Sunfish Drawing: Disc Body and Fin Layout

Original tasks 1, 2, 3 / complete keys

Task 1

On a baseline, draw a disc body 6 cm wide and 6 cm tall. Place a horizontal midline 3 cm above the baseline. Mark a small mouth at the front edge, 1 cm above the horizontal midline. Place the eye about 0.3 cm above the mouth center and about 0.6 cm behind it. Where is the eye center relative to the horizontal midline?

Answer: The eye center is about 1.3 cm above the horizontal midline (the mouth is 1 cm above the midline, plus about 0.3 cm more) and about 0.6 cm behind the mouth, since one-tenth of the 6 cm body width is 0.6 cm.

Reason: The eye sits behind the mouth by roughly one-tenth of the body width, and slightly above the mouth center. One-tenth of 6 cm is 0.6 cm. Adding the eye's 0.3 cm rise to the mouth's 1 cm offset gives about 1.3 cm above the horizontal midline.

Check: Measure from the mouth to the eye center: about 0.6 cm back and about 0.3 cm up. Then measure the eye center from the horizontal midline: it should be close to 1.3 cm above it (1 cm mouth offset plus 0.3 cm).

Task 2

A drawing has a disc body 10 cm wide and 9 cm tall. The dorsal fin runs from 6 cm to 9 cm along the top. Where should the anal fin start and end to mirror it?

Answer: The anal fin should start at 6 cm and end at 9 cm along the bottom rear.

Reason: The anal fin mirrors the dorsal fin along the bottom, using the same horizontal positions.

Check: Compare the start and end distances from the left edge; they should match the dorsal fin's positions.

Task 3

A student places the caudal fin at 4 cm from the left edge on a body that ends at 8 cm. Is this correct? Explain.

Answer: No. The caudal fin should be at the rear edge, near 8 cm, centered on the horizontal midline.

Reason: The caudal fin belongs at the rear, not the middle. Placing it at 4 cm puts it inside the body.

Check: Check that the caudal fin touches or sits just beyond the rear edge of the body outline.

Sunfish Drawing: Disc Body and Fin Layout

Original tasks 4 / complete keys

Task 4

Draw a sunfish layout with a body 7 cm wide and 7 cm tall. The dorsal fin is 2 cm long starting at 4 cm from the left edge. The anal fin is 2 cm long starting at 4 cm from the left edge. The caudal fin is centered at 7 cm from the left edge. List one valid alternative in fin shape and one invalid change in fin position, and explain each using the fin-position convention.

Answer: Valid: make the caudal fin a rounded fan instead of a triangle, because fin shape may vary while its rear-center position stays fixed. Invalid: move the dorsal fin to start at 2 cm from the left edge, because on a 7 cm body the widest point is at 3.5 cm, so starting at 2 cm places the dorsal fin ahead of the widest point.

Reason: Fin shape can vary, but fin positions must follow the convention. The dorsal fin must start behind the body's widest point. On a 7 cm wide body, the widest point is at 3.5 cm from the left edge; a dorsal fin starting at 2 cm is ahead of that point and therefore invalid.

Check: Confirm the dorsal fin starts behind the widest point (past 3.5 cm on a 7 cm body) and the caudal fin is centered at the rear edge (7 cm) on the horizontal midline. Check that the stated valid alternative changes only fin shape, not fin position.

Sunfish Drawing: Disc Body and Fin Layout

Source rubric / reflection

- [ ] Body is a disc or near-disc with height and width ratio between 1:1 and 1:1.2.
- [ ] Mouth is small and placed at the front edge, slightly above the horizontal midline.
- [ ] Dorsal fin is on the top rear, starting behind the widest point.
- [ ] Anal fin is on the bottom rear, roughly opposite the dorsal fin.
- [ ] Caudal fin is at the rear edge, centered on the horizontal midline.
- [ ] Pectoral fin is small and placed behind the eye, low on the side.
- [ ] Construction lines are light and do not obscure the final outline.
- [ ] Valid alternatives in fin shape and slight proportion changes are accepted if the layout is clear.

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