is begun. The enabling skills of word building and retention with proper focus are presented with unique demonstrations and reinforced with highly effective exercises designed to stimulate fluid receiving of code and the mental processes of conversational head copy.

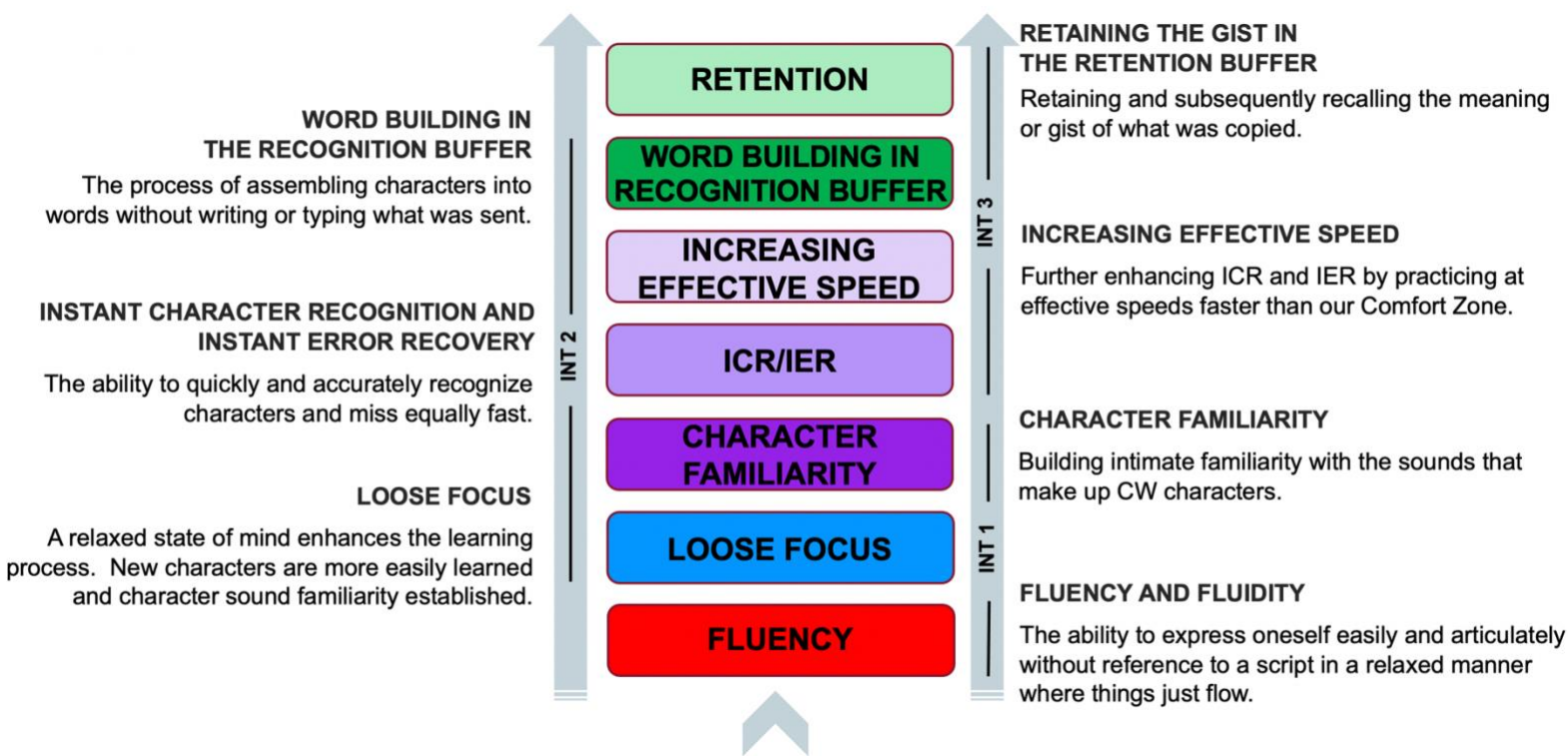


Figure 9 A Structured Approach

## CURRICULUM OVERVIEW:

The Intermediate curriculum is comprised of three levels of classes with an ever-increasing set of knowledge, skills, attitudes, and behaviors. The Intermediate classes sit squarely between operators who have just learned their basic code, and those who are competent rag chewers and contesters at the Advanced level. It seeks to teach a critical set of skills that are rather unique to this transition and tackles the difficult task of bringing conversational skills to those who have previously only participated in scripted exchanges. This is the ideal time to begin learning about advanced CW activities and support resources in Essential Operating Subjects classes.

