



Water Quality Data Analysis

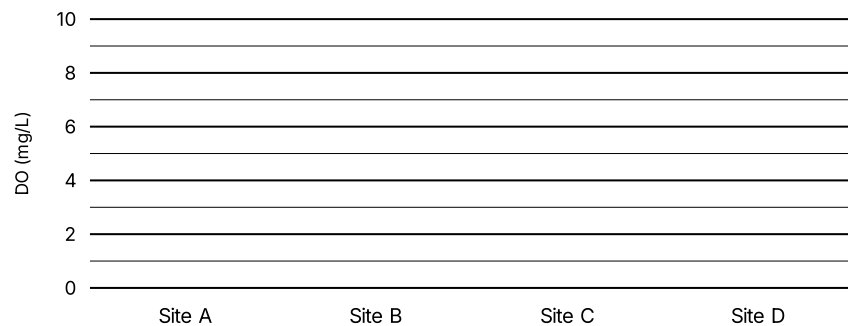
A class sampled four sites along a creek, in order from upstream to downstream. Analyze their practice data.

Name _____ Date _____

Site	Location	Temp (°C)	Dissolved oxygen (mg/L)	pH	Turbidity (NTU)
A	Upstream, forested	16	9.2	7.4	4
B	Below farm fields	19	7.1	7.9	28
C	Below a large parking lot	24	5.3	7.2	41
D	Below a restored wetland	18	8.0	7.5	9

Guidelines: most fish need dissolved oxygen (DO) of at least 5 mg/L. A pH from 6.5 to 8.5 supports most aquatic life. Lower turbidity means clearer water.

Graph the dissolved oxygen at each site



1. Which site has the healthiest water? Use two pieces of data as evidence.

2. Describe the relationship between water temperature and dissolved oxygen.

3. Why might turbidity be highest at Site C?

4. Calculate the percent decrease in turbidity from Site C to Site D. What does this suggest about the wetland?



Evaluate the Solutions

Muddy runoff from a new parking lot is reaching the creek at Site C. Compare three solutions using a weighted decision matrix.

Name _____ Date _____

Rain garden

A shallow planted basin that collects runoff and lets it soak in.

Permeable pavement

Pavement with gaps that let water drain through to gravel below.

Vegetated buffer

A strip of native grasses and shrubs between the lot and the creek.

Score each solution from 1 (poor) to 5 (excellent) for each criterion. Multiply by the weight. Add the weighted scores.

Criterion	Weight	Rain garden		Permeable pavement		Vegetated buffer	
		Score	× Weight	Score	× Weight	Score	× Weight
Reduces sediment	3						
Cost	2						
Space needed	1						
Maintenance	1						
Habitat benefit	1						
Weighted total							

1. Which solution scored highest? Do you agree with the result? Explain.

2. What data would you want to collect after the solution is built to prove it works?

3. Write your recommendation to the Water Division in two or three sentences.



Grade 7

Water Quality Word Search

Find all 15 terms. Words run in any direction, including backward and diagonal.

Grade 7

Name _____ Date _____

- ☐ turbidity
- ☐ nitrate
- ☐ phosphate
- ☐ algae
- ☐ sediment
- ☐ pollutant
- ☐ runoff
- ☐ riparian
- ☐ wetland
- ☐ habitat
- ☐ indicator
- ☐ bacteria
- ☐ ecosystem
- ☐ oxygen
- ☐ sample

I K G H E C O S Y S T E M G D
J P S U H P O L L U T A N T E
S W P R A I A P H A B I T A T
F G R H M F N I T R A T E K K
D C S I O R U N O F F S P Y G
E L P M A S H G C C G S T O U
S C D G K C P D T O C I S D S
I O W S D L R H B N D M T U E
R B A C T E R I A I H H T P D
M E M A B N B I B T P W B L I
N D I R E T R R P B E W P W M
D E J G R A U W E T L A N D E
C A Y P P T L N T A B P E A N
A X H I E A G L A C O D M P T
O D R I N D I C A T O R E H I

Choose three terms. Explain how they are connected in a healthy or unhealthy creek.



For teachers

Grade 7 Answer Key

Accept reasonable answers that are supported by evidence.

Water Quality Data Analysis

1. Site A: highest DO (9.2 mg/L) and lowest turbidity (4 NTU); pH is in the healthy range.
2. As temperature rises, dissolved oxygen falls. Warmer water holds less oxygen.
3. Rain washes sediment and debris off the pavement into the creek.
4. $(41 - 9) \div 41 \times 100 \approx 78\%$ decrease. The wetland traps sediment and helps the creek recover.

Graph: bars at 9.2, 7.1, 5.3, and 8.0 mg/L.

Water Quality Word Search

