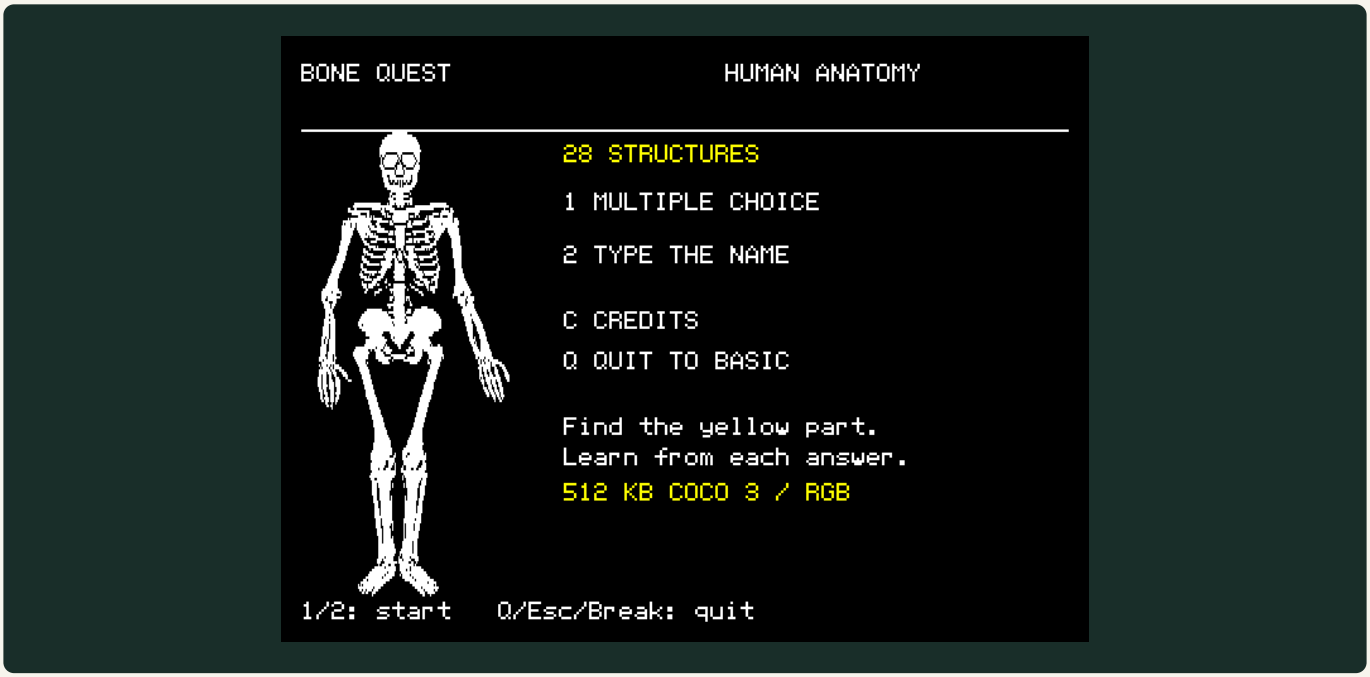
Bone Quest for CoCo

A player's guide to the 28 structures, both quiz modes, spelling help, and missed-answer review.



The Bone Quest title screen, captured in VCC Plus.

Download game disk

Source code

Brian K. Holman

Player's manual · November 11, 2026

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Bone Quest for CoCo

Bone Quest is a human-anatomy quiz about 28 skeletal structures. Follow the yellow highlight, identify the structure from four choices or type its name, and use the missed-answer review to study what you want to try again. Every round asks all 28 topics once, in a shuffled order.

The skeleton is drawn in the Color Computer 3's 640 × 225 four-color graphics mode. The full figure keeps the question in context while a larger view shows the selected area. White bones and black linework leave room for yellow questions and red misses.

Start with multiple choice to become familiar with the names and locations. Try typed answers when you want to recall the name without seeing choices. Both modes use the same questions and scoring.

By Brian K. Holman. © Brian K. Holman 2026.

Get the game running

Use the **Download game disk** link accompanying this guide to get `BONEQ.DSK`. You can play the ready-made disk without compiling anything. The online player guide provides the reading edition and PDF, and the source repository provides the editable project.

Machine setup

Item	Required setup
Computer	Color Computer 3
RAM	512 KB or more
Processor	MC6809; HD6309 also tested in VCC Plus
System	CoCo 3 BASIC, Disk BASIC and an FD-502 floppy controller
Disk	`BONEQ.DSK` in FD0, the CoCo's drive 0
Display	RGB is the tested presentation; 640 × 225, four colors
Input	Keyboard
Sound	Built-in CoCo sound; no sound cartridge needed

Select at least 512 KB of RAM in VCC Plus's CoCo 3 Disk BASIC setup. The game has been tested in VCC Plus 3.6.1 with both emulated processors. These checks do not establish compatibility with a physical CoCo.

The RAM requirement comes from the graphics and artwork design. One picture stays visible while the next is drawn on a second page. The two graphics pages reserve 80 KB, and a separate banked area holds the drawing data. The game does not use all 512 KB, but this edition cannot run in a 128 KB setup.

Load the disk in VCC Plus

1. Start VCC Plus with the setup above.
2. Open **Media → Floppy Disks...** and insert a copy of `BONEQ.DSK` into **FD0**.
3. Save any existing work in the emulated CoCo before restarting. Choose **Cold Restart** through the app's machine controls and let BASIC reach its `OK` prompt.
4. Click the CoCo display to give it keyboard focus. Type `DOS` and press `Enter`.
5. At the Bone Quest title, press `1` for multiple choice or `2` to type the names.

The disk's DOS loader starts the game. If you need to load it explicitly, enter this command at the Disk BASIC prompt:

```
LOADM"BONEQ.BIN":EXEC
```

Keep the complete disk together: the executable loads `BONES.DAT` from drive 0 when it starts. You do not need to format the disk or add files. The game never writes to its disk, so a write-protected copy is suitable for play. Keep the original download as your clean copy.

Choose a mode

Key	Title-screen action
`1`	Start a 28-question multiple-choice quiz
`2`	Start a 28-question typed-answer quiz
`C`	Read the credits
`Q`, `Esc` or CoCo `BREAK`	Quit to BASIC