Typically, students entering Intermediate 1 know their characters at about 12 WPM from BC1 and BC2, know some abbreviations and general QSO protocol, and have made basic exchanges on the air via BC3 and GOTA activities. The curriculum is also well suited for students that learned the code years ago and wish to relearn it, or students that tried learning the



code elsewhere and were not able to progress to their desired level of proficiency.

In the early part of the Intermediate Curriculum the primary objectives are to develop fluency and fluidity in students, and thereby push from formulaic, templated QSOs to freeform, conversational communication in CW without reference to a script. We focus strongly on these goals at the entry speed of around 12/12 WPM.

Throughout the Intermediate Curriculum we focus on high-quality sending. Part of this is encouraging students to both provide and accept constructive feedback from the instructor and, importantly, from their peers, in any difficulties in copying their fist. Part of this is a critical analysis of incoming code, identifying the intricacies (or “accent”) of the fist in a way that sets us up to better sync up with the sender.

Once fluency and fluidity are achieved, we begin increasing effective speed in increments toward our goal of 20/20 WPM. We begin by increasing awareness of our mental state and assuming a more relaxed posture, which enhances the learning process. We then turn our attention to the foundational skills of Character Familiarization, Instant Character Recognition (ICR) and Instant Error Recovery (IER). The objectives are to quickly, accurately, and effortlessly recognize characters, and to miss a character and move on without negatively affecting the recognition of subsequent characters.

Once effective speed has been increased sufficiently, we focus on word building in the [Recognition Buffer](#), which is the process of assembling characters into words without writing or typing what was sent.

We continue to increase effective speed and begin to focus on the parallel mental process of retaining and subsequently recalling the meaning (gist) of what was copied in the [Retention Buffer](#).



## THE PATH TO MORSE CODE FLUENCY:

According to LICW Instructor Tom Weaver W0FN, fluency is *the comprehension of meaning while listening combined with sending speed, rhythm and accuracy*. In his paper, *The Path to Morse Code Fluency*,<sup>9</sup> Tom explores the two essential skills which enable Morse code fluency:

1. Extreme familiarity with the alphabet: **Instant Character Recognition (ICR)**
2. Character flow skills (keeping up) powered by **Instant Error Recovery (IER)**

These two skills are foundational, and improving one helps improve the other. Instant Error Recovery isn't "letting go" of non-recognition events, *it's never hanging on in the first place*. **Missing stuff isn't failure, it's essential IER practice!**

## INSTANT CHARACTER RECOGNITION:

We begin by learning dit/dah sequences of each letter but that's far from truly *knowing* the alphabet. When each CW letter sound *is* the letter without thought (like spoken letters), that's the level of character sound familiarity necessary for Morse code fluency. To paraphrase Nancy Anne Kott<sup>10</sup> SK, WZ8C, [over-learn the alphabet](#). Over-learning each letter by their unique acoustic sound is an integral part of the journey to [Morse code proficiency](#).

## INSTANT ERROR RECOVERY:

ICR and IER are equally essential skills. Over-learning your ABC's alone is important, but you must also have the ability to instantly recover from non-recognition events. Improving IER requires a **Try But Don't Care** attitude; being mentally alert while remaining indifferent to misses. This alert indifference helps get your conscious mind out of the way, allowing your super-fast subconscious to 'take a shot'. Be relaxed, go with the flow, adopt

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<sup>9</sup> The Path to Morse Code Fluency. (n.d.). <https://longislandcwclub.org/academic-downloads/>

<sup>10</sup> Instant recognition. (n.d.). <https://cwops.org/wp-content/uploads/2019/08/Instant-Recognition-Nancy-Kott.pdf>



a light mental touch. Trying to get *every single character* prioritizes conscious efforts and tends to block out the subconscious. Your subconscious may not be up to the task yet due to insufficient character sound familiarity, but practice using it anyway!

Improving IER will increase your comfort level with fast CW. Good IER skills replace slow conscious comprehension efforts with a speedy 'go with the flow, try but don't care' attitude. It's tough to master 25 WPM comprehension (for example) if you avoid listening to it. Practicing with speedy CW will build your ICR and IER skills – faster! An IER mindset can accelerate your ICR improvement, which benefits your IER speed, which in turn helps ICR, etc. Take advantage of this positive feedback loop - it will accelerate your journey.

