Teacher Reference

Computer Science Assessment 3 Set S of 2026

Staff only | marked guidance

The materials accompany the EcoQuest Learning sample coursework brief and staff mark scheme, revised on 14 October 2026. All three tasks are addressed: Python game 70 marks, database 15 marks and spreadsheet 15 marks.

The examples are synthetic materials for teaching and standardisation. Test records describe execution of the supplied generated examples; they do not represent observed learner activity. No learner signature or supervision record is supplied.

This reference accompanies the identically numbered extracts in Teacher Exercise. The full proposed criterion awards are recorded separately in Proposed Marking and Commentary.

1. Repeated incorrect guesses

Relevant criteria: I2; T1–T2

Source: synthetic response SYN02

```
if letter in self.guessed:
    if letter not in self.term:
        self.attempts -= 1
        return {
            "status":"repeated_incorrect",
            "attempts":self.attempts,
            "word":self.revealed(),
        }
    return {
        "status":"repeated_correct",
        "attempts":self.attempts,
        "word":self.revealed(),
    }
```

Recorded check	Expected	Actual
G05 | Repeated incorrect guess does not use another attempt	status: repeated_incorrect; attempts: 5	status: repeated_incorrect; attempts: 4 [FAIL]

Exercise

The extract from the guess method and the G05 record are to be reviewed. The change to the attempt counter after the same incorrect letter is entered twice should be traced. The affected implementation point should be identified, with an explanation of the separate treatment of testing and correction evidence.

Reference guidance

The first new incorrect guess reduces six attempts to five. The repeated incorrect guess reduces five to four, although no further attempt should be consumed. The repeat-handling point in I2 is not met. The test identifies the discrepancy and can support T1; a failed test is not automatically a loss of testing credit. No correction or retest is evidenced, so T2 receives 0/2. The complete I2 award must also take account of the remaining implementation evidence.

2. Revealing letters and selecting another term

Relevant criteria: I2–I3

Source: synthetic response SYN03

```
    def revealed(self) -> str:
        shown = []
        remaining = set(self.guessed)
        for letter in self.term:
            if letter in remaining:
                shown.append(letter)
                remaining.remove(letter)
            else:
                shown.append("_")
        return " ".join(shown)

    def start_round(self):
        if not self.unused:
            return None
        pair = self.rng.choice(self.terms)
        return GameRound(*pair)
```

Recorded check	Expected	Actual
G02 | Case and surrounding spaces are normalized; all matching letters reveal	status: correct; attempts: 6; word: _ a _ _ _ a _	status: correct; attempts: 6; word: _ a _ _ _ _ _ [FAIL]
G09 | All 12 supplied pairs are selected once without term reuse	count: 12; unique_terms: 12; matching_pairs: true	count: 12; unique_terms: 1; matching_pairs: true [FAIL]

Exercise

The result of guessing a in habitat should be explained. The selection of later terms should then be reviewed. The distinction between revealing all matching positions and preventing reuse across rounds should be recorded, with a suitable check for each issue.

Reference guidance

Removing a letter from the temporary set after its first occurrence leaves the second a hidden. I2 therefore lacks the all-occurrences behaviour. Selecting from self.terms without removing used pairs allows reuse and does not meet the non-reuse point in I3. A repeated-letter word should be completed through the console as well as checked at method level: a returned win status alone does not demonstrate that the round actually ends correctly. The full report and native tests determine the complete criterion awards; session exhaustion is not an additional separately assessed requirement.

