



THE LICW CURRICULUM GUIDE

What LICW Teaches

VERSION 5.1

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LICW is committed to ensuring digital accessibility for people with disabilities. We strive to continually improve our curriculum, teaching methods, and training devices to enhance the user experience for all. This document has been optimized for screen readers used by the visually impaired.

REVISION HIGHLIGHTS:

Version 5.1 clarifies the progression from effective speed and conscious Word Building in INT2, through Word Discovery and conversational comprehension in INT3, to the increasingly automatic processing emphasized in ADV1 as the Path to Fluency culminates and the Path from Fluency to Mastery begins.

This revision defines Word Discovery more fully as deriving meaning from what has been copied, surrounding context, and informed imagination. It clarifies the roles of Functional and Cognitive Fluency and aligns INT2–ADV1 classroom tool use with live, human-sent CW.

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HOW TO USE THE COMPANION PUBLICATIONS

Publication	Primary purpose
The LICW Method	The integrated philosophy and instructional framework - how LICW approaches learning CW.
LICW Academic Positions & Research	Independent academic positions, research interpretation, evidence boundaries, and supporting rationale.
The LICW Curriculum Guide	Academic offerings, learning objectives, curricular content, organization, and progression.

1. ACADEMIC FRAMEWORK

The LICW Curriculum Guide describes the academic programs offered by the Long Island CW Club, their learning objectives, and the progression of skills from beginning Morse code acquisition through fluency and mastery. It identifies the capabilities developed at each level and explains how the various academic offerings support one another. Detailed lesson plans and classroom procedures are maintained separately in the program Instructor Guides.

The two complementary receiving foundations are Automatic Character Recognition (ACR) and Continuous Flow. ACR is increasingly reliable recognition of a complete acoustic character without deliberate element reconstruction. Continuous Flow is the ability to remain with arriving code, preserve continuity through imperfect reception, and recover promptly after misses. Neither perfect isolated copy nor a particular Time To Recognize (TTR) number defines the goal.

Two receiving objectives develop on this same foundation. Conversational Head Copy emphasizes following meaning as it develops. Callsigns and Exact Copy emphasizes preserving and verifying specified data. Listening posture and the conditioned response after recognition vary with the task, but sound-first learning, Loose Focus, and Flow remain common.

FOUNDATIONAL LEARNING OBJECTIVES

Sound-first recognition: Morse characters are introduced as complete acoustic patterns rather than visual dot-and-dash sequences or mnemonic translations.

Continuous Flow and recovery: Students develop the ability to remain with arriving code and reconnect promptly after missed material through Instant Flow Recovery (IFR).

Live communication: Interactive classes, sending, receiving, feedback, and independent practice develop the skills used in real QSOs.

Individual progression: Continuous-entry programs and overlapping levels allow students to build competence through comfortable practice and manageable challenges.

On-air participation: Actual CW operating is an integral part of learning and is encouraged when students feel ready, without requiring perfect classroom performance.

Companion references: The LICW Method, pp. 5–10; AP-03, AP-12, AP-15, AP-24, AP-28.

STUDENT DEVELOPMENT AND PRODUCTIVE PRACTICE

Learning CW includes overcoming fear of mistakes, transmitting in front of others, and joining more demanding classes. Progress includes improved continuity, quicker recovery, clearer sending, and growing confidence, rather than a requirement for flawless performance.

Productive practice is purposeful, manageable, and distributed over time, often concentrating on one to three skills in a session. Receiving and sending develop together. Variations in speed, duration, and complexity create appropriate challenge, while adequate rest helps prevent cognitive fatigue.

Companion references: AP-12 through AP-16, AP-21, AP-23; The LICW Method, “Practice, OverLearn, and Recovery.”

2. ACADEMIC PROGRESSION

LICW provides a single, continuous-entry path: the Path to Proficiency, the Path to Fluency, and the Path from Fluency to Mastery. These are developmental descriptions rather than deadlines or pass/fail gates. Adjacent classes overlap intentionally; a student may attend a familiar comfort-zone class and a manageable stretch class.

Offering	Primary curricular focus	Developing capability
BC1	Sound-first introduction and early recognition	Recognizes introduced sound patterns and reproduces them with increasing consistency.
BC2	Complete character set and short-word Character Flow	Receives successive characters and familiar operating words with growing continuity.
BC Guided Practice / INT Prep	Two- to four-character flow and IFR	Releases a miss, resumes with incoming material, and participates in INT-style exercises.
BC3	QSO protocol and on-air readiness	Handles brief exchanges, requests repeats, and begins operating with support.
INT1	Flow Skills Development	Remains with continuous material without habitual rewinding or interruption.
INT2	Effective speed, Character Flow, Word Building, emerging meaning	Strengthens ACR and CFP, retains successive characters, builds words mentally, and begins deriving conversational meaning.
INT3	Further effective speed, Word Discovery, conversational comprehension	Combines recognized material with context and informed inference to follow words, phrases, and developing meaning despite misses.
ADV1	Conversational fluency; transition toward mastery	Follows sustained conversations with increasingly automatic comprehension, flexibility, and attention to ideas rather than characters.
ADV2–ADV3	Resilient, lower-effort QRQ comprehension	Preserves meaning, rhythm, recovery, and endurance at increasing challenge.
Callsigns and Exact Copy	Exact-data retention, logging, verification	Preserves recognized data accurately and marks uncertainty without stopping the stream.

Offering	Primary curricular focus	Developing capability
OverLearn Bootcamp	Forward-facing Flow habits	Demonstrates Loose Focus, Alert Indifference, IFR, and sustainable stretch practice.