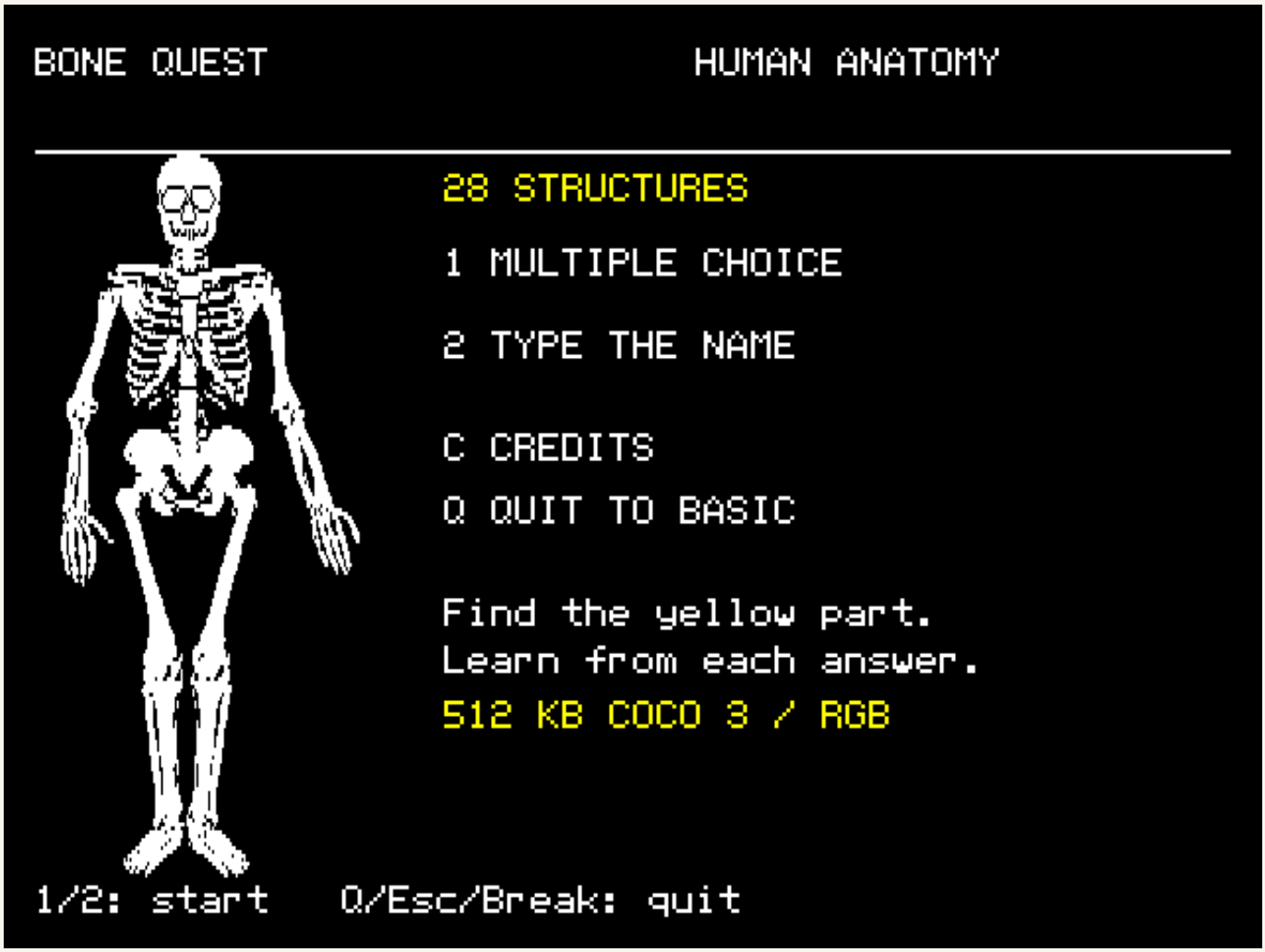


Figure 1: The Bone Quest title offers multiple choice, typed names, credits and Quit.

Choosing a mode starts with zero points, no recorded misses and a fresh shuffled order. Every topic appears once. There is no player-name entry, difficulty selector or countdown that reduces your score. Take as long as you need while a question is waiting for your answer.

Press `Q`, `Esc` or CoCo `BREAK` when you want to leave the quiz. In VCC Plus, the Mac's `Esc` key sends CoCo Break. Release keys between presses so one selection does not become another action.

Read the skeleton

The top line identifies the quiz mode. Below it, the question number and score show where you are in the round. The full skeleton remains on the left. A larger detail view appears on the right, above the prompt and a short location hint.

Color	Meaning
White	Normal anatomy: unanswered structures, correct answers and unquizzed context
Yellow	The structure in the current question
Red	A structure you missed or whose answer you revealed
Black	Background, bone boundaries and internal linework

Correct answers return to white rather than receiving an extra color. Use the **CORRECT!** message and score to confirm success. A white structure by itself does not tell you whether it has already been answered. Parts that are not separate quiz topics also stay white for context.

The current structure stays yellow while its feedback is shown. On the next question, a miss turns red and a correct answer returns to white; the next target becomes yellow.

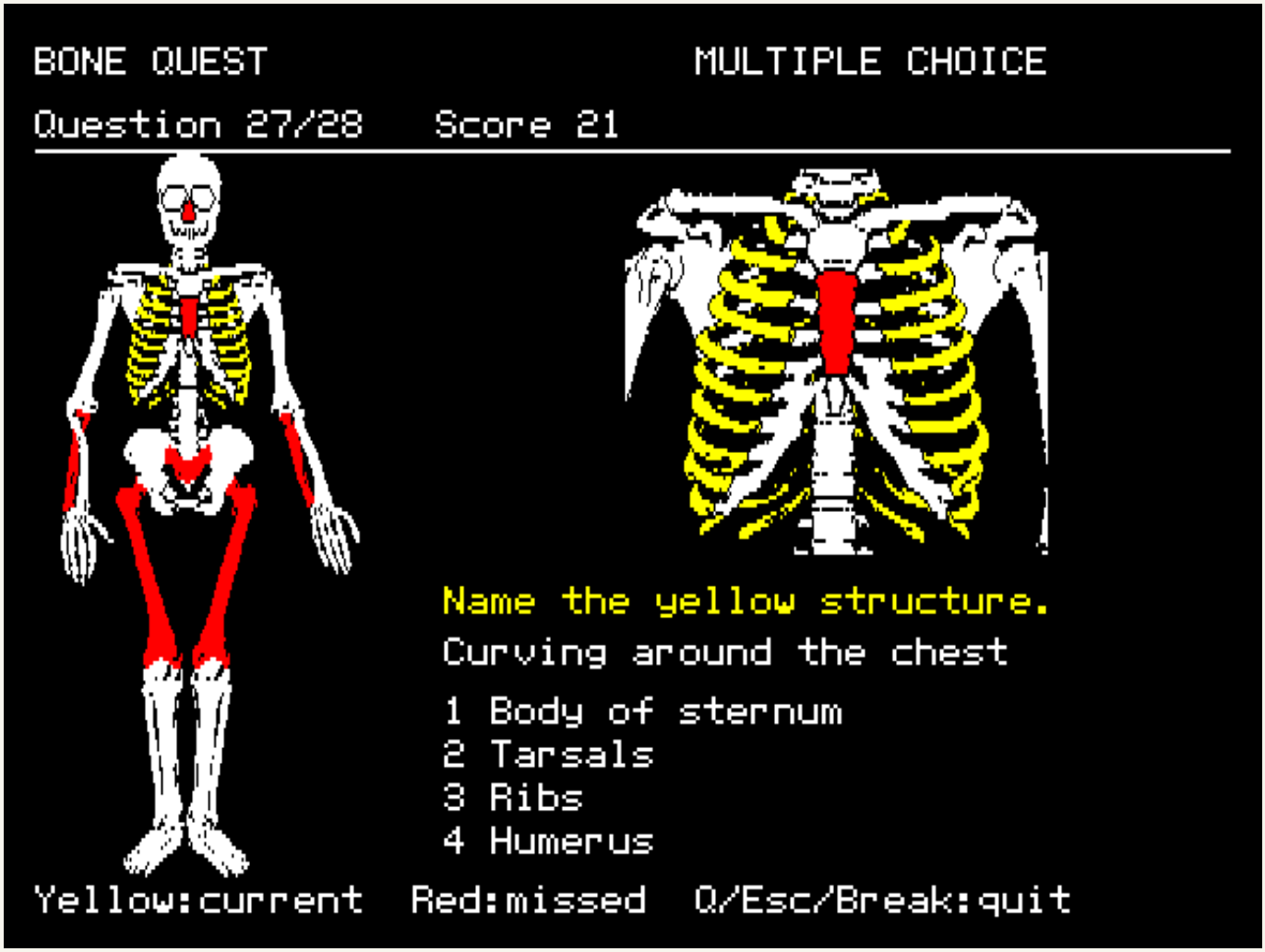


Figure 2: Ribs are highlighted in yellow in both the full skeleton and enlarged chest. Earlier misses are red; ordinary anatomy remains white.

Use the enlarged views

The detail panel helps with small or crowded structures. Head and neck, chest, hand, foot, and lower-spine/pelvis views retain the same question and miss colors as the full figure. Long-bone questions may magnify a crop from the overview. The views are learning aids rather than drawings at one common scale.

