BIG FLOOR PLANS · COLLEGE & TRADES TRACK · 50 MINUTES

Space the Sprinkler Heads: teacher script

Landscape and irrigation technology students lay out rotor heads on a lawn plan at head-to-head spacing, test the coverage with strings at full size, and split the heads into zones by flow.

Prep: Outline the 40 x 30 ft lawn in a gym or on a field. Tie a 15-ft string to a cone for the throw radius. Print one layout sheet per team.

Min	Step and what to do	Ask	Listen for
0-5	**Hook** "Brown stripes between sprinklers. Whose fault?"	What would cause them?	Heads too far apart.
5-15	**Test the sketch** Place cones every 20 ft along a side and swing the 15-ft string.	Do the throws reach the next head?	No: 20 ft is more than 15 ft.
15-28	**Head to head** Space heads no more than 15 ft apart both ways, starting at the corners.	How many heads?	4 x 3 = 12, spaced 13.33 ft by 15 ft.
28-40	**Arcs and flow** Corners quarter, edges half, inside full. A full circle uses 4 gpm; arcs use their share.	Total flow?	24 gpm.
40-50	**Zones and exit** The supply allows 12 gpm per zone. Then the exit ticket.	How many zones?	2.

Common misconceptions

- **Learners may think:** Space heads at twice the radius so the circles just touch. **Address it:** Touching circles leave dry spots; head-to-head means spacing equal to the radius.
- **Learners may think:** Every head uses the same water. **Address it:** A quarter-circle head needs a quarter of a full circle's flow for the same depth.

Supports

- Give a grid of the lawn with 5-ft squares.
- Multilingual learners: label head, arc, radius, flow and zone on the layout.
- Mobility: the designer works on the plan seated; teammates swing the string.

References

- **Scenario rules**: rotor throw 15 ft, a 4.0 gpm full-circle nozzle with matched arcs and a 12 gpm zone limit are scenario values; use the manufacturer's nozzle chart and a measured supply
- **Perkins V (CTE)**: postsecondary and secondary CTE program context

Scenario sheet

Rectangular lawn 40 ft x 30 ft. Scenario rotor: 15-ft throw radius; full-circle nozzle 4 gpm, half and quarter arcs matched at 1/2 and 1/4 of that; supply limit 12 gpm per zone. Design rule: head-to-head coverage, so spacing is no more than the throw radius. The contractor's sketch puts 3 heads along each 40-ft side.

LEARNER SHEET · SPACE THE SPRINKLER HEADS

Name _____ Date _____

Step	Work	Answer
Sketch spacing; head-to-head?		
Heads along the length; spacing		
Heads along the width; spacing		
Quarter / half / full heads		
Total flow (gpm)		
Zones		

Exit ticket

1. Throw radius 12 ft, side 30 ft. Heads along the side?

2. Full circle 3 gpm. A half-circle head?

3. 18 gpm total, 10 gpm per zone. Zones?

Answer key

Step	Answer
Sketch	40 / 2 = 20 ft > 15 ft: fails
Length	40 / 15 = 2.67, so 3 spaces, 4 heads at 13.33 ft
Width	30 / 15 = 2, so 2 spaces, 3 heads at 15 ft
Arcs	4 quarter, 6 half, 2 full (12 heads)
Flow	4 x 1 + 6 x 2 + 2 x 4 = 24 gpm
Zones	24 / 12 = 2, so 2 zones

Exit ticket

1. Throw radius 12 ft, side 30 ft. Heads along the side?
   Answer: 4 (3 spaces of 10 ft).
2. Full circle 3 gpm. A half-circle head?
   Answer: 1.5 gpm.
3. 18 gpm total, 10 gpm per zone. Zones?
   Answer: 2.

Scoring: 1 point each, plus 1 for a complete layout. 3 or more = secure.

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