Words-per-minute ranges describe typical class design and goals, not universal readiness tests. Student progress is reflected in overall listening behavior, comprehension, on-air confidence, sending quality, and individual readiness. Development is not defined by a single copying percentage or speed threshold.

PROGRESSION AND OVERLAPPING LEVELS

Students may repeat a Carousel rotation, remain at a level while it is useful, or attend adjacent levels. Comfort work builds dependability; stretch work creates opportunities for adaptation. A class labeled faster or more advanced should not become a source of embarrassment for a student who misses substantial material.

3. BEGINNERS CURRICULUM: THE PATH TO PROFICIENCY

The Beginners Carousel establishes complete sound-pattern familiarity, sending, early Character Flow, and practical operating competence. It is continuous-entry: students may enter any rotating lesson and advance when ready. LICW preserves the sound-first principles described by Koch while employing its own communication-driven character sequence. The historical record and evidence limitations are addressed separately in AP-02, AP-04, AP-06, and AP-07.

BC1: CHARACTER INTRODUCTION

BC1 consists of 18 characters taught in six lessons, with the broad objective of helping students learn how to learn CW using the LICW Method while developing early character recognition. The instructional emphasis is on hearing and associating CW acoustic patterns with their corresponding characters.

Training begins at a character speed of 12 WPM with an effective Farnsworth speed of 8 WPM (12/8). Each lesson introduces no more than three new characters, one at a time, using LICW's sound-first character-introduction process. For each new character, the instructor first plays the

sound without revealing its identity. Students mark a dot on paper each time they recognize the recurring acoustic pattern, reinforcing perception of the character as a single, complete sound unit rather than as a sequence of dits and dahs.

Only after sound familiarity begins to form is the pattern linked to its corresponding letter. Students then respond by saying, writing, or typing the character when they hear it. The same sequence is used for each new character introduced during the lesson.

After identification, students send the new character on a straight key or verbalize it for the instructor, and the character is integrated with material already in the curriculum stream. This live response gives the instructor useful insight into whether the student is perceiving the character as a unified acoustic pattern or analytically reconstructing it element by element.

CODE TALKING

Code Talking is a simple and effective way to maintain immersion in Morse code throughout the day. By verbalizing characters, students can reinforce sound patterns without the need for a key, oscillator, or other equipment. The method was introduced to LICW by Chris Rutkowski, NW6V.

The method uses three spoken sounds: “di,” “DAH,” and “dit.”

Because Code Talking reflects the acoustic rhythm of actual Morse code, it integrates naturally into early learning. Within BC1 it is used after a sound has been introduced, as a bridge to actual sending and receiving and as a way for the instructor to hear how the student is perceiving the character. It is not a substitute for sound-first introduction or live receiving practice. One of its chief strengths is portability. Students can use it informally throughout the day by verbalizing letters from signs, license plates, or other common visual prompts as though they were being sent in code. Even brief periods of practice can reinforce character recognition, strengthen awareness of rhythm and spacing, and support the development of more automatic recognition habits. Over time, this kind of immersion helps Morse code feel increasingly familiar and natural.

Examples: R = “di-DAH-dit”; E = “dit”; A = “di-DAH”. Code Talking reinforces rhythms after the sound has been introduced; it is not a substitute for listening to actual code.

CHARACTER FAMILIARIZATION AND EARLY ACR

Character sound familiarity is the foundation of Automatic Character Recognition (ACR). A character’s identity can be taught, but effortless familiarity with its acoustic pattern must be built. LICW therefore prioritizes familiarity first, for as long as necessary, while gradually developing dependable recognition in the incoming stream. Repeated exposure, sending, receiving, and deliberate practice move recognition toward automaticity without imposing an artificial recognition-time threshold.

Character familiarization mixes newly introduced sounds with previously learned material. Practice inside and outside class gradually makes complete sound patterns easier to recognize and supports the emergence of ACR.

A relaxed state of mind, combined with loose focus, supports this process. That mindset helps new characters settle more easily, reduces mental fatigue, and promotes longer periods of effortless copy.
For a student’s first BC1 lesson, the primary objective is familiarity with the newly introduced characters. Recognition develops progressively and is reinforced throughout the Beginners Carousel.

BC SENDING

Sending is not merely a mechanical skill; it is a foundational component of Morse code development across the full continuous learning path from proficiency through fluency to mastery. Disciplined sending develops rhythm, spacing, and tempo and may reinforce familiarity with the acoustic patters used in reception.

Sending is integrated across all stages of instruction. Sending classes are structured to align with the enabling objectives at each stage of the curriculum, reinforcing the progression from early character learning to fluent communication.

BC Sending supports students from the beginning of their CW journey through completion of the full 44-character set. Instruction begins with key adjustment and proper hand placement in order to promote comfort, control, and endurance.

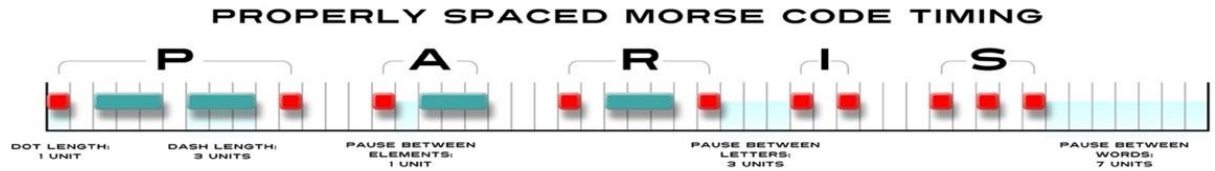
The straight key is LICW's preferred instructional starting point because its simple ON/OFF action reinforces awareness of rhythm, spacing, and chara cter formation. It is a recommendation, not a requirement. Paddles and keyers may also be appropriate from the beginning according to student needs, comfort, and accessibility, while preserving the same sound-first learning objectives.