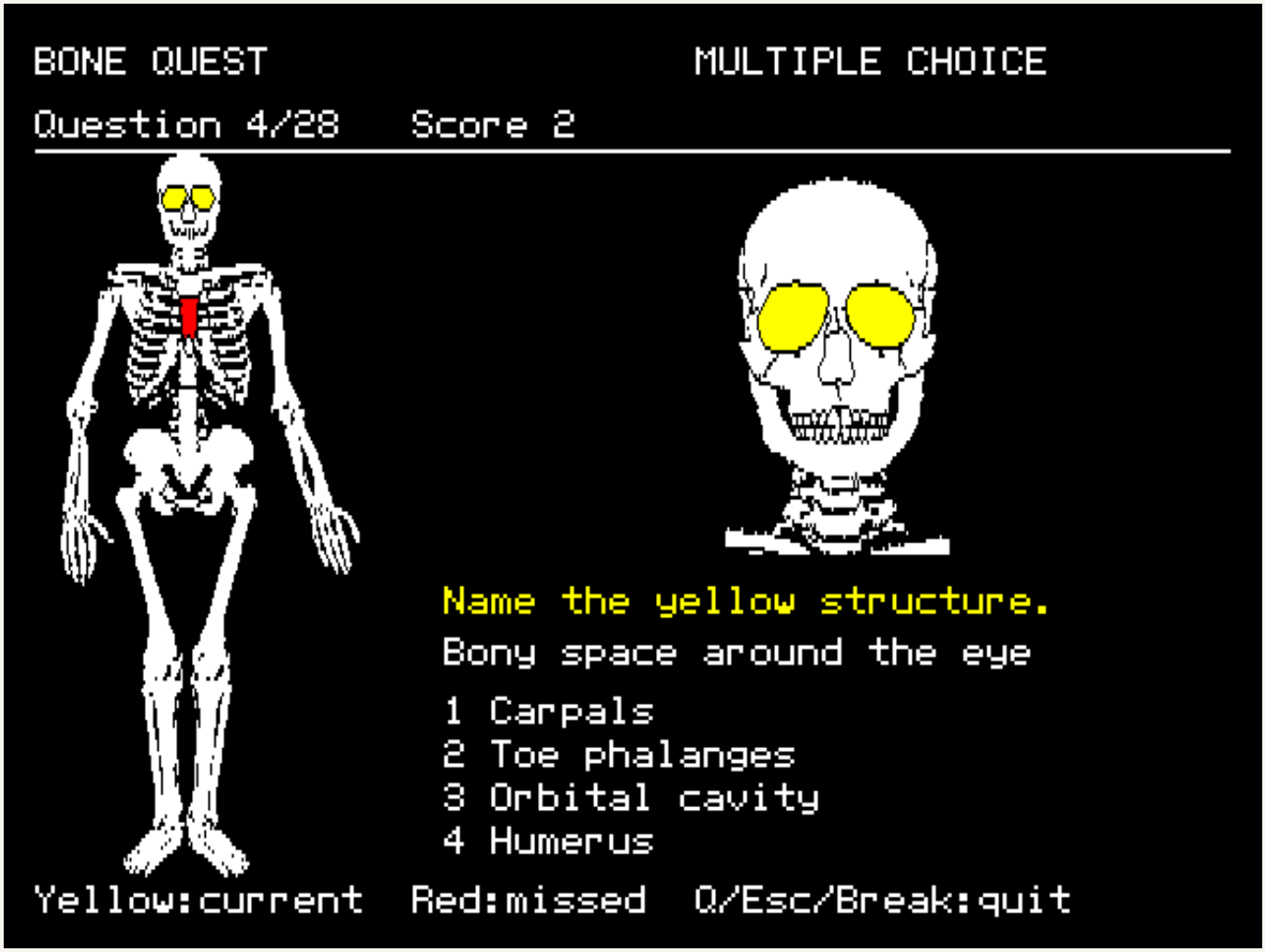


Figure 3: The head detail makes the highlighted orbital cavities easier to distinguish from the skull and nasal opening.

Paired left and right counterparts share one question, so both may light up together. The skeleton faces you: its left hand is on the right side of the screen. The thumb is part of the hand's phalanges topic along with the other digits.

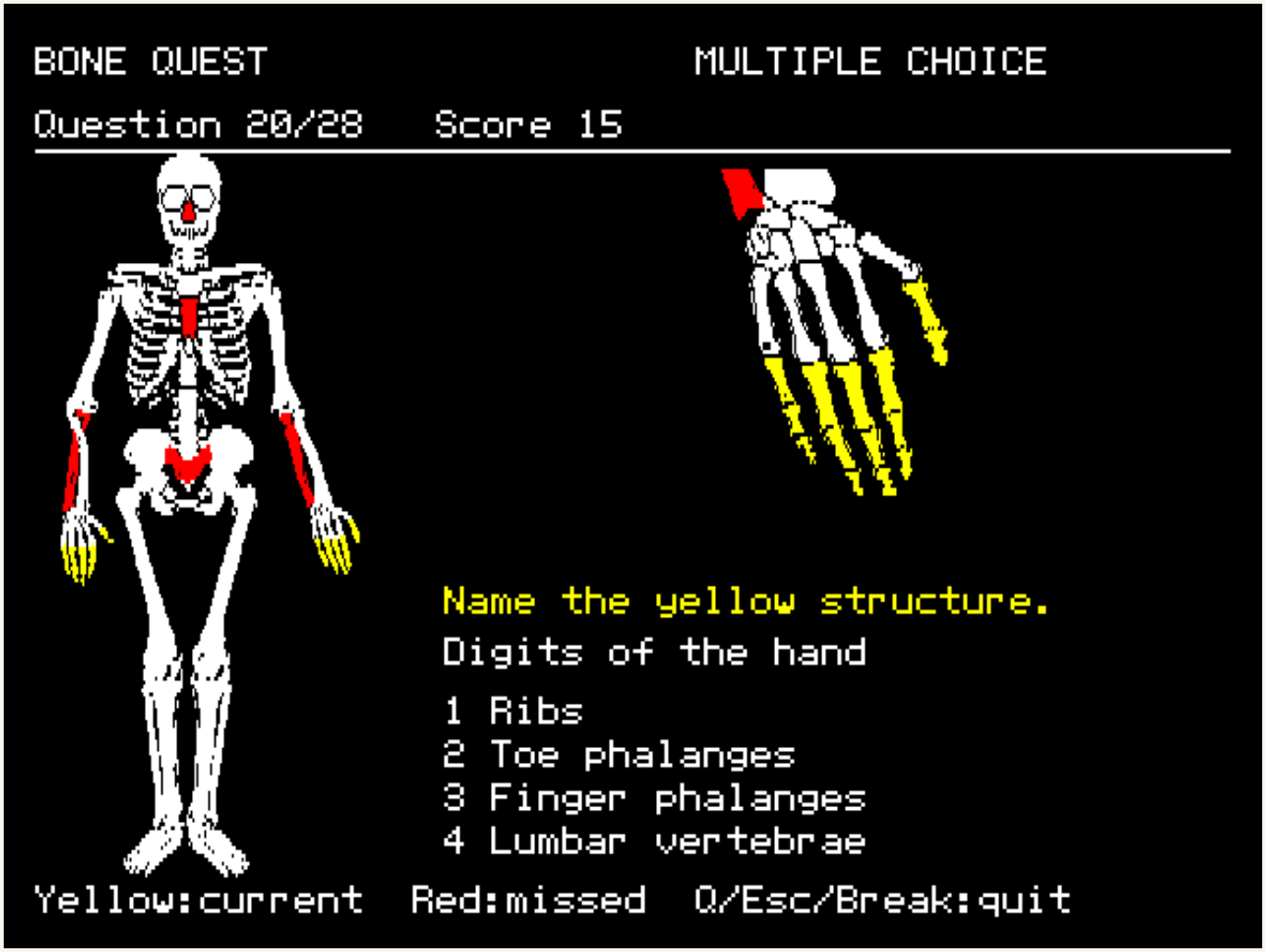


Figure 4: The enlarged hand preserves individual bone groups and shows the finger phalanges, including the thumb, in yellow.

Read the location hint as well as the picture. For example, the radius is on the thumb side of the forearm and the ulna is on the little-finger side. The tibia is on the inner side of the lower leg and the fibula on the outer side.

Play multiple choice

Press `1` at the title. Each question shows four different names, one per numbered line. Exactly one names the highlighted structure.

Press the number beside your choice: `1`, `2`, `3` or `4`. You do not need `Enter`. The game accepts the choice once, gives feedback and the correct name, and then advances automatically.