### **CHARACTER FLOW RECOGNITION:**

ICR isn't a 'recognize letters quickly with plenty of time between them' skill. It's all about word building as letters arrive in the midst of a rapid flow of CW. As CW character flows speed up, ICR begins to give way to **Character Flow Recognition (CFR)**. A very high level of character sound familiarity is what empowers CFR; familiarity-driven CFR is the subconscious equivalent to ICR/IER skills. CFR is 'sound surfing', where familiarity reigns supreme. CFR and its comprehension skills depend upon a mastery of unique character sound familiarity.

Learning to hear a unique sound per letter at very short recognition intervals (speedy CW) is how you develop CFR; listen to code faster than your comfort level! If you wish, try [word building without CW](#) to check your spelling and word building skills. If short phrases or sentences are difficult to comprehend you may still be decoding dits and dahs (too slow). As character sound familiarity grows, recognition will transition into an automated background/subconscious task. The brain's conscious retention buffer is then free to build words as letters arrive, string them together, follow trains of thought, and understand what's being said.

**Instant Word Recognition** and **Instant Syllable Recognition** (IWR and ISR) occur naturally as short groups of letters are heard repeatedly (CQ, THE, RST, QTH, TNX, WX, ING, ED, ER, TEST, etc.). Common letter sequences heard often enough will eventually morph into a single sound





rhythm. Since this happens naturally over time, IWR and ISR will automatically improve.

As the character speed increases it gets easier and easier to hear each letter as a single acoustic sound rhythm. Decoding dit/dah sequences is too slow once you put the pencil down; hearing each letter as a single sound becomes important. Listen to on-air QSOs, short stories, and rag chews. Prioritize 'keeping up' (CFR practice) and don't worry about missing stuff (IER practice). As you go with the flow regardless of non-recognition events, you'll notice your conscious mind will start to step aside and let your subconscious do the recognition work.

We all learn differently, so do more of what is effective for you and less of what doesn't seem to help. When you get tired and it feels more like work and less like fun, stop and pick it up again later. 'Code talk' to yourself and/or out loud through the day, and practice sending and listening to CW multiple times per day. Good luck, have fun, keep practice sessions short and sweet (10 – 15 minutes), and get a code buddy.

### **ASSUMING A LOOSE FOCUS:**

Concentrating long enough to copy a message is hard, for several reasons. One reason is distraction; it's very easy to "fall off the rails" as you miss a character, or things seem to come too quickly, or you try to interpret what the message is. Ironically, another easy way to lose focus is to concentrate too hard. It takes concentration to be on the ball in terms of rapidly interpreting what's coming, and remembering it, but too much concentration is tiring, and makes you more susceptible to some of these minor bumps in the road.

The best place to be is a "loose focus" or a relaxed concentration; treating Morse code as a "lean back medium." Another way to describe it is "alert indifference." The indifference combined with an alert mindset enables one to 'Go With The Flow' at higher and higher speeds with no concern about missed characters or words.

Indifference does not mean not trying. The goal is to **try but don't care**. Sometimes conditions require higher focus (or trying harder), but that uses up mental capacity and may take its toll in other areas like word building or



retention. The objective is to try with as little effort as needed for the given circumstances. The result is a consistent, controlled, steady, and balanced approach to CW with nothing to celebrate and nothing to lament.

### **INCREASING EFFECTIVE SPEED:**

Increasing effective speed is one of the more challenging and sought-after CW skillsets. Increasing effective speed requires building intimate familiarity with the sounds that make up CW characters. Character sound familiarity is the foundation of accuracy in character recognition. This is a gradual and relaxed process of exposure, practice, and reinforcement. Once strong character sound familiarity has been achieved, the focus shifts to accuracy and speed, which requires pushing practice into uncomfortable levels where missed characters are common and desired. Missed characters are not mistakes, they are practice.

### **WORD BUILDING IN THE RECOGNITION BUFFER:**

The mental process of assembling characters into words is complex and highly individualistic. Once a character is recognized and not written down or typed, it must be stored. Some people visualize the characters, others do not. Some see them on a blackboard or on a ticker tape. Others just keep them in a form of memory. In either case, we call this the Recognition Buffer. Subsequent characters are stored until words begin to form.