A central feature of BC Sending is practice against a standard so that errors are not repeated and reinforced. The LICW Morse Practice Page (MPP) is used for this purpose, with instructors guiding students through a simple progression: hear a letter → say a letter → send a letter. Real-time feedback helps students form dits and dahs cleanly, maintain correct spacing, and develop consistent rhythm. Instructors provide continual feedback on element and character formation so that what students send matches what they hear, strengthening the sound-symbol-motor connection that supports both sending and receiving.

As students gain consistency and complete the character set, the emphasis shifts naturally from isolated characters to smooth, rhythmic sending of words and short phrases at 12 WPM. The goal is to build confidence, pacing, and recovery so that sending begins to feel conversational rather than mechanical. BC Sending therefore serves as both a foundation and a bridge - establishing correct habits early while preparing students for the flow-based demands of the Intermediate curriculum.

MORSE TIMING AND SPACING

International Morse timing forms part of the sending curriculum. A dot lasts one time unit, a dash three units, spacing within a character one unit, between characters three units, and between words seven units. Proper spacing makes transmitted code easier to recognize as sound.



Correctly spaced Morse timing - graphic by Michael Maynard K4ICY

ZOOM AUDIO CHECKS (BC1 & BC SENDING)

BC1 and BC Sending are supported by brief Zoom audio checks, normally offered before class, to establish a clear, usable sidetone and audio connection. Detailed setup and troubleshooting procedures are maintained in the appropriate Instructor Guides.

These checks reduce avoidable technical obstacles so class time can concentrate on Morse sound, receiving, sending, and participation.

BC2: COMPLETING THE CHARACTER SET

BC2 expands the character set by introducing 26 additional characters across nine lessons, including numbers, prosigns, and BK, bringing the total learned to 44 characters. The broad objective of BC2 is to help students develop productive practice habits while building short-word character flow.

Character speed remains at 12 WPM, while effective speed increases to 10 FWPM (12/10). BC2 uses a more direct character-introduction process because students have already learned the sound-first habit in BC1. New characters may be identified when introduced, while instructors continue to reinforce whole-pattern perception and discourage analytical dit-and-dah reconstruction. This is an LICW curriculum decision for the later beginner stage rather than a universal claim about Koch's procedure.

New characters introduced in BC2, together with the 18 carried forward from BC1, allow students to begin receiving and sending common QSO words and phrases. This is a transition from isolated recognition toward Character Flow, not a claim that all characters must already be recognized automatically under every condition.

BC GUIDED PRACTICE / INTERMEDIATE PREP

BC Guided Practice / Intermediate Prep classes are held immediately after each BC2 class, and both BC1 and BC2 students are encouraged to attend. These classes provide real-time instructor feedback, peer encouragement, and collaborative learning, all of which help reinforce the skills developed in the Beginners Carousel and accelerate student progress.

The first half of each class is devoted to reinforcing the day's BC lesson through structured repetition, with emphasis on sound familiarity and character recognition.

The second half transitions to Intermediate Preparation, emphasizing multi-character Flow exercises of two to four letters that expand comfort zones, strengthen continuity, and develop short-word Character Flow Proficiency (CFP). Students are encouraged to remain with arriving characters, release missed material through IFR, and avoid mentally reconstructing earlier sounds while new material is arriving.

The Intermediate Preparation portion closely resembles the experience of an INT1 class. This familiarizes students with longer, more continuous receiving and eases the transition from the Beginners Carousel into Intermediate.
During the later part of BC2, BC Guided Practice / Intermediate Prep becomes an important regular component of the learning path. BC2 students increasingly rely on continuous-flow practice as they prepare for INT1.

BC OPEN PRACTICE

BC Open Practice sessions are held each weekday and are open to both BC1 and BC2 students. Unlike Guided Practice, which is instructor-led and aligned with the curriculum, Open Practice is student-led. This gives participants the freedom to set the pace, choose the focus, and experiment with different approaches.

The atmosphere is intentionally relaxed and social, providing a low-pressure environment in which students can apply skills outside the formal classroom setting. Although these sessions have no required structure, many groups choose to model them after Guided Practice by using simple exchanges, QSO-style interactions, and informal sending drills.

Open Practice also provides an important opportunity for peer connection. Students often share tips, compare experiences, and work through difficulties together in a collaborative spirit. This peer-to-peer environment helps reinforce learning, build confidence, and normalize the challenges of early Morse code acquisition.

Guided Practice and Open Practice are most effective when used together. Guided Practice reinforces class skills through structure and instructor support, while Open Practice provides a relaxed setting for experimentation, repetition, and peer learning. Students who participate in both typically progress more quickly, build greater confidence, and enjoy the process more fully.

