

Solar-System Placement

Classroom-ready printable pack · Grades 3–8

Pack contents

Two solar-system mats; two identical object sets; Descriptor-only challenge cards. Two student sets are included.

Teacher directions

1. Give each partner a mat and one identical object set; place a barrier between them.
2. The Descriptor chooses a challenge card and arranges the named objects.
3. The Descriptor uses left/right, nearer/farther, between, clockwise, and orbit vocabulary to guide the Builder.
4. Compare placements. Use the reference guide to separate model scale from actual astronomical distance.

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 Descriptor.
- Use a folder, book, or tabletop barrier so partners cannot see each other's work.

Accessibility and accommodations

Use only the Sun and four inner planets; allow the direction strip; place tactile dots on alternate orbit lines. Objects vary by size, ring, pattern, and printed name.

Storage-envelope labels

Solar-System Placement

Set A — Describer

Count pieces before storing.

Solar-System Placement

Set B — Builder

Count pieces before storing.

Solar-System Placement

Challenge / model cards

Count pieces before storing.

Solar-System Placement

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

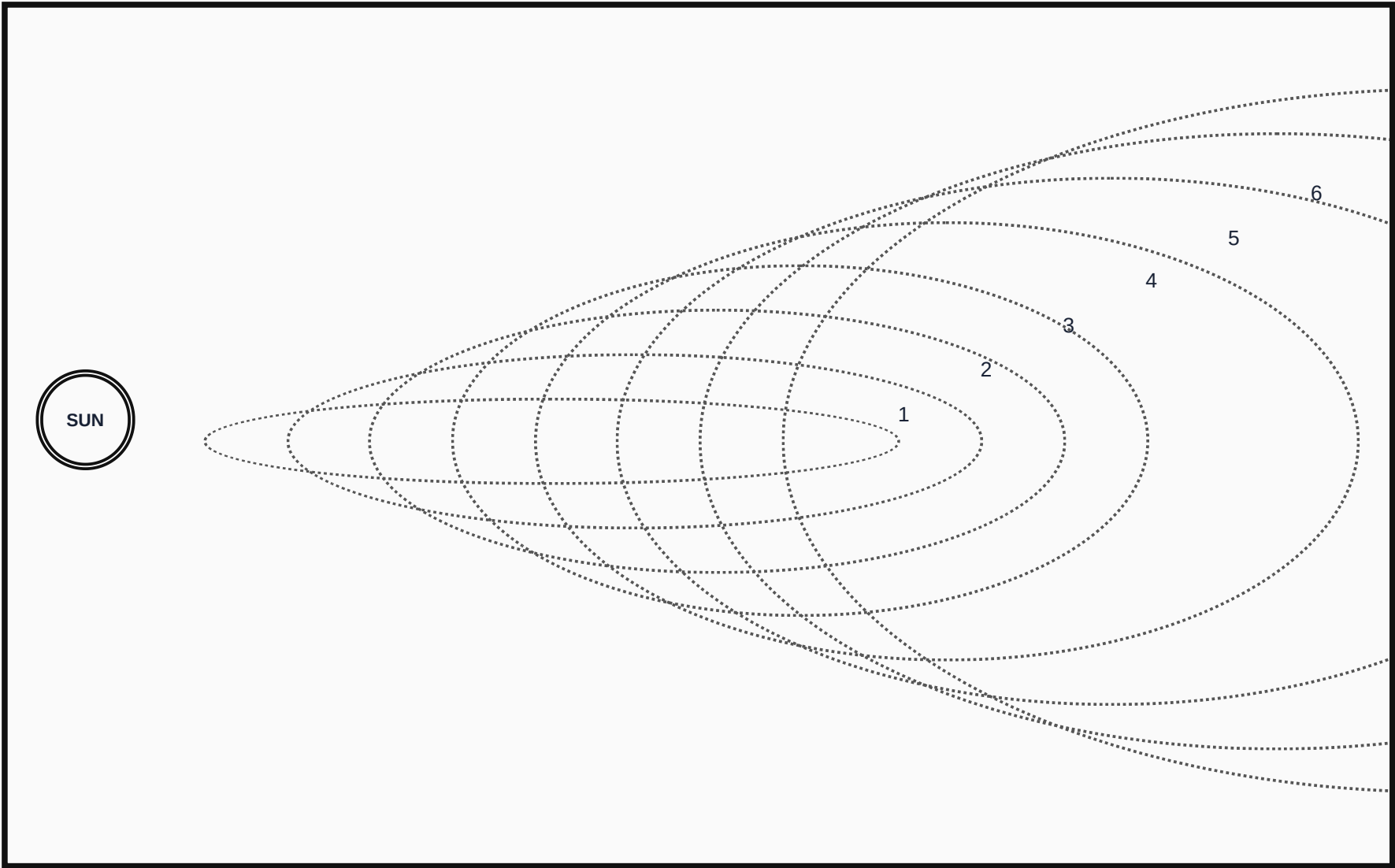
Set B

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



Solar-system placement mat

Print this page twice—one for each partner.



← nearer to Sun | farther from Sun →

Describer-only challenge cards

Keep these cards hidden from the Builder.

Challenge 1

Place all eight planets in order from the Sun.

Challenge 2

Place Earth and its Moon; put Mars farther from the Sun and a spacecraft between Earth and Mars.

Challenge 3

Place the asteroid belt between Mars and Jupiter; add a comet on an elongated path.

Challenge 4

Place the four outer planets; identify the two ice giants and the planet with the most visible ring system.

Solar-System Placement reference

Science reference

Order from the Sun: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune. Earth's Moon orbits Earth. The asteroid belt lies mainly between Mars and Jupiter. Comets travel on elongated paths around the Sun.

This classroom placement model is not to scale. Planet sizes and orbit spacing are intentionally enlarged for handling. A spacecraft card does not imply a fixed natural orbit.

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?