

Cell Model Arrangement

Classroom-ready printable pack · Grades 5–8

Pack contents

Plant- and animal-cell mats, two identical organelle sets, challenge cards, and function reference. Two student sets are included.

Teacher directions

1. Choose the same cell type for both partners and give each an identical organelle set.
2. The Describer places organelles on the mat and explains relative position and function.
3. The Builder recreates the model without seeing it.
4. Compare arrangements, then identify which structures are shared and which are characteristic of the plant-cell model.

Before class

- Print at 100% on US Letter paper. Use cardstock or laminate for reuse.
- Cut on the thick solid borders. Keep Set A and Set B separate.
- Give challenge/model cards only to the Describer.
- Use a folder, book, or tabletop barrier so partners cannot see each other's work.

Accessibility and accommodations

Begin with membrane, cytoplasm, nucleus, and mitochondria. Add organelles in later rounds. Cards use abbreviations, names, shapes, and patterns.

Storage-envelope labels

Cell Model Arrangement

Set A — Describer

Count pieces before storing.

Cell Model Arrangement

Set B — Builder

Count pieces before storing.

Cell Model Arrangement

Challenge / model cards

Count pieces before storing.

Cell Model Arrangement

Teacher reference

Count pieces before storing.

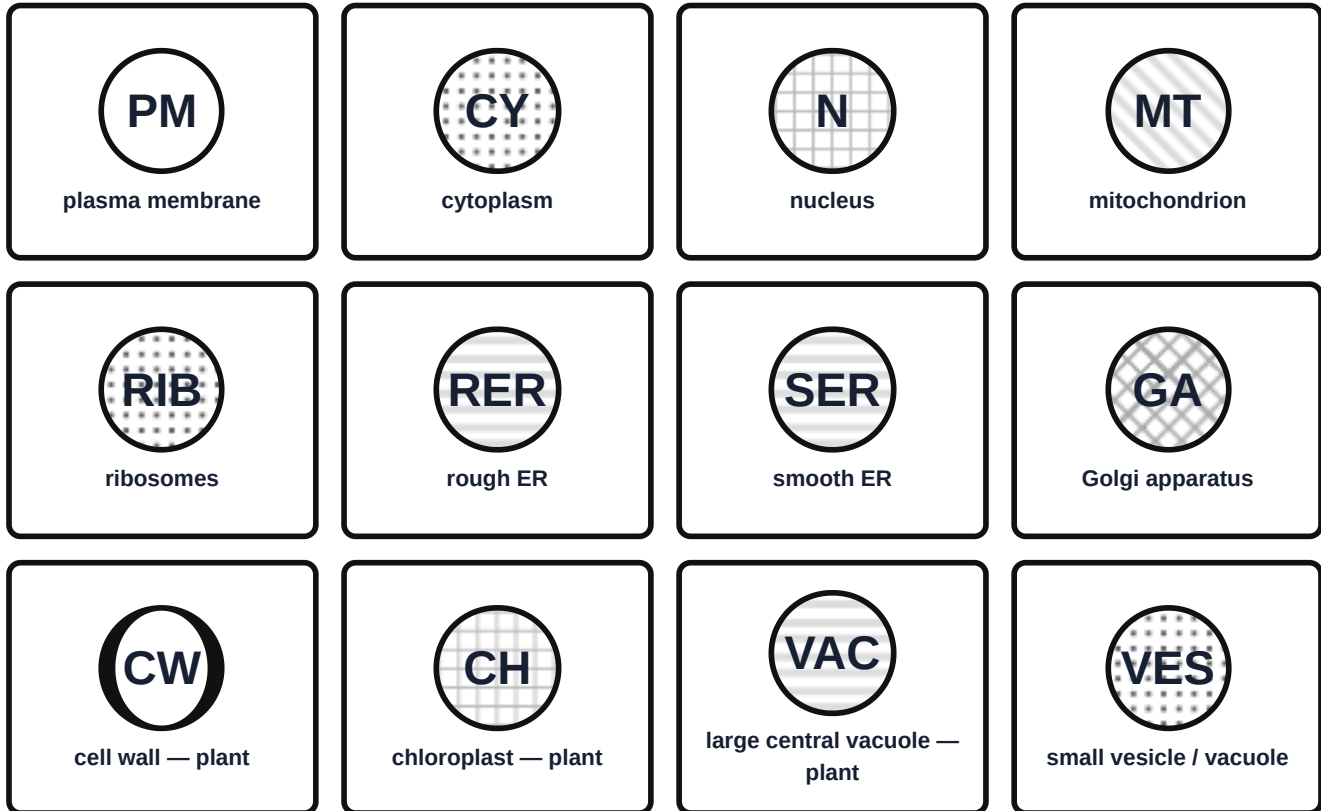
Student language supports

Position: above · below · beside · between · near · far · left · right · clockwise**Clarify:** “Please repeat...” · “Is ___ beside ___?” · “What should I place next?”**Compare:** same · different · rotate · move · replace · sequence

Movable pieces

Set A

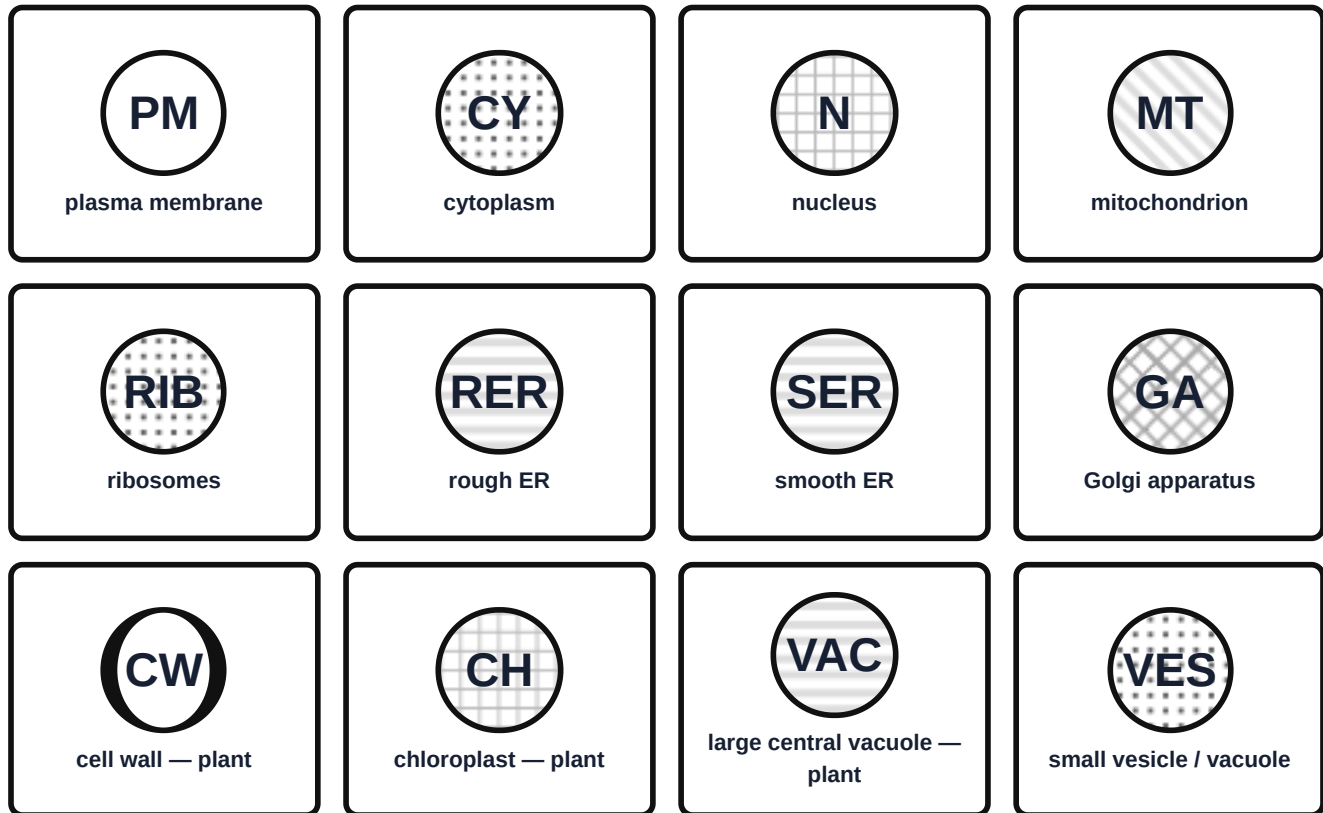
Cut on the solid borders. This set is identical to the partner set.