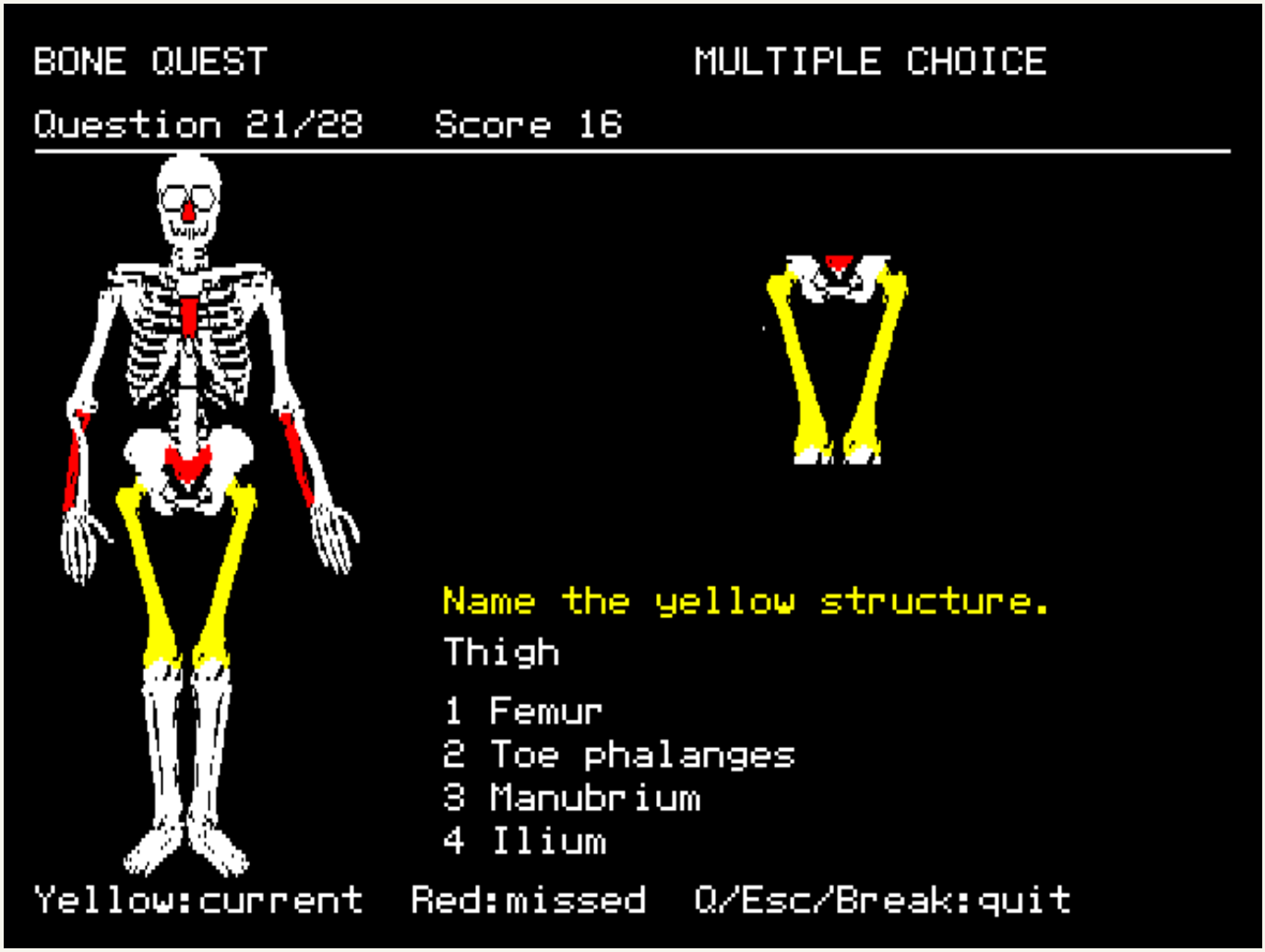


Figure 5: A multiple-choice question shows four numbered structure names beside the full skeleton.

The correct answer can begin in any slot. For each following question, its slot is chosen randomly from the other three. If the correct answer was `3`, it can be `1`, `2` or `4` next, but cannot be `3` again immediately. This rule follows the correct answer's slot, even when you choose a different number. A new quiz starts the rule afresh.

Answer feedback

A correct answer displays **CORRECT!** and plays a rising pair of tones. A miss displays **NOT THIS TIME.** and plays a lower, falling pair. Both screens show the correct name. During feedback, the top score still shows the total from when that question opened. An awarded point appears on the next question or the results screen.

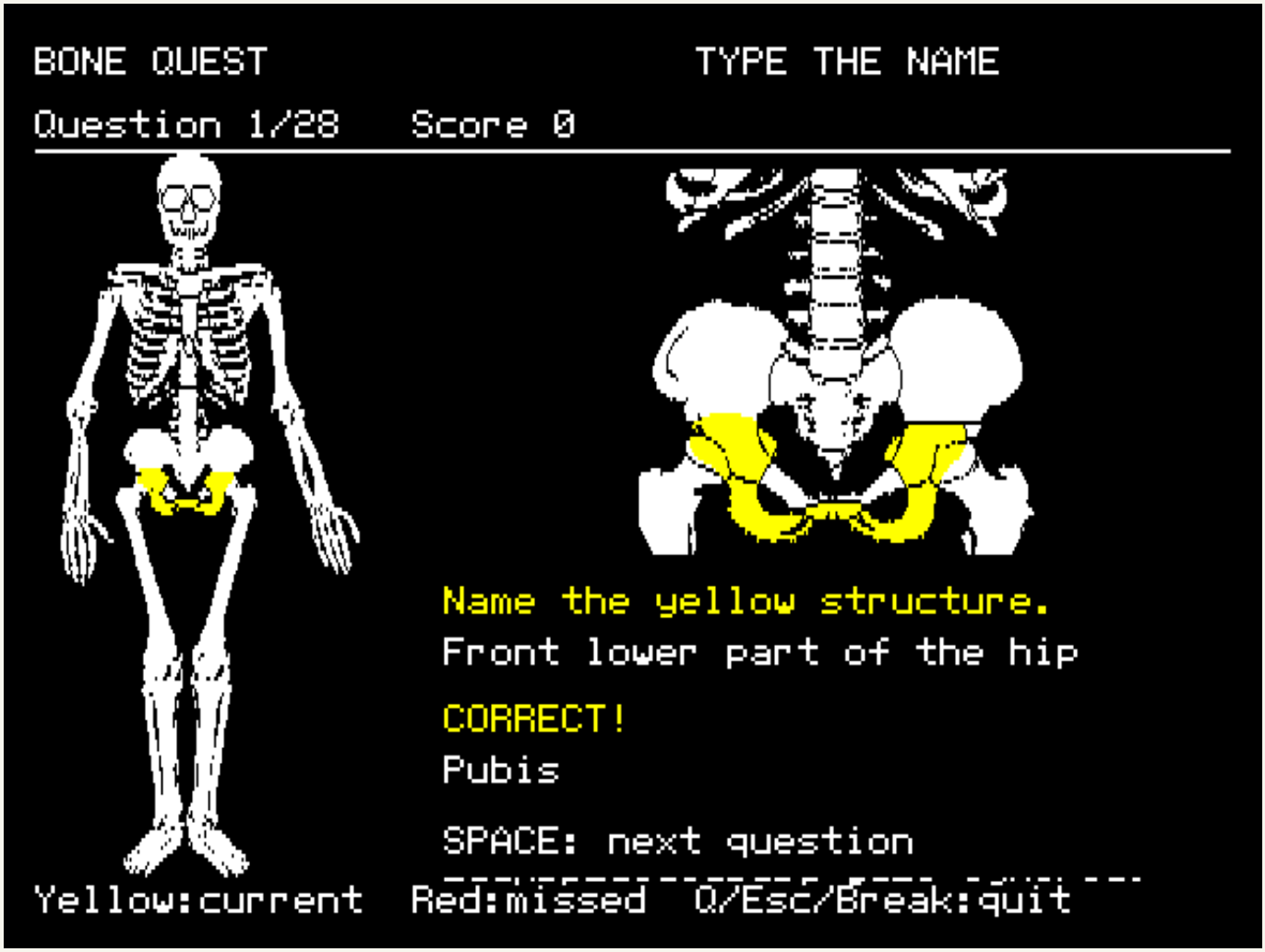


Figure 6: Correct feedback confirms the accepted name. The awarded point appears in the next question's score or in the results.

After the tones, multiple choice leaves about 1.5 seconds to read the answer before opening the next question. You do not need `Space` to continue. The reading pause also accepts the quit keys.

Release the answer key after choosing. A held number cannot answer the next question; let go before pressing a new selection.

Type the structure name

Press `2` at the title. The question appears without answer choices. Type the name in the entry line and press `Enter` to submit it.

The underscore marks the end of your entry. `Backspace` removes the last character so you can type a replacement. This is an end-of-line editor, not a movable text cursor. Letters, spaces, periods and hyphens can be entered. `Q` is reserved for quitting, including in typed mode.

