

Friday Garden Fix

Define a problem before designing a solution.

3.1.a.iii "asking questions and defining problems define a simple design problem that can be solved through the development of an object, tool, process, or system"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the words that tell what needs fixing. Circle each rule the watering helper must follow.

A Helper for Bean Plants

- ① At recess, the class garden has a problem. Some young bean plants are dry by Friday because no one waters them after Thursday. The garden bed is beside the playground, but students may not leave class to water it. Ms. Lee asks the class to find a simple way to give the plants water during the school day.
- ② Before planning, the class writes a design problem. Their problem is to make a watering helper for the bean plants. It must release enough water to keep the soil damp for one school day. The helper must be safe near children, use reused materials, and cost no money. It also needs to be easy for a student to set up.
- ③ Students ask questions before choosing an idea: How much water do the plants need? Where can the helper sit so it will not be knocked over? They consider a bottle with small holes that slowly drips water into the soil. The class will test it for one day, check whether the soil is damp, and decide whether it meets their problem.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What problem do the bean plants have?

2 What is the class's design problem?

3 Name two rules the watering helper must follow.

4 What two questions do students ask before choosing an idea?

3 YOUR TURN _____ Your own words

Think of two small problems at school. In each row, define a design problem that could be solved by an object, tool, process, or system. Name the kind of solution and write two rules it must follow.

PROBLEM TO SOLVE	WHO OR WHAT NEEDS HELP?	SOLUTION TYPE	TWO RULES

PART 1 • READ AND MARK

Underline the words that tell what needs fixing. Circle each rule the watering helper must follow. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What problem do the bean plants have?	The bean plants are dry by Friday because no one waters them after Thursday.
2	What is the class's design problem?	The class needs to make a watering helper for the bean plants.
3	Name two rules the watering helper must follow.	Answers may include: release enough water for one school day, be safe near children, use reused materials, cost no money, or be easy for a student to set up.
4	What two questions do students ask before choosing an idea?	They ask how much water the plants need and where the helper can sit without being knocked over.

PART 3 • YOUR TURN (SAMPLE ANSWER)

PROBLEM TO SOLVE	WHO OR WHAT NEEDS HELP?	SOLUTION TYPE	TWO RULES
Lunch trays spill when students carry them.	Students carrying trays	A tray-carrying tool	Holds two drinks; uses safe materials
Books are hard to find in the classroom library.	Students looking for books	A sorting system	Labels are easy to read; books stay in the room

Accept passage answers that state the same problem, requirements, and questions in the student's own words. For Your Turn, accept reasonable school problems that can be solved through a design and include two clear requirements or limits.