Draw a Kitchen Weight Scale: Dial, Platform, and Body

Original tasks 1, 2, 3 / complete keys

Task 1

Draw a side-view kitchen weight scale with a body 14 cm wide and 9 cm high, a platform 16 cm long and 1 cm above the body top, and a dial radius of 3 cm centered on the body. List your steps and check the platform overhang.

Answer: Body: 14 cm by 9 cm rectangle. Platform: 16 cm line, 1 cm above body top, with 1 cm overhang each side. Dial: 3 cm radius circle centered on the body. Steps: baseline, verticals, close body, mark platform overhang, draw platform and thickness, center dial, add pointer and ticks.

Reason: The platform is 16 cm and the body is 14 cm, so each side overhangs (16 - 14) / 2 = 1 cm. The dial radius 3 cm fits inside the 9 cm body height if centered.

Check: Measure the platform length and subtract the body width; divide by 2 to confirm equal overhang. Check the dial circle stays inside the body by measuring from the center to the nearest edge.

Task 2

A student draws a body 12 cm wide and 8 cm high, but the platform is only 10 cm long. Explain the mistake and give a corrected platform length that overhangs 1 cm on each side.

Answer: The platform is narrower than the body, so it looks unstable. Corrected platform length: 12 cm + 1 cm + 1 cm = 14 cm.

Reason: A platform should be wider than the body. Adding 1 cm overhang on each side gives 14 cm total.

Check: Compare platform length to body width; the platform should be larger by twice the overhang. Check that 14 - 12 = 2 cm, which is 1 cm per side.

Task 3

Draw a dial with radius 2.5 cm on a body 8 cm high. The dial center is 3 cm above the body bottom. Does the dial fit inside the body? Show the arithmetic.

Answer: The dial extends from 3 - 2.5 = 0.5 cm to 3 + 2.5 = 5.5 cm above the body bottom. Since 5.5 cm is less than 8 cm, the dial fits inside the body.

Reason: The top of the dial is center plus radius, and the bottom is center minus radius. Both must be within 0 to 8 cm.

Check: Measure the distance from the dial top to the body top: 8 - 5.5 = 2.5 cm, which is positive, so the dial is inside.

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Original tasks 4 / complete keys

Task 4

Create a simple label for the dial using the lettering convention. Explain how you keep x-height consistent for the letters in 'kg' even if their shapes differ.

Answer: Draw a baseline and a midline. Keep the x-height of 'k' and 'g' the same distance from baseline to midline. The shapes may differ, but the height is consistent.

Reason: The convention defines x-height as baseline to midline, so all lowercase letters share that height regardless of style.

Check: Measure from baseline to midline for each letter; the distances should match within a small margin.

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Source rubric / reflection

- [ ] Platform is level and wider than the body, with equal overhang on both sides.
- [ ] Body is a closed rectangle with opposite sides equal and a stable appearance.
- [ ] Dial is a circle centered on the body, fully inside the body, with a pointer from the center.
- [ ] Tick marks are evenly spaced and do not overlap the body edge.
- [ ] Labels use consistent x-height from baseline to midline; letter styles may vary.
- [ ] Final outlines are clean and construction lines are erased or light.

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