Most students reporting difficulty and frustration word building in the Recognition Buffer are actually deficient in ICR. The following Morse Code Ninja lessons are useful in determining your level of ICR proficiency:

[15 WPM ICR minimum](#)

[20 WPM ICR preferable](#)

Another useful tool in diagnosing difficulty word building in the Recognition Buffer is to take CW out of the equation. The following Morse Code Ninja lessons send characters letter by letter in English, allowing the skillset of word building to be honed without the burden of copying CW:

[Learn to follow letter by letter](#)

[Top 1000 Words - Fast - Spoken letter by letter](#)



Try to anticipate and project the end of words. Notice the mind switches from copy mode to verification mode. This is a highly desirable state, which is less taxing and frees mental capacity for projection of subsequent words and even sentences.

### **RETAINING MEANING (GIST) IN THE RETENTION BUFFER:**

The retention of meaning (gist) occurs in a different part of the mind. We call this the Retention Buffer. This is often confused with short-term memory, but it is actually the opposite.

If directed to memorize a conversation verbatim, the mind will switch to a high degree of focus. Visual and spatial techniques such as association, visualization, and mnemonics may make it easier to memorize, but in the end, the effort is mentally taxing and directed at words instead of meaning. Ultimately, the information is quickly forgotten. Conversely, if directed to sit back and just listen to a conversation, the mind assumes a loose focus, which promotes pathways to the Retention Buffer. The meaning of what was heard is effortlessly recalled and items of interest or relevance are often retained for long periods of time. That is the essence of conversational head copy. Effortless retention of the meaning (gist) of what was copied. The words don't matter – only the message they encode.

### **PHONIC COPY:**

Phonic copy is an alternate means of word building. The concept is simple, letters represent phonic sounds. Instead of converting CW to a character, phonic copy converts CW to phonic pronunciation. Doing so eliminates the conversion of copied characters into words, thus promoting faster overall copy. Phonic copy also promotes different pathways to the Recognition Buffer making copy of longer and more complex words possible.

One challenge to learning phonic copy is that English is not phonetic. Words may have the same spelling but different pronunciation. For example: *I like to read. I just read the guide.*

Paul Carreiro (N6EV) wrote an outstanding article describing Phonic Copy in detail. It may be [read here](#).



## **INSTANT WORD RECOGNITION:**

Another way to eliminate the conversion of copied characters into words and promote faster overall copy is recognizing words as single sounds. This is commonly referred to as Instant Word Recognition (IWR). Oftentimes, IWR will occur without conscious effort, just by repeatedly hearing certain words. For example, *CQ* and *THE* are typically the first abbreviation and word recognized as single sounds.

IWR exercises in the MPP include the top 100 words. Characters are played once, voiced, then repeated six times. Try not to decode each letter. Assume a loose focus or a relaxed concentration and let the repetition of the words do the work. Remember, you never tried to learn *CQ* as a word.

STUDENT > ADVANCED > IWR > Instant Word Recognition > Instant Word Recognition

Alternate IWR exercises are:

[The Morse Ninja Instant QSO Element Courses.](#)

## **ADVERSE COPY:**

Adverse copy is understanding how to decode less than perfect code sent in difficult band conditions, with fists that may have a 'swing,' unlike clean computer-generated code. It can also include CW transmitted with tones that have chirps, buzzing or clicks for example. According to Howard WB2UZE, adverse signals are not to be tuned past on the air. They are a challenge and a reward skilled telegraphers seek. Adverse copy skills enable operators to copy weaker signals amongst louder signals. Learning how to copy these difficult on-air signals prepare operators to handle the trials and tribulations found on the ham bands under every day operating circumstances. To the extent feasible our Intermediate 3 and Advanced classes will cover Adverse Copy training. Many students have mentioned (somewhat to their surprise) the study of Adverse Copy has made them better operators.



## **CLASS SCHEDULES:**

To the extent feasible, Intermediate and Advanced classes are scheduled Monday through Friday at the same time to encourage the same group of students to attend. We have found the friendships and bonds formed in these classes create a unique and highly supportive learning environment we have dubbed the cohort effect. We have also designed significant overlap between each class level, and we encourage students to attend two levels at the same time. One class should be a comfort zone class and the other a stretch class which significantly challenges the student into their uncomfortable zone. Over time, the stretch class becomes the comfort zone and students' progress to the next level.