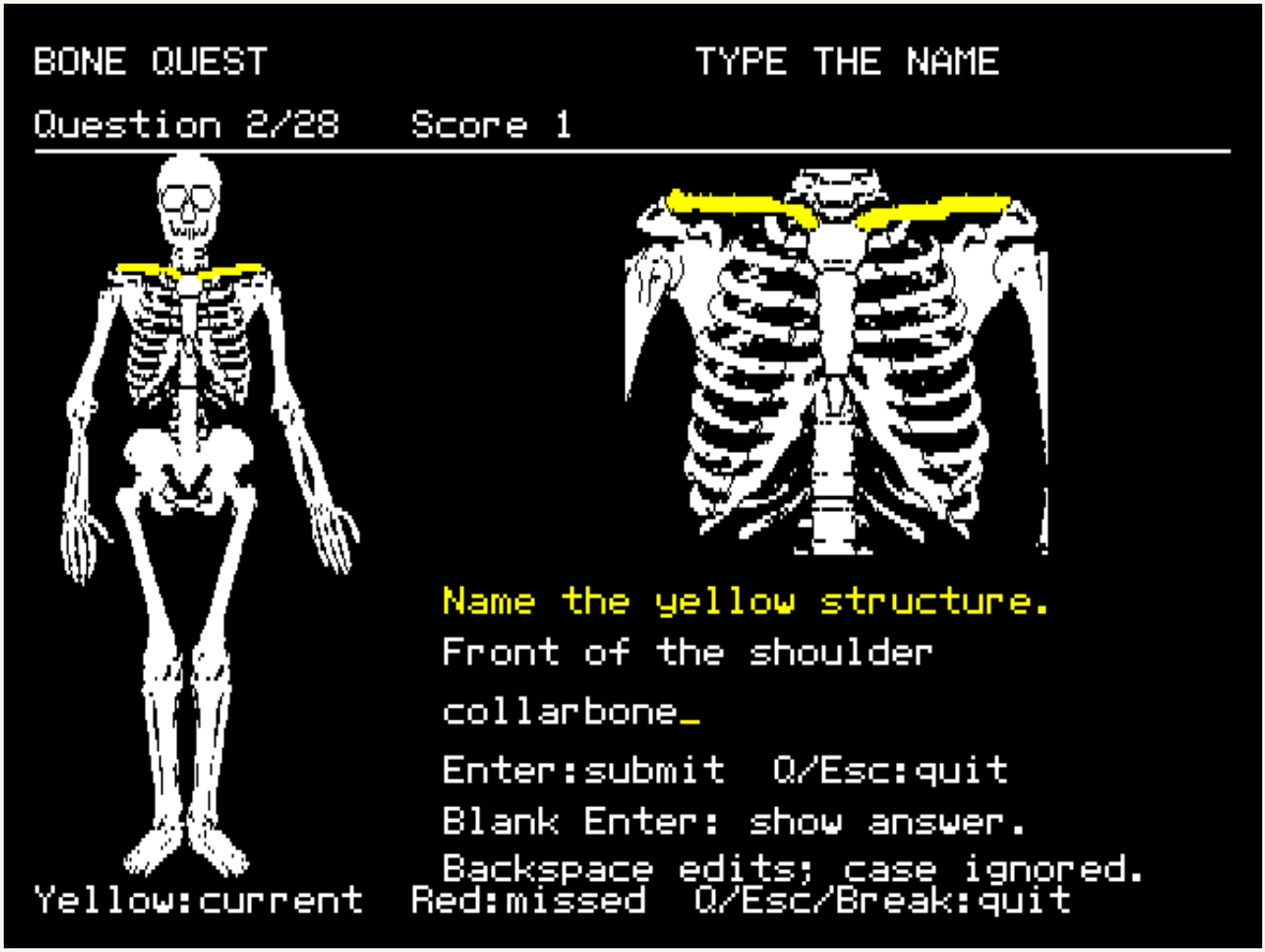


Figure 7: Typed-answer mode provides an entry line and the submission, blank-answer and quit controls.

Matching names and common forms

Letter case does not matter: `Femur`, `FEMUR` and `femur` all match. Leading and trailing spaces are ignored, and repeated spaces between words count as one space. Extra punctuation is not automatically ignored.

Common forms are accepted where they identify the same topic. **Collarbone** names the clavicle, **shoulder blade** the scapula, **kneecap** the patella, and **tailbone** the coccyx. The 28-topic reference lists every additional accepted form.

Be specific about the highlighted part. **Sternum** alone does not identify only its middle body; use **Body of sternum**, **sternal body** or **sternum body**. **Pelvis** and **hip bone** do not distinguish the ilium from the pubis. Bare **phalanges** cannot distinguish hand from foot: use **Finger phalanges** or **Toe phalanges**, or one of their listed aliases.

An exact name or accepted form earns one point. A different topic's exact name or alias is a miss, even when it resembles the expected spelling. A location hint is not automatically an accepted answer.

A close spelling

A near spelling may get a second look. **That looks close. Check your spelling.** offers:

- `R`: return to your existing entry and edit it.
- `V`: reveal the correct name and record a miss.
- `Q`, `Esc` or CoCo `BREAK`: quit to BASIC.

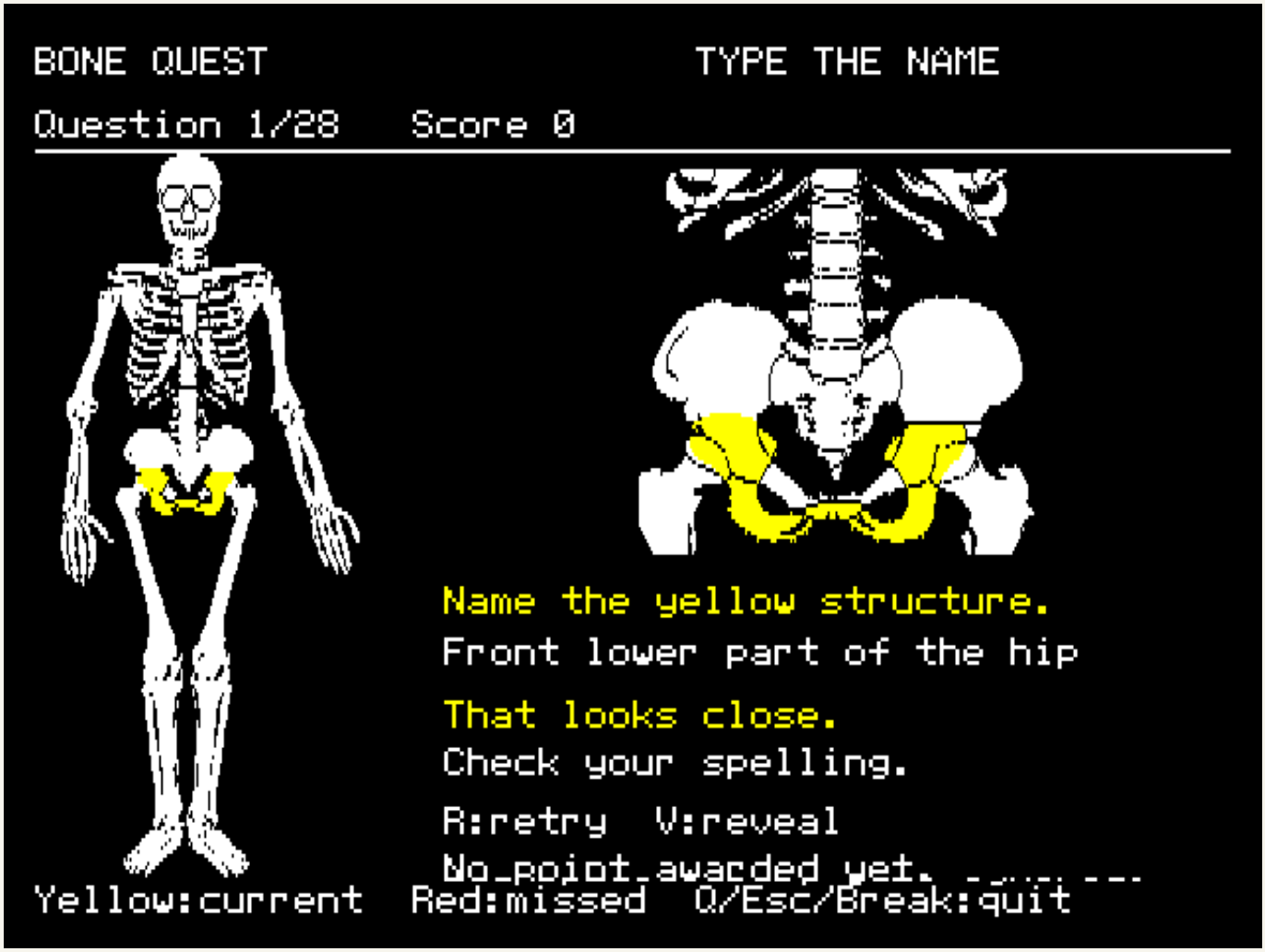


Figure 8: Spelling help offers Retry or Reveal and states that no point has been awarded yet.

No point has been awarded at this stage. After `R`, use `Backspace` to remove the wrong ending and type the correction; you need not retype an unchanged beginning. Submit again with `Enter`.

An accepted correction still earns one point. The results count it as a spelling correction, which is part of your correct total rather than a bonus. The spelling aid compares with the displayed name, not every accepted alias. It is limited: short or substantially different answers may be marked wrong immediately.

Reveal or skip a question

Press `Enter` with an empty entry to show the correct name and record a miss. If you have already typed something, remove it with `Backspace` first. At the spelling-help prompt, `V` also reveals the answer as a miss.

Escape and Break quit; they do not reveal an answer. Revealing never earns a point. It lets you see the answer and keep learning without guessing.

Entry length

The line holds at most 33 characters, including spaces and punctuation. Extra characters are ignored and the hint says **Use Backspace to edit.** Shorten the entry or submit it with `Enter`. No listed canonical name needs this much space.