BC3: PREPARING FOR ON-AIR OPERATING

BC3 is the culminating stage of the Beginners Carousel curriculum. It consists of five preparatory lessons designed to build the competence, confidence, and readiness required for real-world on-air operating.
Like BC1 and BC2, BC3 has no fixed entry point and no reset; students may join at any time and advance when ready. Students do not need to wait until they have completed BC2 to begin BC3. They are encouraged to join as soon as they feel ready to begin preparing for live operating.
The five rotating lessons combine a short operating-protocol briefing with guided, interactive practice of specific exchange types:

- LICW QSO Protocol (Lesson 1)
- LICW QSO Protocol (Lesson 2)
- SKCC exchange
- SOTA/POTA exchange
- K1USN SST exchange

The ultimate goal of the Beginners Carousel curriculum is to prepare students to get on the air - and to succeed when they do. A first on-air QSO is a meaningful milestone and should be celebrated, but it is also deeply personal. On-air activity is encouraged, but never required. Students may begin operating whenever they feel ready, and there is no expectation to “go live” by a certain time or in a certain way.

When students do begin operating, on-air experience accelerates learning through real-world exposure. Operating in live conditions helps students learn to:

- Accept missed characters without losing focus
- Build confidence through repeated experience
- Adapt to real variables such as band conditions, different fists and key types, and changing speeds

On-air operating connects students to radio history, develops adaptability, and validates hard-earned skills. Supportive classes and practice opportunities help students begin operating at a personally appropriate pace.

ON-AIR SUPPORT AND QSO PROTOCOL

LICW provides structured on-air support to help students bridge the gap between classroom learning and live operating. The K1USN SST (Slow Speed Contest) class, held on Sundays, offers a relaxed environment that is especially well suited to early QSOs.

LICW QSO PROTOCOL CLASS:

LICW developed its QSO Protocol Class to teach the proper conduct of CW QSOs outside tightly scripted contest-style exchanges. Its purpose is to help students understand the structure, rhythm, and conventions of ordinary on-air communication.

The LICW QSO Protocol Class covers ordinary CW contacts beyond scripted contest-style exchanges, including call establishment, signal reports, names and QTHs, changes of turn, appropriate repeats, and closing a QSO. Interactive practice supports both sending and receiving.

ACADEMIC FIELD TRIPS:

Occasional academic field trips introduce Beginners Carousel students to an INT1 class before they make the transition themselves. The visits familiarize students with Intermediate class structure and reduce the uncertainty that can accompany a new level.

SKCC AND POTA OPPORTUNITIES

The Straight Key Century Club (SKCC) is dedicated to promoting and preserving the art of mechanical-key CW operation, including straight keys, side-swipers (cooties), and bugs.

SKCC membership is free, and LICW encourages students to join and obtain an SKCC number. SKCC also sponsors monthly and special operating events that are especially well suited to developing CW operators. LICW and SKCC collaborate on initiatives designed to help students get on the air - and remain active there - with their mechanical keys.

Parks on the Air (POTA) is an amateur radio operating program that encourages portable operation from parks, public lands, and other designated entities. POTA provides an accessible and structured on-air environment where operators may participate either as activators operating from a park, or as hunters making contact with those activators.

POTA is especially well suited to developing CW operators because the exchanges are brief, predictable, and repetitive. This allows students to connect their LICW training to real on-air operation in a manageable and confidence-building format. POTA contacts help students practice listening, sending, exchange recognition, recovery, and operating rhythm without requiring a long conversational QSO.

LICW encourages POTA hunting and portable operation as practical opportunities to develop CW proficiency. These activities provide repeated exposure to callsigns, operating exchanges, logging, and accurate reception of critical information while building confidence in real-world operating conditions.

CODE BUDDY AND PEER PRACTICE

Jay NK2Y administers the KN6EY Memorial Code Buddy Program. Students interested in participating can find program information in the club Dropbox, and a signup form is available through the Club Resources section of the class schedules. Questions about the program should be directed to Jay.

The Code Buddy model is strongly encouraged because practice with another person adds motivation, accountability, and mutual support, all of which can meaningfully accelerate progress. Code Buddy practice may take place on Zoom, VBand, or on the air, depending on student goals and equipment.

WHERE TO FIND A CODE BUDDY

Beginners Carousel classes and practice sessions - both Guided and Open - are often effective places to meet compatible practice partners. Students are encouraged to look for someone whose goals, schedule, and level of commitment align with their own so that a consistent and productive practice routine can be established.

A good Code Buddy relationship can help students remain engaged, work through plateaus, and make Morse code learning more enjoyable. Over

time, it can become one of the most valuable support structures in the learning process.

ADVERSE COPY AND RECORDED QSOS

Adverse copy is the ability to copy Morse code accurately under real-world, imperfect conditions. On the air, signals are rarely as clean as the computer-generated practice many students begin with. Atmospheric noise, QRM, QSB, multipath distortion, frequency drift, chirp, buzzing, and a wide variety of sending styles - including fists with “swing” - are all part of normal operating conditions.

RECORDED QSO AND ADVERSE COPY CLASS:

A dedicated portion of the class focuses on adverse copy - the ability to maintain comprehension under imperfect or challenging conditions. Through guided exercises and progressive exposure, students learn to cope with fading, interference, unusual fists, and variable sending quality without losing continuity.

By working with real recordings rather than idealized audio, students develop greater resilience, confidence, and adaptability. For that reason, this class serves as an important complement to structured Morse training and helps prepare students for authentic on-air operating.

Companion references: AP-15, AP-22, AP-23, and AP-24.

4. TRAINING TOOLS AND RESOURCES

LICW recommends selected training tools for specific instructional and practice purposes across the curriculum. These resources are chosen because particular features can reinforce LICW academic objectives, support productive practice, improve accessibility, and help students develop progressively from early recognition and operating competence through fluency and, for those who continue climbing, mastery.

Tool use is always subordinate to the LICW Method. Recommendation of a resource does not mean that every feature of that resource represents an LICW learning method. Practice tools should reinforce sound-first auditory learning and live instruction, not replace initial character teaching, real-time instructor feedback, or listening with visual, mnemonic, transcript, or decoder-based shortcuts.

