Draw a Scientist: Lab Coat, Pose, and Simple Tools

Original tasks 1, 2, 3 / complete keys

Task 1

A scientist stands facing left, left arm forward holding a flask. X-height is 5 cm. State head height, shoulder height, and forward wrist height using the lesson proportions.

Answer: Head about 5 cm; shoulders about 6.25 cm above baseline; forward wrist about 7.5 cm above baseline.

Reason: Head equals one x-height (5 cm). Shoulders are one and a quarter x-heights (1.25 × 5 = 6.25 cm). Forward wrist is one and a half x-heights (1.5 × 5 = 7.5 cm).

Check: Measure each value on the drawing with a ruler and compare to the calculated numbers; adjust the pose skeleton before adding the coat.

Task 2

A seated scientist leans forward, right hand holding a pipette over a work surface. X-height is 3 cm. Describe where to place the baseline and midline, and give a checkable arm-reach value.

Answer: Baseline at the lowest contact point (feet or seat), midline at the waist 3 cm above baseline. Right shoulder to wrist about 4.5 cm; place the pipette tip near the work surface line.

Reason: The x-height remains baseline to midline. Arm reach uses one and a half x-heights (1.5 × 3 = 4.5 cm). Leaning changes the angle, not the unit.

Check: Measure baseline-to-midline as 3 cm and shoulder-to-wrist as about 4.5 cm; confirm the pipette tip touches the work-surface line.

Task 3

A standing scientist holds a test tube in the right hand. The coat hem is at mid-thigh. List three fold lines you would draw and where each starts.

Answer: Example: a diagonal fold from right shoulder toward right elbow; a downward fold from left hip to hem; a short fold at the right elbow where the sleeve bunches.

Reason: Folds should start at joints, pull points, or the hem and follow gravity or arm direction. These three cover shoulder pull, torso drape, and elbow bunching.

Check: Trace each fold to its start point; if a fold starts in the middle of flat fabric with no pull, remove or move it.

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Original tasks 4 / complete keys

Task 4

A scientist faces forward with both hands holding a flask at waist height. X-height is 4 cm. Give shoulder height, wrist height, and one way to check the grip.

Answer: Shoulders about 5 cm above baseline; wrists about 4 cm above baseline (waist height). Grip check: at least two finger lines touch the flask, and the flask does not float.

Reason: Shoulders are 1.25 × 4 = 5 cm. Waist-height wrists sit near the midline, about 4 cm. The grip check is a contact rule, not a universal style.

Check: Measure shoulder and wrist heights with a ruler; inspect the hand-flask contact and add a small shadow line under the hand.

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Source rubric / reflection

- [ ] Pose skeleton uses a stated unit and consistent baseline and midline.
- [ ] Lab coat is visibly looser than the body and has sparse, purposeful folds.
- [ ] Forward hand grips the tool with at least two finger contacts.
- [ ] Proportions are checked with simple arithmetic and consistent units.
- [ ] Valid alternatives are accepted: different coat lengths, body shapes, and simple tools, provided the stated convention is followed.

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