Draw the Young-Woman/Old-Woman Illusion: Shared Contours and Dual Readings

Original task 1 / complete key

Task 1

On paper, draw a vertical axis and mark crown, eye line, and chin at 0, 5, and 10 units. Sketch one shared right contour from crown to chin and label it 'jaw / nose tip', noting the adjacent cheek line as the nose bridge. Add an ear/eye curve at eye level on the left side and label it. Add a necklace/mouth curve 1 unit below the chin and label it. Record your units.

Answer: A drawing with three labeled shared contours and a stated unit. The exact curvature is open; the labels and units are the checkable parts.

Reason: The exercise isolates the three fixed mappings before any unique features are added, so the student practices the convention without the distraction of a full face.

Check: Count the shared contours (three) and confirm each has two labels. Confirm the unit is stated once and used for all three levels.

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Original task 2 / complete key

Task 2

A student's drawing flips only after twelve seconds at one meter. They adjust the jaw/nose-tip contour by increasing its curvature by 1 unit at the midpoint. The flip time drops to four seconds. Did the adjustment solve the problem, and what should they record?

Answer: Yes, the adjustment solved the problem because the flip now occurs within five seconds. They should record the original curvature, the 1-unit change, and the new flip time.

Reason: The flip test is the check. A change that brings the time under five seconds is a valid fix, and recording the change makes the drawing reproducible.

Check: Verify the arithmetic: original time 12 seconds, new time 4 seconds, target 5 seconds. Confirm the recorded change is in the same unit as the rest of the drawing.

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Original task 3 / complete key

Task 3

Describe in words how to place the old woman's eye so that it shares a contour with the young woman's ear. Include the level, the side, and the label you would write.

Answer: Place the old woman's eye at eye level on the left side, using the same curve as the young woman's ear. Label the curve 'ear / eye'.

Reason: The ear/eye mapping is one of the three fixed shared contours. Stating level, side, and label makes the instruction checkable without an image.

Check: Confirm the answer names eye level, the left side, and the dual label 'ear / eye'. Any wording that includes these three elements is valid.

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Original task 4 / complete key

Task 4

You have a drawing with a 10-unit-tall young woman's oval and a 9-unit-tall old woman's oval offset 2 units down and 1 unit right. You want the old woman's chin to sit 1 unit below the young woman's chin. At what level should you place the old woman's chin, and is the vertical offset consistent?

Answer: The young woman's chin is at 10 units. The old woman's chin should be at 11 units. The old woman's oval is 9 units tall and offset 2 units down, so its top is at 2 units and its bottom is at 11 units. Vertically, 2 + 9 = 11, which is 1 unit below the young woman's chin at 10, so the vertical offset is consistent. The horizontal 1-unit-right offset is separate and does not affect the chin level.

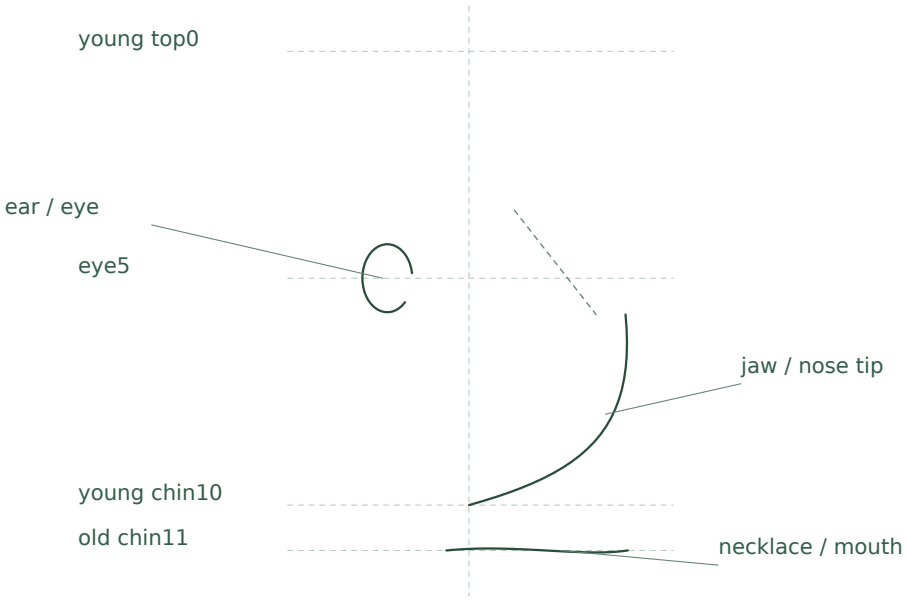
Reason: Simple arithmetic checks the scaffold: top plus height equals bottom. The 2-unit offset and 9-unit height produce a bottom at 11 units, which is 1 unit below the young woman's chin.

Check: Recompute: 2 + 9 = 11, and 11 - 10 = 1. Confirm all values use the same unit.