Movable pieces

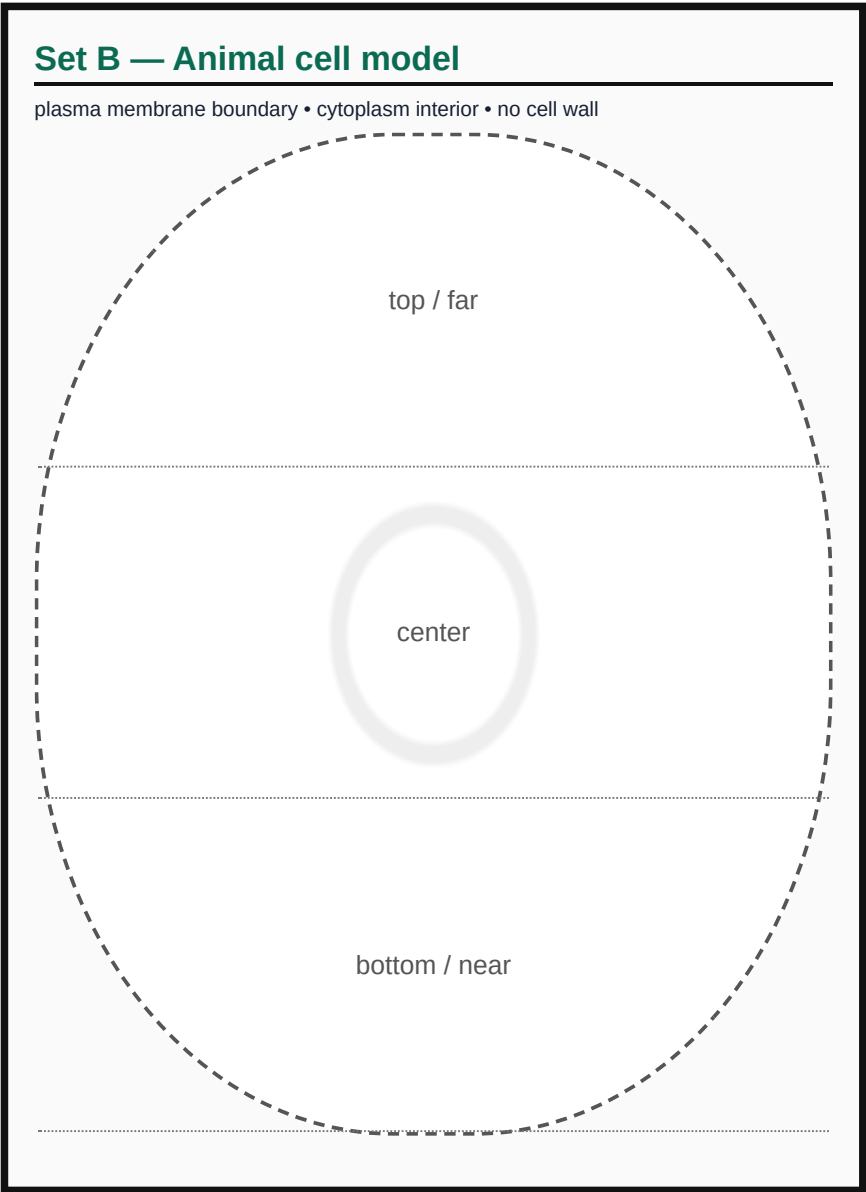
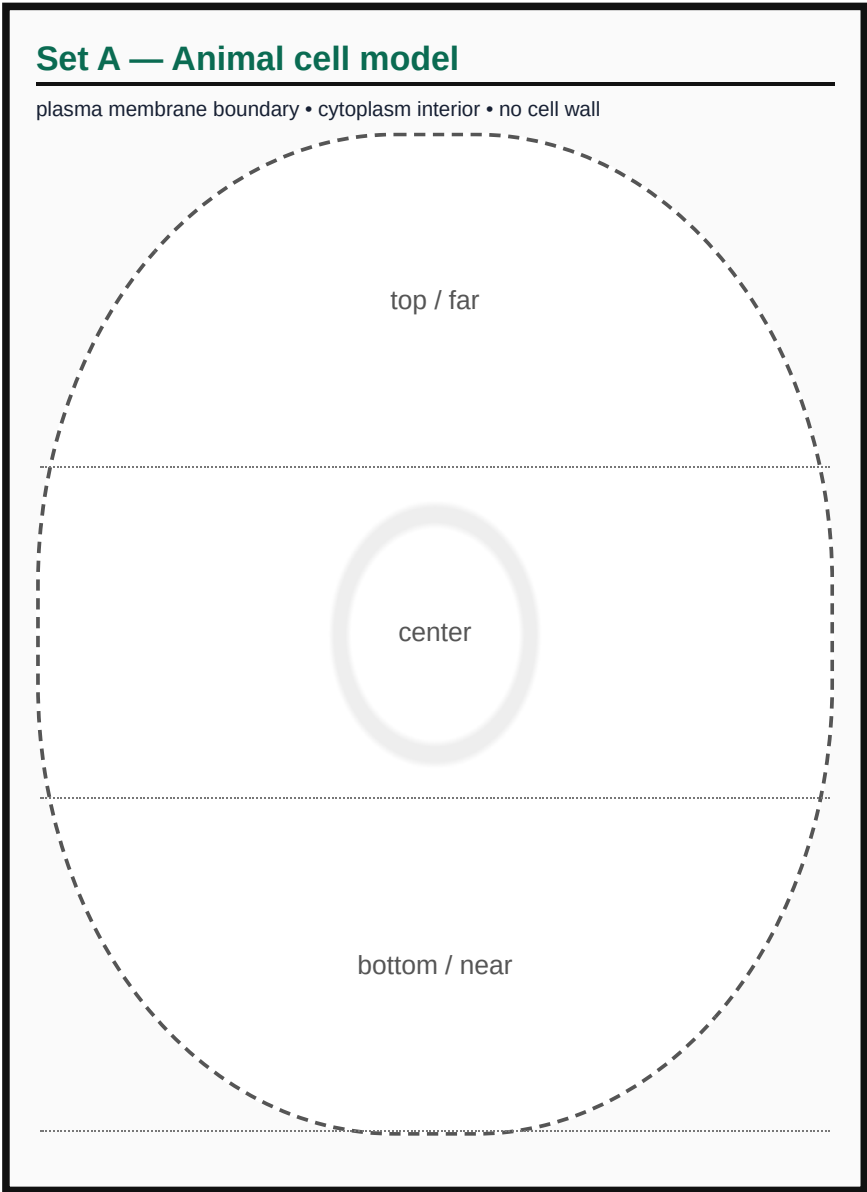
Set B

Cut on the solid borders. This set is identical to the partner set.



