# Draw a Multi-Head Hydra: Body Mass and Head Placement

Original tasks 1, 2, 3, 4 / complete keys

Task 1

A body mass is 15 cm wide. Using the three-head-width convention, find head width and neck thickness at one-third head width.

Answer: Head width = 5 cm; neck thickness ≈ 1.67 cm.

Reason: 15 ÷ 3 = 5 cm head width. 5 ÷ 3 ≈ 1.67 cm neck thickness.

Check: 5 × 3 = 15 cm body width; 1.67 × 3 ≈ 5 cm head width.

Task 2

A shoulder zone is 9 cm long and each neck origin needs 1.5 cm spacing. How many necks fit?

Answer: 6 necks.

Reason: 9 ÷ 1.5 = 6.

Check: 6 × 1.5 = 9 cm.

Task 3

A hydra has 4 heads. If each neck is 6 cm long and the body mass is 10 cm tall, what is the total vertical span from body bottom to the highest head circle if one head circle sits 2 cm above its neck end? Use hypothetical values.

Answer: 18 cm.

Reason: Body height 10 cm plus neck length 6 cm plus 2 cm offset = 18 cm.

Check: 10 + 6 + 2 = 18 cm.

Task 4

You plan 5 necks with 1.2 cm spacing per origin. What minimum shoulder zone length is needed?

Answer: 6 cm.

Reason: 5 × 1.2 = 6 cm.

Check: 6 ÷ 1.2 = 5 origins.

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Source rubric / reflection

- [ ] Body mass is drawn first and is wide enough for the planned necks.
- [ ] A shoulder zone is marked and all neck origins lie inside it.
- [ ] Each neck has a connection line from the shoulder zone to a placement circle.
- [ ] Neck thickness follows a stated convention consistently.
- [ ] Each head fits inside its placement circle and connects visibly to its neck.
- [ ] Head positions vary slightly in height or angle.
- [ ] The blank hydra box shows a different head count using the same conventions.
- [ ] Valid alternative head styles and neck thickness conventions are accepted if stated and consistent.

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