THE LICW MORSE PRACTICE PAGE:

The *LICW Morse Practice Page* (MPP) is the club's primary web-based practice platform. It is cross-platform and accessible on PC, Mac, tablet, and smartphone. Designed and developed by Randy KN4YRM, and continually expanded by Tom AB5TN, the MPP provides a flexible and accessible environment for Morse code practice across all levels of the LICW curriculum.

Exercises and configurations are aligned with the full academic program, from beginner through advanced levels, and are updated as the curriculum evolves. This allows students to work with targeted material that supports their current stage of learning and reinforces the skills most relevant to their next step.

In the Beginners Carousel, the MPP is especially useful for precise, standardized code generation during instructor-led familiarization and for independent reinforcement after characters have been introduced in class. As students progress toward conversational head copy, natural human sending becomes increasingly important. In INT2–ADV1, MPP and Word List Trainer (WLT) are tools for targeted independent practice, not classroom receiving exercises. Instructors may briefly demonstrate how to configure and use them for independent practice, including appropriate speed, spacing, ACR, Continuous Flow, OverLearn, and Periodicity. Class receiving exercises at these levels emphasize live, human-sent CW.

MORSE PRACTICE PAGE ACCESSIBILITY

The MPP has been optimized for screen-reader compatibility so that visually impaired users can navigate and operate the platform effectively. It also includes functions that support hearing-impaired users, including integration with the LICW haptic feedback device, allowing Morse code to be experienced through vibration as an alternative or supplement to audio.

These accessibility features reflect LICW's commitment to making high-quality Morse training available to all students, regardless of sensory limitation.

MORSECODE.WORLD:

MorseCode.World is a free, web-based, cross-platform resource developed and maintained by Dr. Stephen C. Phillips. It provides a broad collection of

Morse code tools, references, and training resources that can supplement LICW instruction and self-directed practice. The site is accessible on PC, Mac, tablet, and smartphone, supports screen readers, and can also be downloaded or installed for offline use.

The site is organized around both **International Morse Code and American ("Railroad") Morse**, making it useful for beginners, developing operators, and experienced users seeking additional practice or reference material. Its offerings include a well-known translator, flexible training tools, a keyer and sounder, decoder experiments, timing references, and historical material. LICW-aligned exercises are also available through the platform.

Within the LICW academic model, selected MorseCode.World features serve as valuable supplemental resources for practice, experimentation, and technical reference. Its translator, decoder experiments, and other visual or analytical features are not part of LICW's character-learning pathway and should not replace direct auditory practice or live instruction.

CW MICROTOOLS

CW Microtools is a lightweight practice resource developed by Quentin F4WGU, LICW's Chief Instructor. It is designed to support sending practice and early QSO preparation by helping students generate usable practice material that matches their current level of character knowledge.

The toolset can be used to generate words and sentences for sending practice when a student knows only a limited subset of Morse characters. It can also generate complete QSO exchange scripts using the student's callsign and member number for LICW, SKCC, SST, and SOTA/POTA exchanges.

CW SIGNALS

CW Signals is a web-based resource developed and maintained by LICW instructor Todd Mitchell, N0IP. It offers a **flashcard trainer** as well as **structured courses,** including LICW BC1 and BC2 (to supplement, not replace, classroom instruction).

Running strictly in the browser, cwsignals.com does not send any student information to the server (or anywhere else) and is fully COPPA-compliant.

The website is built for accessibility across all screen sizes. Screen-reader support continues to improve. Bug reports are appreciated at n0ip@cwsignals.com.

The flashcard trainer uses a heat-based spaced repetition system, the first of its kind in CW instruction. The trainer also provides customized sending drills that focus on the student's most challenging characters.

An Instant Character Recognition course is also available for students at every level. It offers an overspeed drill that automatically increases speed as you gain proficiency. The purpose of this course is to gain automaticity at your normal operating speed.

A "Focused Pairs" tool helps with easily confused pairs of characters, e.g. H/5. When consistent confusion is detected in flashcard drills, these pairs are added automatically. The student can also add pairs manually.

New features are in the works, including a lexicon of prosigns, Q-signals, and abbreviations derived from primary sources spanning more than a century.

CW FLOW PRACTICE TOOLS

CW Flow Practice Tools is a web-based, cross-platform practice resource developed by LICW instructor Duane WA7PGE. It is designed to support students as they progress from recognition toward fluency and, for more advanced students, toward mastery by providing configurable exercises that emphasize flow, continuity, and comprehension.

The toolset includes word- and phrase-based exercises that support recognition, word building, word discovery, and **Instant Flow Recovery (IFR)**. It also includes CW eBooks and a callsign trainer. Each tool can be configured by the user so that practice difficulty can be matched to current skill level and instructional need.

Within the LICW academic model, CW Flow Practice Tools provides targeted support for the transition from isolated recognition to sustained character flow, emerging conversational fluency, and, for more advanced students, the extension of that fluency into mastery.

MORSE CODE NINJA:

Morse Code Ninja, developed by Kurt AD0WE, is a comprehensive external resource for CW training and practice. It includes a wide range of materials, including software, interactive online training, on-air practice resources, hardware recommendations, books, and instructional guidance.

LICW collaborates with Morse Code Ninja on several initiatives designed to help students learn Morse code more efficiently and improve capability through structured, high-quality practice across all three major developmental phases of the LICW learning path.