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Task 1 / answers

Dual-role CONSTRUCTION studies / authentic Hill observation is a separate reference



Task1 isolates exactly three named mappings before unique face details: lower jaw/chin segment as nose tip, left ear curve as old eye, and necklace as old mouth. Solid shared segments contrast with dashed construction/helper lines. State the selected unit. The adjacent nose-bridge helper is not a fourth named shared mapping.

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Task 2 / answers

Dual-role CONSTRUCTION studies / authentic Hill observation is a separate reference

GIVEN12s



recorded hypothetical times

GIVEN4s after +1 unit



recorded hypothetical times

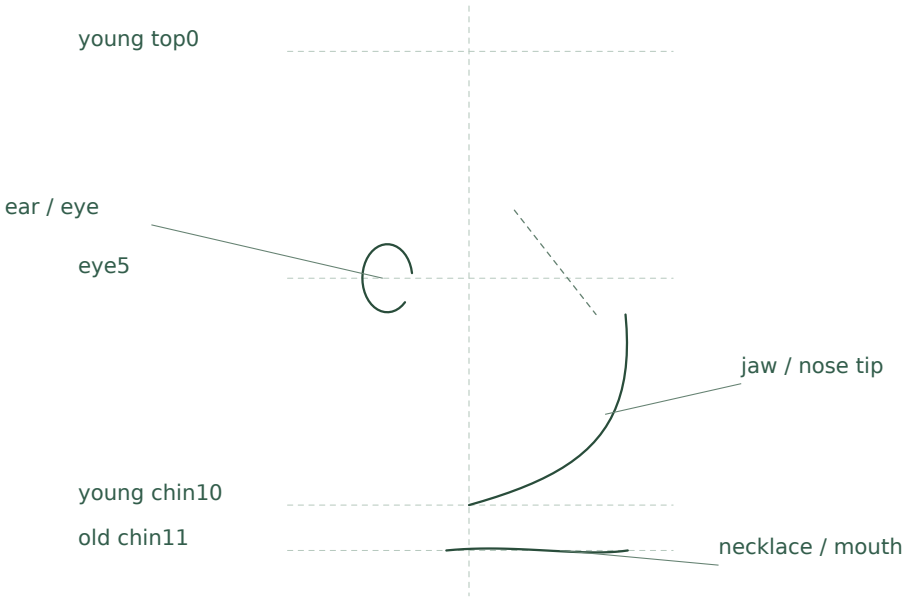
Task2 supplies both times:12s before and4s after the1-unit midpoint-curvature change. Since4<5, the supplied new result meets the lesson target. Record original curvature, the1-unit change and new4s time. This construction illustration does NOT prove that every viewer or this line alone flips; no experiment has been invented.

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Task 3 / answers

Dual-role CONSTRUCTION studies / authentic Hill observation is a separate reference

One curve, two names: young ear / old eye; LEFT side, eye level5 units

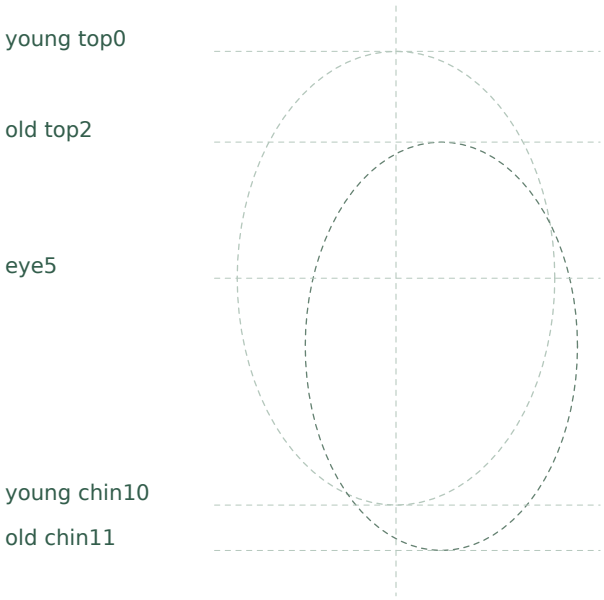


Task3 asks placement in words: LEFT side, at eye level, use one ear/eye curve and write both names. The construction guide marks level5u and its actual curve is on the left of the axis. The separate authentic observation image supplies the complete dual-reading face; this isolated mapping does not claim a tested flip.

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Task 4 / answers

Dual-role CONSTRUCTION studies / authentic Hill observation is a separate reference



Task4 checks scaffold arithmetic only: old top2u + height9u = bottom11u. That is1u below young chin10u. The horizontal1u-right shift is independent. Ovals are layout guides, not a claim that the historical image has these measured dimensions. PRINT1:1 of the selected6mm/unit diagram.

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Source rubric / reflection

- [ ] Three shared contours are present and each has two role labels.
- [ ] Units are stated and used consistently for all measurements.
- [ ] Unique features are drawn with dashed lines and do not force a single reading.
- [ ] The flip test is recorded and completes within five seconds at one meter.
- [ ] The drawing is reproducible from the recorded measurements.

Reflection: What did you check, what did you change, and what will you try next?