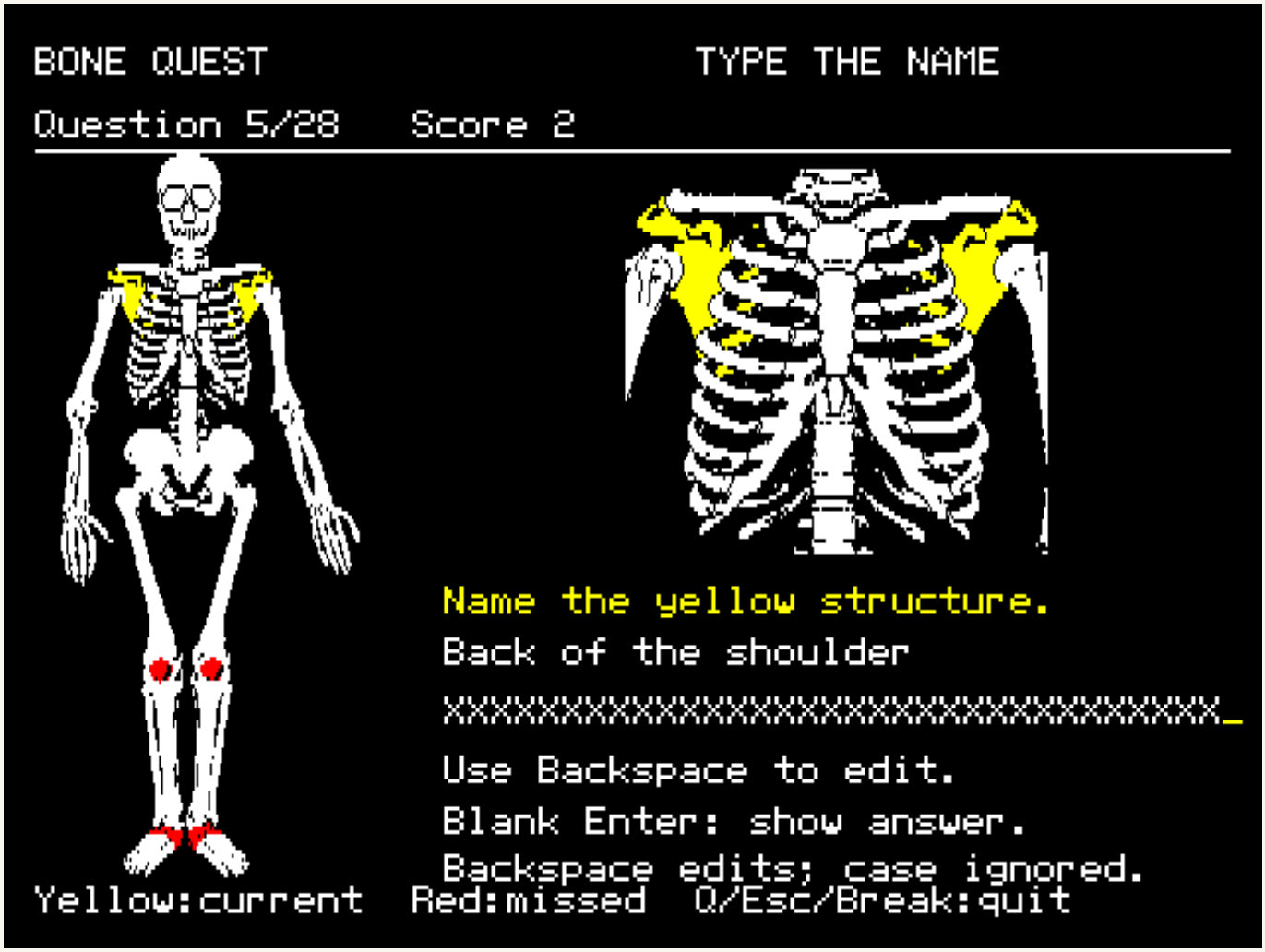


Figure 9: The entry limit keeps a 33-character answer and its cursor within the panel.

Continue after a typed answer

Typed feedback uses the same result messages, correct-name display and tones as multiple choice. It waits for you instead of advancing automatically.

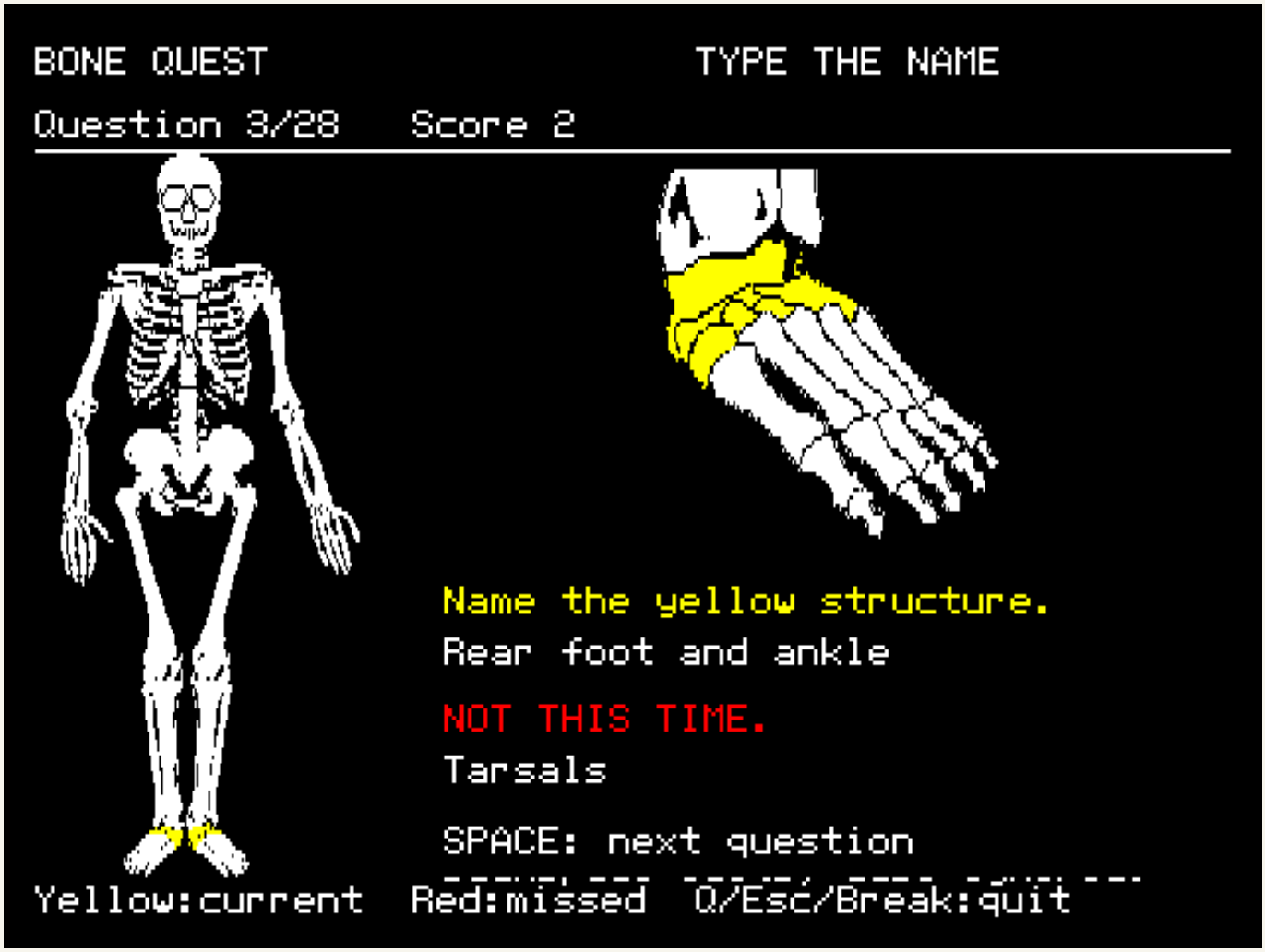


Figure 10: Incorrect typed feedback supplies the correct name and waits for Space.

Read the answer, release the previous key and press Space for the next question. A space is part of a name while you are entering it; it advances only at the feedback screen. You can also use the global quit keys here.

Understand your score

Every topic is worth one point. A correct choice, an accepted typed answer or an accepted spelling correction earns that point. A wrong answer, blank submission or reveal earns zero. Each topic contributes at most one point; there are no time bonuses or penalties.

While a question is waiting for an answer, the top score is the correct total from earlier questions. The feedback screen keeps that number until the next question or results. After question 28, **YOUR RESULTS** shows:

- Your correct total out of 28.
- The whole-number percentage, rounded down.
- The number of correct answers that followed spelling help.
- The number of topics to revisit.

For example, 23 correct answers give 82 percent and five topics to revisit. The maximum is 28 out of 28, or 100 percent. The spelling-correction count does not add extra points.



Figure 11: Results show the total, percentage, spelling corrections and missed-topic count, with Review, Play Again and Quit.