## **ANNOTATIVE COPY:**

Some students do not wish to learn head copy at this point of their CW journey. Writing on paper what is copied in intermediate classes is perfectly acceptable but becomes more and more impractical as speed is increased.

Writing what is copied and head copy are not mutually exclusive. They complement each other and are often used concurrently. Writing is ideally suited when there is little, or no context and accuracy is the primary goal, such as traffic handling or call sign and signal reports. An experienced operator will annotate a few critical things and head copy the rest.

## **INTERMEDIATE 1:**

Intermediate 1 proficiency objectives are CW Fluency and Fluidity. Fluency is the ability to express oneself easily and articulately without reference to a script such as the QSO Protocol or a canned exchange. Fluidity is the smooth and effective exchange of information. Communication is considered fluid when ideas and thoughts are expressed in a clear and concise manner, and the information flows seamlessly.

The focus of Intermediate 1 is receiving conversational code in context, well-paced head sending, and relaxed copy to the point things just flow.



Character sound familiarity, character recognition, and sending skills learned in the Beginners Carousel are carried forward to support the new learning objectives.

LICW classes are open enrollment and everyone is welcome, but the curriculum takes a building block approach. Each block is comprised of an ever-increasing set of knowledge, skills, attitudes, and behaviors. As such, a certain level of proficiency is necessary to support the new learning objectives in subsequent blocks.

Students entering Intermediate 1 should be proficient in recognizing and sending the 44 BC characters at 12/12 WPM, know some abbreviations and general QSO protocol, and have made basic exchanges on the air. The MPP is a useful tool for student self-evaluation.

STUDENT > INTERMEDIATE > INT 1 (12) > B1B2 REVIEW > Default  
12/12

### **ESSENTIAL OPERATING SUBJECTS:**

Essential Operating Subjects classes are designed to help students become better operators by broadening their knowledge of CW and introducing them to various types of CW activities and support resources. Essential Operating Subjects classes are taught by highly seasoned operators. Students are encouraged to begin attending Essential Operating Subjects classes as soon as they begin the Intermediate curriculum. It may take months of steady attendance to cover all of the operating subjects such as:

- “Am I getting out? Can you hear me?”
- Field Day
- Introduction to Contesting
- Logging programs
- Portable Operations
- POTA
- QRP Clubs
- QSLing in an Online World
- SKCC - SKED Page, Logger, Elmer Program, Events
- Spotting programs



- WA7BNM Contest Calendar
- Weekly Contests - K1USN SST, MST, CWT

## **OPEN PRACTICE:**

Open Practice sessions are held each weekday. Intermediate students are encouraged to attend. There is no instructor. Session structure and content are completely up to the attendees. Paired QSOs, which enhance students' ability to communicate in a clear and unambiguous manner without reference to written text are highly encouraged.

Content: Simple exchanges such as "What's your fav rig?"

Conduct: One student sends to another; that student responds (perhaps two back and forths). Use BK for the transitions.

## **INTERMEDIATE 2:**

Intermediate 2 proficiency objectives are increasing effective speed from 12 to 16 WPM and building the foundational head copy skill of assembling characters into words in the recognition buffer.

The underlying skillsets of Fluency and Fluidity (the ability to express ideas and thoughts in a clear and concise manner without reference to a script) are carried forward to support the new learning objectives, and the following new skills are introduced:

- Increasing Effective Speed
  - Adopting a Loose Focus
  - Character Familiarization
  - Instant Character Recognition (ICR)
  - Instant Error Recovery (IER)
- Word Building in the Recognition Buffer

Increasing effective speed requires building intimate familiarity with the sounds that make up CW characters. Character sound familiarity is the foundation of accuracy in character recognition. When a sound instantly conjures up a meaning, that is Instant Character Recognition. Our approach to achieving ICR is to assume a more relaxed posture and focus



on familiarity first, then accuracy and speed naturally follow. This is a gradual and relaxed process of exposure, practice, and reinforcement. Once strong character sound familiarity has been achieved, the focus shifts to accuracy and speed, which requires pushing practice into uncomfortable levels where missed characters are common and desired. Missed characters are not mistakes, they are practice.

Becoming accustomed to character sounds equal to the next copy speed goal helps shorten the time required to reach that goal. Intermediate 2 students are encouraged to adopt a practice character speed of 16 WPM, and a portion of each class will be conducted at an effective speed of 20 WPM in order to achieve learning objectives. Students should continue the study of essential operating subjects, practice productively, and stay on the air.