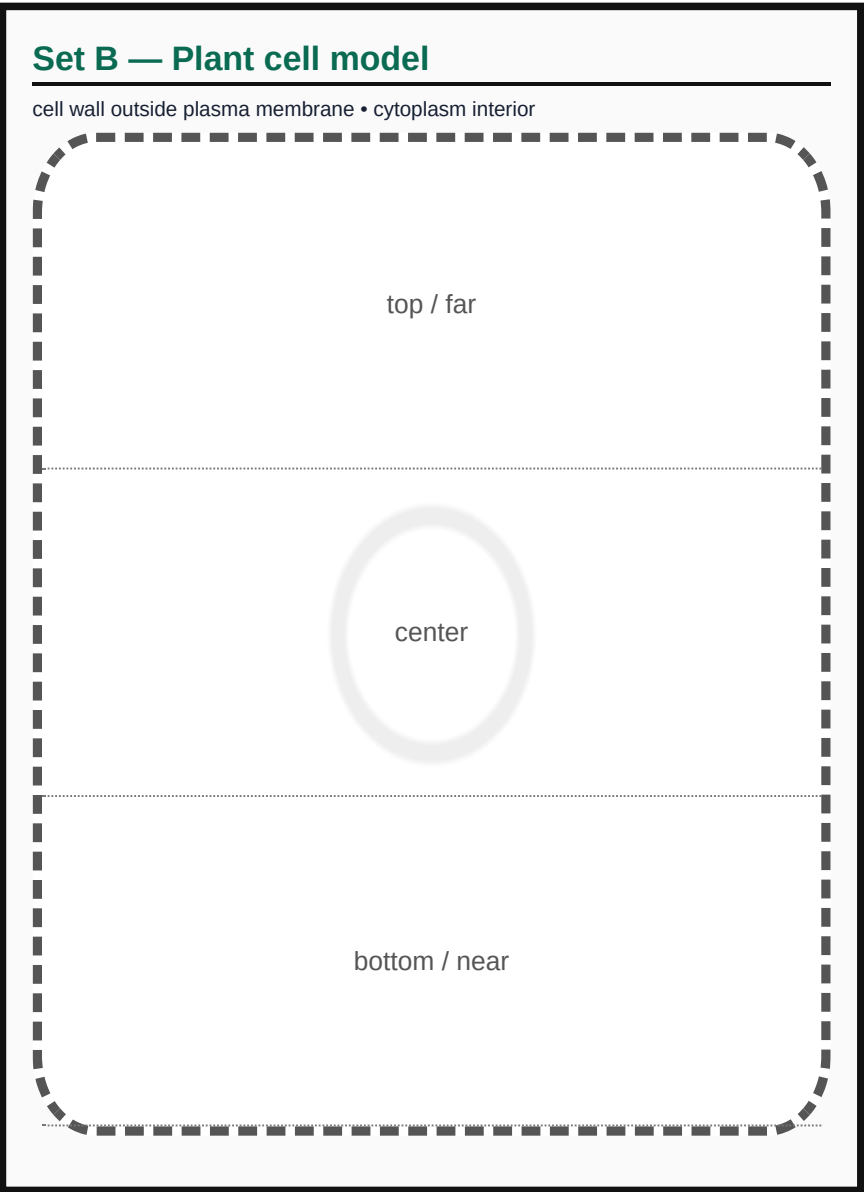
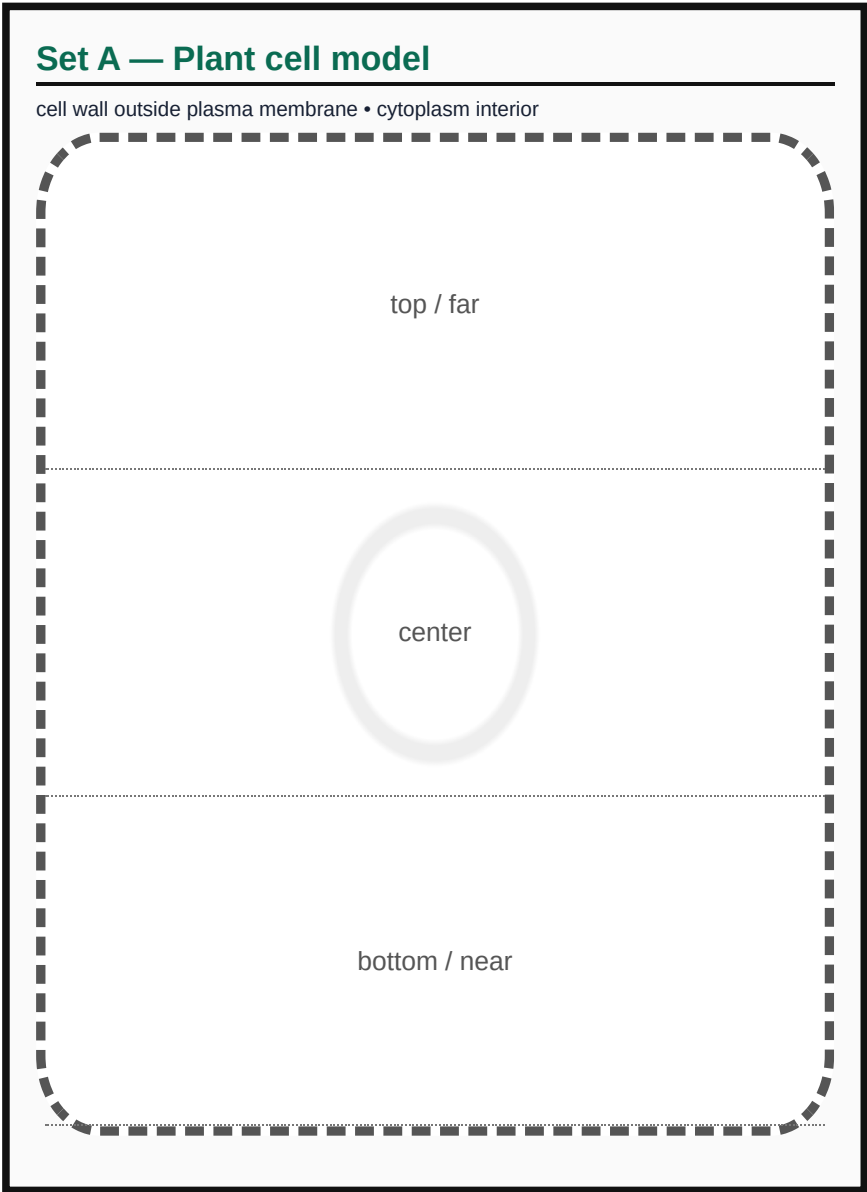
Animal cell model

