

Grid Robot Programmer

Classroom-ready printable pack · Grades 3–8

Pack contents

Grid mats, robot/obstacle tokens, command cards, program strips, and answer traces. Two student sets are included.

Teacher directions

1. Match obstacles, robot coordinate, and orientation.
2. The Describer selects a target and builds a program.
3. The Builder executes one card at a time.
4. Compare the final coordinate and debug the first mismatch.

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

Start with forward and quarter turns. Keep a visible arrow on the robot.

Storage-envelope labels

Grid Robot Programmer

Set A — Describer

Count pieces before storing.

Grid Robot Programmer

Set B — Builder

Count pieces before storing.

Grid Robot Programmer

Challenge / model cards

Count pieces before storing.

Grid Robot Programmer

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.

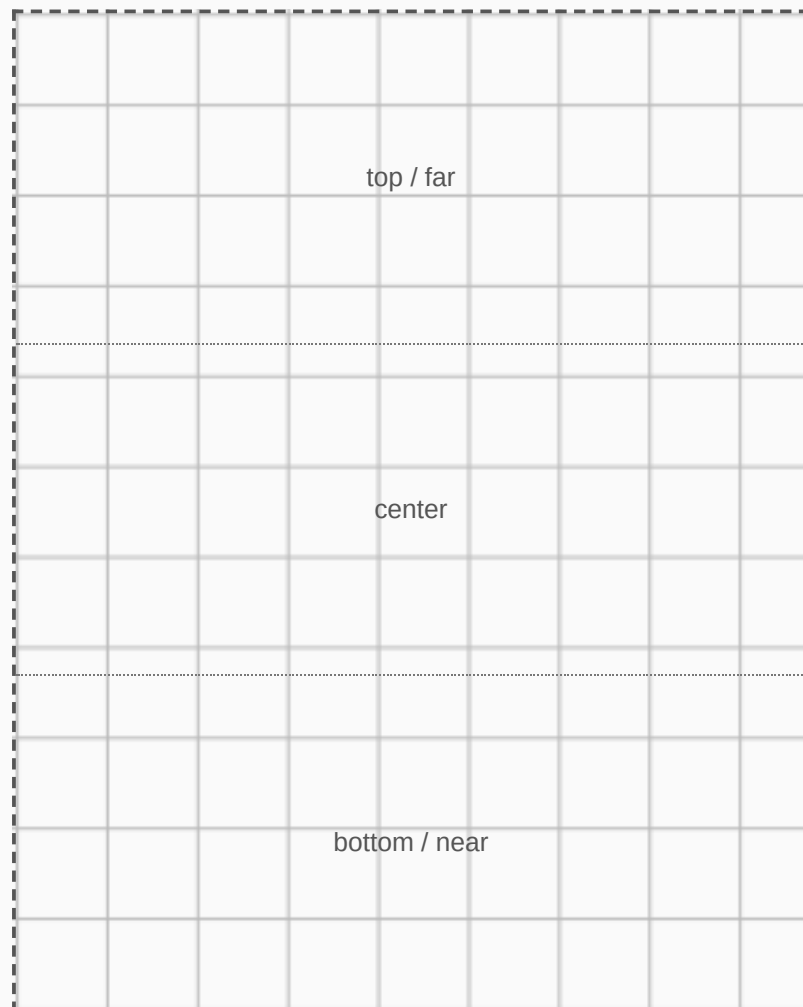


Robot grid

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

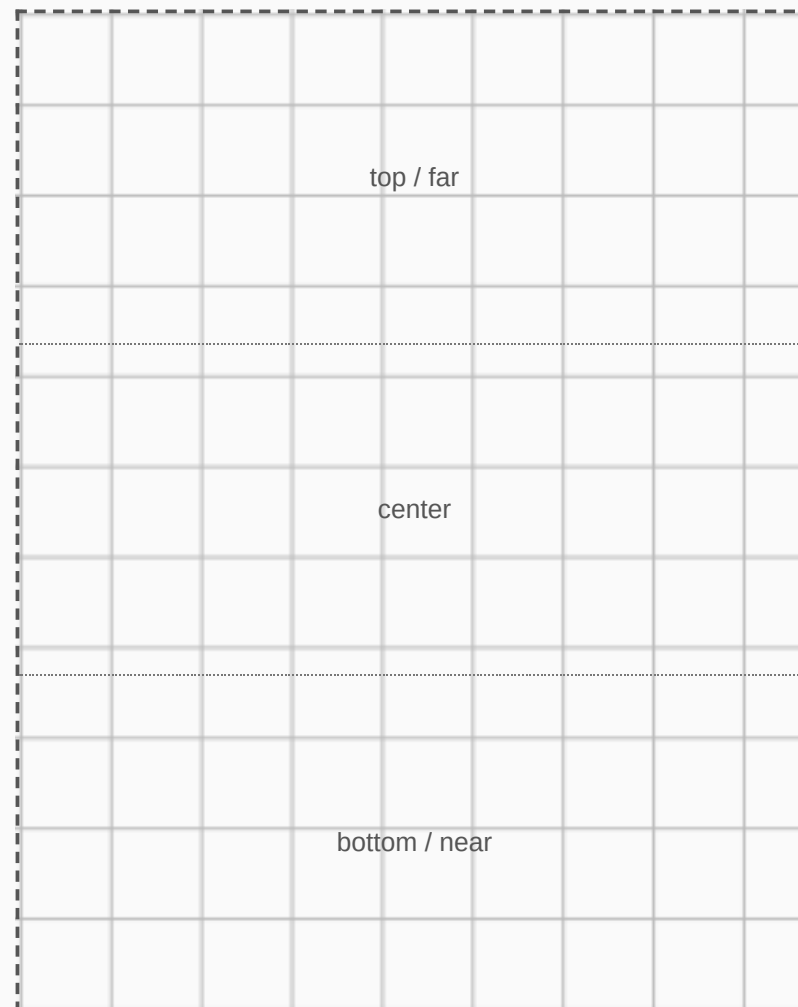
Set A — Robot grid

north at top • columns 1–6 • rows A–F



Set B — Robot grid

north at top • columns 1–6 • rows A–F



Program strip

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

Set A — Program strip

commands left to right • bracket repeats

top / far	center	bottom / near			
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Set B — Program strip

commands left to right • bracket repeats

top / far	center	bottom / near			
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Describer-only challenge cards

Keep these cards hidden from the Builder.

Challenge 1: Straight

1-A north to 1-E.

Challenge 2: One turn

2-B north to 5-D; avoid obstacle.

Challenge 3: Repeat

Use a repeat to make a square.

Challenge 4: Debug

Insert and fix one wrong command.

Grid Robot Programmer reference

Command key

FWD 1: one square in facing direction. **LEFT/RIGHT:** rotate 90° without moving. **REPEAT n:** repeat bracketed cards only. Never enter an obstacle or leave the grid.

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?