LICW classes are open enrollment and everyone is welcome, but the curriculum takes a building block approach. Each block is comprised of an ever-increasing set of knowledge, skills, attitudes, and behaviors. As such, a certain level of proficiency is necessary to support the new learning objectives in subsequent blocks.

Students progressing to Intermediate 2 from Intermediate 1 should be fluent at 12 WPM.

Intermediate 2 is an alternate entry point for LICW members that learned their characters elsewhere and wish to progress. Oftentimes characters were learned at faster character speeds with a high degree of Farnsworth spacing. To harmonize the class, a character speed of 16 WPM with a minimum effective speed of 12 WPM will be used.

### **INTERMEDIATE 3:**

Intermediate 3 is the culminating portion of the intermediate curriculum. It serves as a gateway to the Advanced track. Intermediate 3 proficiency objectives are: (1) Increasing effective speed from 16 to 20 WPM, and (2) Building the foundational conversational head copy skill of retaining and subsequently recalling the meaning of what was copied in the retention buffer.





The underlying skillsets of increasing effective speed (loose focus, character familiarity, ICR, and IER) and basic proficiency in assembling characters into words in the recognition buffer are carried forward and remain a focus to support the new learning objectives, and the following new skills are introduced:

- Retaining and Recalling the meaning (gist) of what was copied in the Retention Buffer

LICW classes are open enrollment and everyone is welcome, but the curriculum takes a building block approach. Each block is comprised of an ever-increasing set of knowledge, skills, attitudes, and behaviors. As such, a certain level of proficiency is necessary to support the new learning objectives in subsequent blocks.

Students progressing to Intermediate 3 from Intermediate 2 should be fluent at 16 WPM.



## ***ADVANCED CURRICULUM:***

### **QRQ:**

Most people speak at a rate of around 110 to 150 WPM, while 20 to 25 WPM are considered conversational CW speeds. It stands to reason that many CW operators strive to communicate at faster speeds. QRQ enters the realm of high-speed telegraphy above 25 WPM. Those speeds may seem completely out of reach, but with proper training and practice, they are achievable.

### **CURRICULUM OVERVIEW:**

The Advanced curriculum is the culminating portion of the LICW curricula. It is comprised of three levels of classes with an ever-increasing set of knowledge, skills, attitudes, and behaviors.

Typically, students entering Advanced 1 are fluent in CW at 18 to 20 WPM. They are able to express themselves easily and articulately without reference to a script. They have a regular on-air presence and are comfortable with a wide range of activities from rag chewing to canned exchanges and contesting.

Advanced classes are a logical and intuitive progression from the Intermediate curriculum where foundational head copy skillsets have been developed. Teaching methods and student practice exercises are carried forward making for a very familiar and comfortable learning environment. The Advanced curriculum is also well suited for students that learned the code elsewhere and wish to avail themselves of our structured approach to learning conversational head copy.

The later part of the Advanced curriculum focuses on increasing speed into the realm of high-speed telegraphy where ICR begins to give way to Character Flow Recognition (CFR). A very high level of character sound familiarity is what empowers CFR; familiarity-driven CFR is the subconscious equivalent to ICR/IER skills. CFR is 'sound surfing', where familiarity reigns supreme. CFR and its comprehension skills depend upon a mastery of unique character sound familiarity.



## **ADVANCED 1:**

Advanced 1 proficiency objectives are conversational head copy and sending and increasing effective speed from 20 to 25 WPM. The focus is on:

- Adopting a Loose Focus
- Word Building in the Recognition Buffer
- Retaining and Recalling the meaning (gist) of what was copied in the Retention Buffer

Advanced 1 classes are very similar to Intermediate 3 classes, but they focus more exclusively on head copy and pushing speeds faster.

## **OPEN PRACTICE:**

Open Practice sessions are held each weekday. Advanced students are encouraged to attend. There is no instructor. Session structure and content are completely up to the attendees.

## **ADVANCED 2 QRQ:**

Advanced 2 proficiency objective is conversational head copy and sending from 25 to 35 WPM. At those speeds ICR begins to give way to familiarity-driven CFR.

## **ADVANCED 3 QRQ:**

Advanced 3 proficiency objective is conversational head copy and sending from 35 to 45+ WPM requiring mastery of familiarity-driven CFR.