3. Database validation and relationships

Relevant criteria: B4–B5

Source: synthetic response SYN02

```
PRAGMA foreign_keys=ON;
CREATE TABLE Clues (ClueID VARCHAR(3) PRIMARY KEY NOT NULL
    CONSTRAINT ClueID_must_not_be_blank
        CHECK(length(trim(ClueID))>0),
    Word VARCHAR(10) NOT NULL
    CONSTRAINT Word_must_not_be_blank
        CHECK(length(trim(Word))>0),
    Clue VARCHAR(200) NOT NULL
    CONSTRAINT Clue_must_not_be_blank
        CHECK(length(trim(Clue))>0),
    Difficulty INTEGER NOT NULL
    CONSTRAINT Difficulty_must_be_an_integer_from_1_to_5
        CHECK(typeof(Difficulty)='integer' AND Difficulty BETWEEN 1 AND 5),
    Subject VARCHAR(20) NOT NULL
    CONSTRAINT Subject_must_not_be_blank
        CHECK(length(trim(Subject))>0));
CREATE TABLE Games (GameID VARCHAR(10) PRIMARY KEY NOT NULL
    CONSTRAINT GameID_must_not_be_blank
        CHECK(length(trim(GameID))>0),
    ClueID VARCHAR(3) NOT NULL,

    CONSTRAINT ClueID_must_reference_Clues
        FOREIGN KEY(ClueID) REFERENCES Clues(ClueID));
```

Recorded check	Expected	Actual
D07 | Unknown Subject is rejected	REJECTED	ACCEPTED [FAIL]

Exercise

The schema and unknown-Subject test should be compared with the required Subject values: Ecology, Resources and Energy. Credit for the enforced constraints should be separated from the omitted constraint. The role of GameID and the link through ClueID should also be explained.

Reference guidance

A non-empty Subject is accepted even when it is outside Ecology, Resources and Energy. The controlled-Subject point in B4 is therefore absent. Other B4 points require separate review of integer limits, required fields, understandable rejection messages and recorded validation tests. Games contains exactly GameID and ClueID, with GameID as primary key and ClueID linked to Clues. With the relationship justification in the full report, those features support B5. An empty Games table is acceptable; the brief does not require real game history or integration with Python.

4. Spreadsheet calculations

Relevant criteria: S1; S4–S6

Response	Word percentages	Mean calculation	Displayed
SYN01	=F6/E6 (filled down)	=AVERAGE(G6:G17)	61.6%
SYN02	=F6/E6 (filled down)	=SUM(F6:F17)/SUM(E6:E17)	62.8%
SYN03	Typed values	Typed value	62.8%

Totals in the supplied data: 435 games played and 273 games won. The completed workbooks contain the twelve per-word records and are the evidence for sorting, recommendations and limitations.

Exercise

The summary formulas should be compared. The required mean should be calculated from the twelve word percentages and compared with the ratio of total wins to total games. The formula evidence, displayed precision, sort order and workbook recommendations should be considered separately when marks are proposed.

Reference guidance

SYN01 uses AVERAGE over the twelve per-word results and returns 61.6362…%, displayed as 61.6%. SYN02 divides 273 by 435 and returns 62.7586…%, displayed as 62.8%; this is the overall rate, not the required unweighted mean. SYN02 therefore loses the mean point while retaining credit for correct row formulas, displayed precision and calculated totals. SYN03 supplies typed results, which do not earn formula marks; correct one-decimal display can still earn its separate point. Ascending whole-row sorting, supported recommendations and contextual limitations are assessed under their own criteria.

5. Maintenance proposals

Relevant criteria: E3

Source: synthetic response SYN01

Two maintenance changes would be appropriate if the prototype were extended. First, the console could accept a documented command to repeat the clue without changing attempts; implementation would add a separate command branch before letter validation, and regression checks would confirm that the clue is redisplayed while the guessed set and counter remain unchanged. Second, a configurable session length could allow supervised practice without exhausting all 12 terms; implementation would select a random sample from the unused pairs, and tests would verify that no pair repeats, that the chosen number of rounds is completed and that the existing exit path still works. These changes are proposals only and have not been implemented or tested.

Exercise

The maintenance proposals should be assessed against E3. For each change, the explanation of implementation and the explanation of testing should be identified. Credit should be supported by the extract; the proposal itself is not evidence that the change has already been implemented.

Reference guidance

For each of two realistic changes, E3 provides one point for the explained change and its implementation, and one for an explained test. Specific states, inputs and expected outcomes support the testing points. A proposed maintenance action does not establish that the current implementation has been corrected or retested. The complete E3 award and evidence rationale are recorded in Proposed Marking and Commentary.