Key	Results-screen action
`R`	Review the missed questions
`P`	Return to the title and choose another quiz
`Q`, `Esc` or CoCo `BREAK`	Quit to BASIC

Review missed topics

Press `R` at results. **MISSED TOPICS** lists up to three missed questions per page, in the order they appeared in the round. Each entry shows the correct name, your recorded answer and the answer again for comparison. A blank reveal appears as **[blank]**. If you used `V` after spelling help, review can show the text that was in your entry before you revealed the answer.

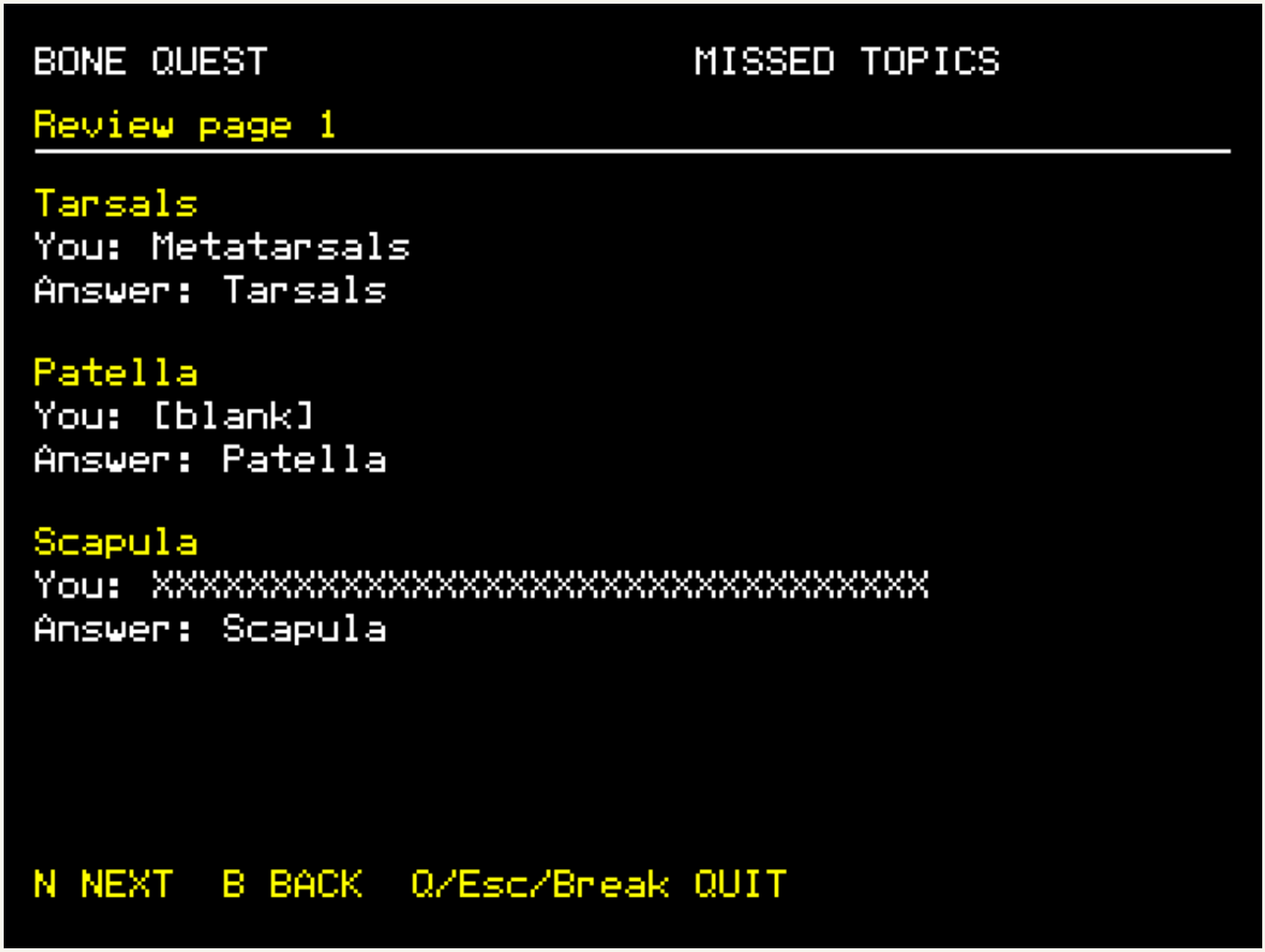


Figure 12: Missed-topic review shows recorded answers and correct names, with next-page, back and quit controls.

Press `N` when another page is offered. Press `B` to return to results. On the final page, only Back and the quit keys are needed. A perfect round has no missed topics and says **A perfect skeleton! No missed topics.** Review does not ask the questions again or change the score. Use it to study before starting a fresh round.

Replay, quit and saved progress

At results, press `P` to return to the title. Choose `1` or `2` for another round. The new game clears the score, answer history, spelling-correction count and red marks, then shuffles all 28 topics again. You can switch modes between rounds.

Press `Q`, `Esc` or CoCo `BREAK` to quit from the title, credits, a question, typed entry, spelling help, feedback, results or review. The automatic reading pause also checks these keys. In VCC Plus, Mac `Esc` supplies CoCo Break.

Quitting releases the keyboard, restores BASIC's text display and normal clock speed, prints **Thanks for playing Bone Quest!** and returns to BASIC. It does not close VCC Plus.

Bone Quest does not save games, scores, high scores or preferences to disk. Progress exists only in the current running session. Quitting, restarting or beginning a new quiz clears it. Take a screenshot of the results if you want a record.

There is no joystick mode or in-game settings screen. Use VCC Plus for display scaling, audio volume and other emulator settings.

The 28-topic reference

This quiz covers 28 named learning topics, not 28 individual bones or every bone in the adult skeleton. The topics include bones, groups of bones, parts of bones and two cavities. The orbital and nasal cavities are spaces, not bones. Paired left and right counterparts share one topic; the hand and foot phalanges are separate topics. The reference below is grouped for study. The order of questions in a game is shuffled. Every displayed name is accepted exactly, and the right-hand column lists all additional accepted forms in this edition. Case and spacing normalization apply to these forms too.

Head, neck and chest

Name on screen	Where to look	Other accepted forms
Skull	Head, including the lower jaw	cranium
Cervical vertebrae	Neck section of the spine	neck vertebrae; cervical vertebra
Orbital cavity	Bony space around the eye	eye socket; orbit
Nasal cavity	Space behind the nose	nose cavity
Clavicle	Front of the shoulder	collarbone; collar bone
Scapula	Back of the shoulder	shoulder blade; shoulderblade
Manubrium	Upper breastbone section	manubrium sterni
Body of sternum	Middle breastbone section	sternal body; sternum body
Xiphoid process	Small tip of the breastbone	xiphoid
Ribs	Curving around the chest	rib; rib bones

The **Skull** topic includes the lower jaw. **Cranium** is accepted as a familiar alternative in this overview; the game does not separately test each cranial or facial bone. The sternum is divided into its upper manubrium, middle body and lower xiphoid process.

Lower spine and pelvis

Name on screen	Where to look	Other accepted forms
Lumbar vertebrae	Lower back	lumbar vertebra; lower back vertebrae
Ilium	Upper flared part of the hip	Use the displayed name
Sacrum	Base of spine above tailbone	sacral bone
Coccyx	Small tip below the sacrum	tailbone; tail bone
Pubis	Front lower part of the hip	pubic bone

The ilium and pubis are separate parts of the hip bone. **Ilium** has one L after the initial I. The ischium and thoracic vertebrae can appear as context but are not separate questions in this set.

Arm and hand

Name on screen	Where to look	Other accepted forms
Humerus	Upper arm	upper arm bone
Ulna	Forearm, little-finger side	ulna bone

Name on screen	Where to look	Other accepted forms
Radius	Forearm, thumb side	radius bone
Carpals	Wrist	carpus; wrist bones; carpal bones
Metacarpals	Palm between wrist and fingers	metacarpus; palm bones; metacarpal bones
Finger phalanges	Digits of the hand	finger bones; hand phalanges

Finger phalanges includes the thumb. In anatomical position the radius is on the thumb side and the ulna on the little-finger side. Both sides of the body share the same answers.

Leg and foot

Name on screen	Where to look	Other accepted forms
Femur	Thigh	thighbone; thigh bone
Patella	Front of the knee	kneecap; knee cap
Tibia	Lower leg, inner side	shinbone; shin bone
Fibula	Lower leg, outer side	calf bone; calfbone
Tarsals	Rear foot and ankle	tarsus; ankle bones; tarsal bones
Metatarsals	Mid-foot behind the toes	metatarsus; metatarsal bones
Toe phalanges	Digits of the foot	toe bones; foot phalanges

Tarsals identify the rear foot and ankle region; metatarsals lie between the tarsals and toes. The tibia is the inner lower-leg bone, while the fibula is on the outer side.