All Ninja lessons are closed-captioned, reflecting a shared commitment to accessibility and helping ensure that students with disabilities have full access to the training materials. Within the LICW academic model, Morse Code Ninja serves as a valuable supplemental resource for structured practice, curriculum-aligned reinforcement, and accessible independent study across all three major developmental phases of the LICW learning path.

A PRINCESS OF MARS CW AUDIO PROJECT:

Wayne W5WLG has converted Edgar Rice Burroughs' *A Princess of Mars* into a chapter-based CW audio library for self-directed listening practice. The files are organized by chapter, typically run 10–20 minutes each, and are available in 2 WPM increments from 16 to 28 WPM. This collection is especially useful for INT2, INT3, and ADV1 students working to improve flow, endurance, recovery, and sustained copy through longer-form, engaging content.

MORSE WALKER:

Morse Walker is a web-based CW operating simulator developed by Henry W6NYC. It allows students to practice realistic CW exchanges, including POTA and contest-style operating, in a controlled environment before taking those skills on the air.

Within the LICW academic model, Morse Walker serves as a bridge between classroom instruction and live operating. It helps students build familiarity with the mechanics and flow of an exchange so that, when they

Get On The Air, more of their attention can remain available for listening, comprehension, and communication.

RUFZXP:

RufzXP is a callsign-reception training program designed to develop rapid and accurate recognition of amateur radio callsigns. It presents callsigns in Morse code and adjusts difficulty as performance improves, making it useful for strengthening callsign recognition, Short-Term Retention, and accurate copy under increasing time pressure. Within the LICW academic model, RufzXP is best used as a focused Exact Copy and operating-skills tool rather than as a general Morse-learning program. It can be particularly valuable for students preparing for POTA, contesting, DXing, and other operating situations where the accurate reception, retention, and verification of callsigns are essential.

Companion references: AP-26 (Decoders and Independent Learning) and AP-27 (Evaluation of New Tools and Ideas).

5. INTERMEDIATE CURRICULUM: THE PATH TO FLUENCY

The Intermediate curriculum builds on sound familiarity, early operating experience, and the Flow foundations established in the Beginners Carousel. Its purpose is not simply to increase receiving speed, but to develop the ability to follow increasingly continuous language and derive conversational meaning. Automatic Character Recognition (ACR) and Continuous Flow remain complementary foundations, supported by Character Flow Proficiency (CFP), Loose Focus, Instant Flow Recovery (IFR), and purposeful practice.

INT1, INT2, and INT3 form overlapping developmental environments rather than unrelated courses or speed tests. INT1 establishes Flow; INT2 strengthens effective speed and mental Word Building; INT3 develops Word Discovery and increasingly natural comprehension. These emphases are developmental, not fixed entry requirements or graduation standards. Students may benefit from attending more than one level, combining comfortable reinforcement with productive stretch.

INT1 - FLOW SKILLS DEVELOPMENT

INT1 begins at approximately 12 WPM and establishes dependable participation in continuous material. The curriculum includes human-sent short words, familiar QSO fragments, and brief exchanges; it develops

Loose Focus, Alert Indifference, and IFR while reducing fixation on individual misses. Short summaries or selective annotations may support comprehension without requiring exhaustive transcription. Development appears as an increasing ability to remain engaged, recover after a miss, and stay with the incoming stream.

INT2 - INCREASING EFFECTIVE SPEED, BUILDING WORDS, AND DERIVING MEANING

INT2 generally operates at approximately 12–16 WPM and builds on the basic Continuous Flow skills developed in INT1. The primary curricular objectives are to increase effective receiving speed, strengthen ACR and CFP, and begin the transition from recognizing successive characters to assembling words and deriving meaning. Students learn to retain recognized characters long enough to combine them into words and connect those words into meaningful phrases.

At first, mental Word Building may require conscious effort. As recognition becomes more automatic, students can devote more attention to the developing message rather than to each character. Progressively longer words, familiar phrases, and short conversational passages support this transition, while Loose Focus and IFR preserve continuity through incomplete reception. Development is reflected in sustained Flow, increasingly efficient Word Building, and emerging comprehension-not perfect transcription or a prescribed recognition-time measurement.

INT3 - INCREASING EFFECTIVE SPEED, WORD DISCOVERY, AND CONVERSATIONAL COMPREHENSION

INT3 generally operates at approximately 16–20 WPM and builds on the effective speed, Character Flow Proficiency, and Word Building developed in INT2. Its primary objectives are to further increase effective receiving speed, develop Word Discovery, and strengthen conversational comprehension while reducing dependence on deliberate character-by-character assembly.

Word Discovery is the emerging ability to derive words, phrases, and meaning from a combination of what has been copied, the surrounding context, and informed imagination. Recognized characters and word fragments provide clues, while context helps the listener infer likely meaning and continue with the unfolding conversation. This is not a

requirement to recognize every word instantly, nor is inference a substitute for verification when exact information must be preserved.

Sustained, human-sent conversational material, varied subjects, progressively longer passages, and manageable increases in speed help students follow ideas rather than transcribe every character. Selective annotation can support comprehension without disrupting listening. Brief callsign or operating-exchange exercises may illustrate the different listening posture required for exact-information reception, but conversational head copy remains the primary curricular objective.

Development appears as more dependable Flow, greater tolerance of uncertainty, and increasingly natural understanding of a continuing message.