Cut the page in half. Both partner mats are identical.



Plant cell model

Cut the page in half. Both partner mats are identical.



Describer-only challenge cards

Keep these cards hidden from the Builder.

Challenge 1: Basic animal cell

Place membrane, cytoplasm, nucleus, and two mitochondria.

Challenge 2: Basic plant cell

Place cell wall outside membrane; add nucleus, chloroplasts, and central vacuole.

Challenge 3: Protein pathway model

Arrange nucleus → rough ER → Golgi → vesicle as a simplified sequence.

Challenge 4: Compare cells

Build one plant model and name three structures not shown on the animal mat.

Challenge 5: Function clues

Place the energy-conversion, genetic-information, and packaging organelles.

Cell Model Arrangement reference

Cell reference and model limits

Both plant and animal eukaryotic cells: plasma membrane, cytoplasm, nucleus, mitochondria, ribosomes, endoplasmic reticulum, and Golgi apparatus. **Plant-cell model:** also includes a cellulose cell wall, chloroplasts, and typically a large central vacuole. Animal cells have plasma membranes but no cell wall or chloroplasts.

Organelles are not drawn to scale, are more numerous than one card may imply, and move within living cells. “Plant cells are rectangular” is a model convention, not a universal rule.

Content checked against NCBI Bookshelf references on eukaryotic, plant, and animal cells.

Quality check after a round

- Can each student identify pieces by shape or label without relying on color?
- Do both models match in pieces, order, orientation, and relative position?
- Which direction was most precise? Which should be revised?