Make your own changes

The source repository provides the editable C project. Keep the released disk as a clean copy and work in a separate, writable folder. The source README explains its layout, build configurations, optional authoring dependencies and tests.

In VCC Plus, choose **Develop → C Development...**, then open the folder containing `Makefile`, `main.c` and `vccplus-project.json`. Select **Release** and choose **Build**. The declared recipe creates the game disk. Use **Show Build Products** to locate `build/BONEQ.dsk` and `build/BONEQ.bin` in the build snapshot, then test your new disk using the setup in Get the game running.

VCC Plus supplies the supported compiler and build tools. Ordinary builds need no Xcode, Command Line Tools, Homebrew or separate compiler installation. The generated anatomy metadata and `BONES.DAT` drawing data are retained in the source; normal builds do not run an SVG renderer.

For optional artwork regeneration, the source README lists Python 3, Pillow and `rsvg-convert`. Optional host logic tests need a host C compiler. These requirements are separate from opening and building the game in VCC Plus.

If you connect ChatGPT to a personal project copy, review which files it shares and enable the project's Makefile workflow for that connection. Keep private connection files out of anything you distribute. Review suggested edits, build and test separate copies before replacing a disk you want to keep.

Troubleshooting

What you see	What to check
Requires 512 KB CoCo 3 in BASIC.	Use a CoCo 3 with at least 512 KB and ordinary BASIC text mode. Preserve guest work, then cold restart before loading. A 128 KB setup is insufficient for this edition.
`DOS` does not start the game	Confirm the complete `BONEQ.DSK` is in FD0, with CoCo 3 Disk BASIC and an FD-502 controller. Cold restart and try `DOS` again, or use the explicit `LOADM` command above.
Cannot load BONES.DAT from drive 0.	Use an intact copy of the supplied disk in FD0. Do not copy only `BONEQ.BIN` to another disk: the drawing file must be present too. A missing, damaged or wrong-size drawing file is rejected.
Keys seem unresponsive	Click the CoCo display or use **Input → Focus CoCo Display**. Release the previous key before pressing a new one.
Typed feedback seems stuck	It waits for you. Read the name, release the old key and press `Space`, or use a quit key.
An answer is marked wrong	Check the highlighted structure, spelling and the accepted forms in the reference. Case and extra spaces are ignored; arbitrary abbreviations, punctuation and broad group names are not.
White anatomy appears unchanged after a correct answer	This is expected. White covers normal and correct structures; the feedback and score confirm correctness. Red records misses and yellow marks the current question.
A hand appears on the other side	The skeleton faces you, so its left hand is on the right of your screen. Left and right counterparts share each question.
There is no sound	Check VCC Plus's audio controls, Mac volume and selected audio output. The game uses built-in CoCo sound and needs no add-on cartridge.
You want to leave before question 28	Press `Q`, `Esc` or CoCo `BREAK`. These quit; they are not reveal shortcuts.
A previous score is missing	Scores are not saved. A new game, quit or machine restart clears the session.

Credits and licenses

Press `C` at the title for **A JOURNEY THROUGH THE SKELETON**. Press `Space` to return. The screen identifies the skeleton artist, source, adaptations, game foundation and font/boot author.

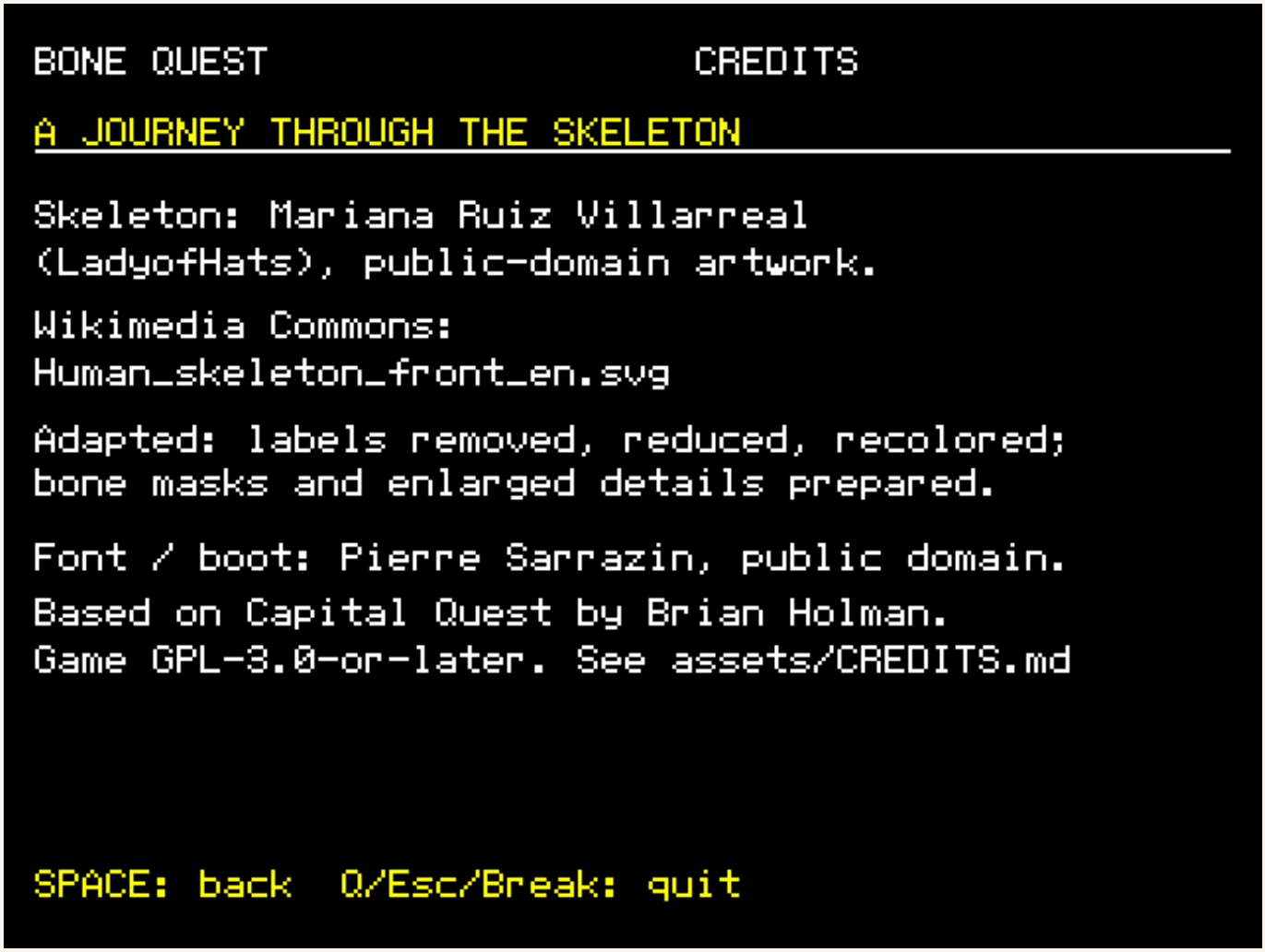


Figure 13: The credits identify LadyofHats's public-domain skeleton, the Capital Quest foundation, and the font and boot helper.

The original Human skeleton front en.svg is by **Mariana Ruiz Villarreal (LadyofHats)**, released into the public domain by its author. Bone Quest removes the printed labels, adapts the artwork to the CoCo's pixel proportions, preserves linework and rib gaps, recolors it and prepares compact structure masks and enlarged views. The anatomical left thumb's pose is relaxed toward the palm while retaining its bone lengths and relative joints. The original SVG is retained unchanged. The artist's inclusion does not imply endorsement.

Bone Quest is based on Brian Holman's **Capital Quest**, with assistance from ChatGPT/Codex. The anatomy bank and skeletal artwork replace its geography content. Pierre Sarrazin's **font5x8** and the **autostart.c 0.1.2** boot-helper foundation retain their public-domain notices. CMOC, LWTools and the linked runtime, keyboard, file and bank libraries retain their own authorship and file-specific terms. The game's local high-resolution graphics driver adapts VCC Plus's GPL graphics source.

The source includes `assets/CREDITS.md`, the original SVG/source receipt and component notices. Preserve them when sharing modified copies. Matching component sources and their provenance are linked from the project's source and component notes.

The game and this manual are released under the **GNU General Public License, version 3 or later**. This manual is © Brian K. Holman 2026. That license statement does not relicense the public-domain artwork or replace any component's own notice.

The screenshots are unmodified guest frames from the released disk in VCC Plus. Some practice answers were deliberately wrong to demonstrate feedback, red marks and review; their example scores are not required targets.