COMMON RECEIVING CAPABILITIES

Capability	Curricular objective
ACR	Automatic recognition of complete acoustic character patterns within increasingly continuous material, without an arbitrary millisecond threshold.
Continuous Flow / CFP	Sustained reception of successive characters, phrases, and QSO segments while preserving continuity despite incomplete recognition.
IFR	Prompt release of missed content and reconnection with arriving code; later verification of uncertain exact information when required.
Loose Focus / Alert Indifference	Relaxed, alert attention that tolerates uncertainty and avoids excessive self-monitoring during reception.
Word Building	Retaining and consciously combining successive recognized characters into words, especially during the transition from basic Character Flow toward conversational meaning.

Capability	Curricular objective
Word Discovery	Deriving words, phrases, and meaning from recognized characters and fragments, surrounding context, and informed imagination while maintaining Continuous Flow; increasingly less dependence on conscious character assembly.
TTR	Recognition latency considered descriptively or diagnostically, not as an independent skill target or universal qualification.

Academic foundations and evidence boundaries for these capabilities are documented in The LICW Method and Academic Positions AP-03, AP-15, and AP-18 through AP-21.

ANNOTATIVE COPY, SENDING, AND ON-AIR DEVELOPMENT

Annotations support conversational meaning or preserve necessary details. As head copy develops, progressively lighter notes may become sufficient for conversational reception, while complete logging and exact recording remain essential when the receiving objective requires them. For example, a station describing a QTH, rig, antenna, and trip might be summarized as “JOHN – NEW YORK – 100W – DIPOLE” rather than transcribed word for word.

Sending strengthens the acoustic patterns also used in reception. “Hear It, Send It” practice connects sound recognition with accurate physical rhythm, spacing, and a developing conditioned response. Continued sending after minor errors supports the same emphasis on Flow and recovery found throughout the curriculum.

On-air contacts, conversational QSOs, and appropriate contest and POTA exchanges extend these skills into real operating conditions. Essential Operating Subjects such as logging, contesting, QSLing, portable operation, and spotting connect listening and sending proficiency with wider amateur-radio practice.

6. CALLSIGNS AND EXACT COPY: SUPPLEMENTAL GUIDED PRACTICE

Callsigns and Exact Copy is an optional, continuous-entry Guided Practice offering alongside Intermediate, Advanced, Bootcamp, and on-air

experience. It addresses the additional demands of preserving, retaining, recording, and verifying exact information, not a new recognition method or required academic level.

The common foundation remains ACR, Continuous Flow, Loose Focus, and IFR. In exact-information work, a listener may hold recognized data briefly and write, type, log, or request a fill. An unrecognized character must not be reconstructed from guesswork and treated as confirmed. Mark uncertainty, continue listening, and obtain clarification when appropriate.

CURRICULUM AREAS

Curriculum area	Learning objective	Representative material
Callsigns	Preserve actual characters; request precise repeats	Unfamiliar callsigns, weak signals, partial calls, bust correction
Operating exchanges	Retain and record critical fields while staying with flow	RST, serials, class/section, park and summit references
Formal traffic	Receive and verify arbitrary data under a defined protocol	Radiogram fields, unfamiliar names, mixed groups
Retention and conditioned response	Choose whether to hold, write, type, or summarize	Delayed logging, heard-then-entered characters
Uncertainty and recovery	Flag unknown items and seek fills without fixation	Partial calls, faded serials, repeat requests

7. ADVANCED CURRICULUM: FROM FLUENCY TO MASTERY

ADV1 culminates the Path to Fluency, while ADV2 and ADV3 extend developing fluency along the Path from Fluency to Mastery. The Advanced curriculum seeks durable conversational comprehension, flexibility, and endurance rather than speed as a solitary score. The same sound-first, ACR, Continuous Flow, Loose Focus, and IFR foundations apply as material becomes longer, faster, and more complex.

ADV1 - CONVERSATIONAL FLUENCY AND THE TRANSITION TO MASTERY

ADV1 typically uses conversational material around 20–25 WPM, but neither this range nor any other speed defines fluency. ADV1 is the culmination of the Path to Fluency and an important transition toward the increasingly automatic processing developed in ADV2 and ADV3.

Students move beyond consciously assembling individual characters and words toward following phrases, ideas, and the unfolding meaning of sustained conversation.

The objective is not merely to receive faster, but to begin receiving differently. As ACR, Continuous Flow, and Word Discovery become more dependable, comprehension can require progressively less deliberate effort. Longer passages, natural changes of subject, varied human sending, and realistic QSOs develop flexibility and endurance. Loose Focus and IFR help students remain engaged even when some words or phrases are missed.

Functional Fluency-the ability to communicate successfully with strategies such as selective notes and clarification-is valuable in its own right. Cognitive Fluency describes increasingly automatic, natural, low-effort comprehension in which attention is directed primarily toward meaning. Cognitive Fluency develops gradually; it is not achieved at a prescribed speed or upon entering or completing ADV1. ADV1 prepares students to continue developing that capability in ADV2 and ADV3.

ADV2–ADV3 - FROM FLUENCY TO MASTERY

ADV2 and ADV3 extend conversational fluency into more demanding conditions through greater speed, complexity, variability, sustained listening, and recovery under cognitive load. Their primary objective is more durable and increasingly automatic comprehension, not simply a higher WPM figure. Students continue using comfortable practice and Periodicity to stretch capability without making complete copy the measure of success.

