BIG FLOOR PLANS · COLLEGE & TRADES TRACK · 50 MINUTES

Rack the Warehouse: teacher script

Logistics and supply-chain students lay out pallet rack in a warehouse plan for two kinds of lift trucks, tape one bay and both aisles at full size, and count the pallet positions each layout holds.

Prep: Tape one double rack row 8 ft long (7.5 ft deep) and the two aisle widths beside it (12 ft and 9 ft). Print one layout sheet per team.

Min	Step and what to do	Ask	Listen for
0-5	**Hook** "Same building, same rack. Can a different truck add storage?"	Where would the space come from?	Narrower aisles.
5-15	**Stand in the aisles** Stand in the taped 12-ft and 9-ft aisles beside the rack.	What changes for the operator?	Less room to turn; the reach truck needs less.
15-30	**Lay out across** Fit single rows on the walls, double rows in between, and aisles, across 66 ft.	Rows for each truck?	Counterbalance 6; reach truck 8.
30-42	**Count positions** 12 bays per row, 4 levels, 2 pallets per level.	Positions for each?	576 vs 768.
42-50	**Recommend and exit** Answer the manager with numbers, then the exit ticket.	What does the switch buy?	192 more positions (+33%).

Common misconceptions

- **Learners may think:** A bigger building is the only way to add storage. **Address it:** Aisle width can add rows inside the same walls.
- **Learners may think:** Any forklift fits any aisle. **Address it:** Each truck type needs its own stated aisle width.

Supports

- Give a width strip: blocks for single rows, double rows and aisles to slide along the building width.
- Multilingual learners: label rack, bay, aisle and pallet position with pictures.
- Mobility: the planner role works the plan at a table; teammates stand in the aisles.

References

- **Scenario rules**: aisle widths of 12 ft (counterbalance) and 9 ft (reach truck) and the rack sizes are scenario values; real widths come from the truck maker and the rack design
- **Perkins V (CTE)**: postsecondary and secondary CTE program context

Scenario sheet

Warehouse 120 ft long x 66 ft wide, clear floor. Rack runs the long way with 10-ft cross aisles at both ends. Wall rows are single (3.5 ft deep); middle rows are back-to-back doubles (7.5 ft deep). Bays are 8 ft wide, 4 levels high, 2 pallets per level. Scenario aisle widths: counterbalance forklift 12 ft, reach truck 9 ft.

Name _____ Date _____

Truck	Aisle (ft)	Double rows	Rack rows	Width used (ft)	Bays per row	Pallet positions
Counterbalance forklift						
Reach truck						

Exit ticket

1. A row is 96 ft long with 8 ft bays. Bays?

2. 12 bays, 4 levels, 2 pallets per level. Positions in the row?

3. Wall row 3.5 ft, aisle 12 ft, double row 7.5 ft, aisle 12 ft, wall row 3.5 ft. Total width?

Answer key

Truck	Aisle	Double rows	Rows	Width used	Positions
Counterbalance forklift	12 ft	2	6	58 of 66 ft	6 x 12 x 4 x 2 = 576
Reach truck	9 ft	3	8	65.5 of 66 ft	8 x 12 x 4 x 2 = 768

Bays per row: (120 - 2 x 10) / 8 = 12. The reach truck adds 192 positions (+33%) in the same building; the trade-off is a different truck and narrower, more careful driving.

Exit ticket

1. A row is 96 ft long with 8 ft bays. Bays?
   Answer: 12.
2. 12 bays, 4 levels, 2 pallets per level. Positions in the row?
   Answer: 96.
3. Wall row 3.5 ft, aisle 12 ft, double row 7.5 ft, aisle 12 ft, wall row 3.5 ft. Total width?
   Answer: 38.5 ft.

Scoring: 1 point each, plus 1 for a recommendation with numbers. 3 or more = secure.

Free to copy for teaching. Big Floor Plans, Rack the Warehouse, 2026. Codes and standards change: use the edition your jurisdiction or program adopted. Full-size prints: bigfloorplans.com/get-a-quote