Level / indicative range	Curricular focus	Representative content
ADV1 • 20–25 WPM	Culminate conversational fluency and transition toward increasingly automatic comprehension	Sustained, meaningful QSOs; following ideas; less conscious word assembly; selective annotation; varied human sending
ADV2 • 25–35 WPM	Extend automatic comprehension, Word Discovery, and conversational flexibility	More complex QRQ conversations; varied fists and subjects; sustained comprehension; fatigue awareness

Level / indicative range	Curricular focus	Representative content
ADV3 • 35–45+ WPM	Develop resilient, low-effort high-speed comprehension and endurance	Longer QRQ exchanges; unfamiliar topics; variable signal conditions; dependable recovery under load

QRQ CREW AND ADVANCED OPERATING

The QRQ Crew Club is a community dedicated to introducing amateur radio operators to the practice, culture, and techniques of high-speed CW operation, generally 35 WPM and above, in a welcoming and non-judgmental environment. Within the LICW academic model, it serves as a natural complement to the Advanced curriculum by providing an on-air "next hill" for students who wish to continue developing beyond conventional conversational speeds.

QRQ Crew offers regular on-air activities, including QRQuesday weekly activity nights, that make it easier for faster-speed operators to find one another and build confidence through real QSOs. LICW encourages Advanced students to participate in these activities as a way of extending academic development into authentic on-air operating and strengthening the culture of high-speed manual CW.

Membership in QRQ Crew is free, and LICW Advanced 2 and 3 students are encouraged to explore and, where appropriate, pursue membership. QRQ Crew promotes manual CW sent by hand and copied by ear, without keyboards or decoders, and welcomes operation with straight keys, bugs, paddles, and cooties.

Interested operators can locate QRQ Crew members through the RBN Club Activity Spotter and other spotting resources, and may use those tools, together with the QRQ Crew roster, to identify opportunities for practice QSOs and eventual membership qualification.

Academic reference: AP-20 (Functional and Cognitive Fluency), AP-21 (Progress), AP-23 (Fatigue).

8. OVERLEARN BOOTCAMP

OverLearn Bootcamp is a unified, intensive, four-week training experience supporting Intermediate and early Advanced students. It runs alongside the regular academic program rather than replacing it. The focus is the

forward-facing receiving posture: preserve Continuous Flow, release misses immediately, and allow ACR and Word Discovery to develop through purposeful repetition.

FORMAT AND READINESS

Bootcamp consists of eight live lessons over four weeks, normally with two sessions per week and assigned independent practice. Enrollment is limited to 25 participants to preserve the interactive character of the program. Students should know the 44 basic Morse characters as sounds and have begun moving beyond isolated-character practice; no universal WPM or recognition-percentage test is required.

All participants study the same core concepts and lessons. Practice challenge varies by Flow rate, material length, content complexity, and students' stages of development. High-miss stretch exercises serve the objective of maintaining Flow and recovery rather than producing a competitive correct-copy percentage.

CORE LEARNING OBJECTIVES

- Maintain Loose Focus and Alert Indifference during continuous receiving.
- Practice IFR immediately and stay synchronized after a miss.
- Develop Character Flow Proficiency while ACR improves through repeated exposure.
- Use comfort–stretch–return exercises without treating stretch performance as an examination.
- Increase tolerance of longer listening, word discovery, and comprehension as appropriate to the student.
- Carry flow habits into ordinary classes, independent practice, and live on-air work.

DIFFERENTIATED PRACTICE AND PERIODICITY

Bootcamp practice includes short character streams, word and phrase streams, "Speed Racer" fast-to-slow playback, and increasingly conversational passages. Periodicity alternates a dependable baseline with a deliberate push beyond comfort and a return to a manageable speed to consolidate performance. Successful stretch work emphasizes

continued engagement and recovery, not perfect reception at the higher speed.

Rest and adjusted practice intensity are part of skill development. Persistent fatigue, deteriorating reception, or renewed fixation signal a need for recovery rather than simply longer or harder practice.

CAPSTONE ACTIVITIES

OverLearn Capstone activities consolidate the four-week Bootcamp experience with supportive live practice in Flow, recovery, endurance, and shared confidence. They reinforce the same receiving principles and celebrate development rather than serving as a pass/fail examination.

Academic reference: AP-14–AP-16, AP-20, AP-23 and The LICW Method, “Practice, OverLearn, and Recovery.”

APPENDIX: ACADEMIC POSITION CROSS-REFERENCES

The following cross-references connect major elements of the LICW curriculum with their supporting papers in LICW Academic Positions & Research. These papers document LICW's academic positions, rationale, and evidence boundaries without requiring that analysis to be repeated in the Curriculum Guide.

Curricular issue	Relevant Academic Position papers
Sound-first beginners / character order	AP-02 Koch; AP-03 ACR and Flow; AP-04 Character Speed; AP-05 Farnsworth; AP-06 Sequence; AP-07 Two-Character Starting Question; AP-08 Numbers and Prosigns
Sending	AP-09 Rhythm; AP-10 Reciprocity of Sending and Receiving; AP-11 Straight Key
Continuous progression and practice	AP-12 Human Performance; AP-13 Continuous Curriculum; AP-14 Overlap, Comfort and Stretch; AP-15 IFR; AP-16 Repetition and OverLearn
Different receiving objectives	AP-17 Listening Posture; AP-18 Conditioned Response; AP-19 Annotative Copy; AP-20 Functional and Cognitive Fluency
Assessment and real operation	AP-21 Measurement and Progress; AP-22 On-Air Readiness; AP-23 Cognitive Fatigue
Instruction and continuity	AP-24 Instructor Judgment; AP-25 Privacy and Recording; AP-26 Decoders; AP-27 New Tools; AP-28 Guardrails; AP-29 Academic Continuity

Companion publications: The LICW Method and LICW Academic Positions & Research. This Curriculum Guide describes the academic offerings within that three-part framework.