



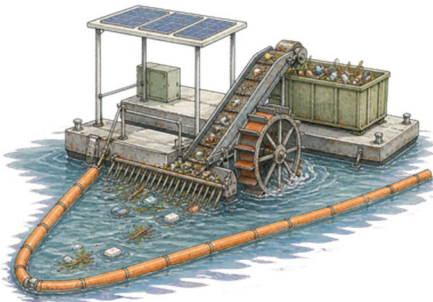
ELEVATED LEARNING LAB

Word Problem Adventure

The Plastic River

CASE 01 • OCEAN & POLLUTION

READ THE CLUES | RUN THE NUMBERS | MAKE THE CALL



SAMPLE

THIS BOOK BELONGS TO

Grade levels 3–6

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The Plastic River

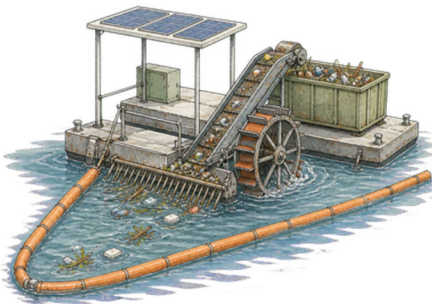
Read the case. Compare three possible plans.

THE CASE

A river near the coast carries about 60 tons of plastic out to the sea every year. A town on its banks wants to stop it. Three teams each have a plan. Each plan works at a different speed and costs a different amount.

OBSERVE THE SYSTEM

GOAL: 60 TONS



PLAN A

THE WHEEL

REMOVE PLASTIC

A solar-and-water-powered wheel scoops plastic from the river. It handles 20 tons each year and costs \$50,000 each year.

FIND: YEARS | TOTAL COST | COST FOR 1 TON

PLAN B

THE CREWS

REMOVE PLASTIC

A cleanup crew removes plastic from the riverbanks by hand. It handles 5 tons each year and costs \$2,000 each year.

FIND: YEARS | TOTAL COST | COST FOR 1 TON

PLAN C

THE SOURCE

PREVENT PLASTIC

Bins, signs, and school lessons keep trash from reaching the river. It handles 12 tons each year and costs \$12,000 each year.

FIND: YEARS | TOTAL COST | COST FOR 1 TON

CASE 01 | THE INVESTIGATION

Work One Plan at a Time

Fill in the answers from top to bottom.

HOW TO WORK

Finish Plan A, then Plan B, then Plan C.

PLAN A

THE WHEEL

20 tons/year | \$50,000/year

1 YEARS

$$60 \div 20 = \underline{\hspace{2cm}} \text{ years}$$

2 TOTAL COST

$$\$50,000 \times \underline{\hspace{2cm}} = \$ \underline{\hspace{2cm}}$$

3 COST FOR 1 TON

$$\$ \underline{\hspace{2cm}} \div 60 = \$ \underline{\hspace{2cm}} / \text{ton}$$

PLAN B

THE CREWS

5 tons/year | \$2,000/year

1 YEARS

$$60 \div 5 = \underline{\hspace{2cm}} \text{ years}$$

2 TOTAL COST

$$\$2,000 \times \underline{\hspace{2cm}} = \$ \underline{\hspace{2cm}}$$

3 COST FOR 1 TON

$$\$ \underline{\hspace{2cm}} \div 60 = \$ \underline{\hspace{2cm}} / \text{ton}$$

PLAN C

THE SOURCE

12 tons/year | \$12,000/year

1 YEARS

$$60 \div 12 = \underline{\hspace{2cm}} \text{ years}$$

2 TOTAL COST

$$\$12,000 \times \underline{\hspace{2cm}} = \$ \underline{\hspace{2cm}}$$

3 COST FOR 1 TON

$$\$ \underline{\hspace{2cm}} \div 60 = \$ \underline{\hspace{2cm}} / \text{ton}$$

NEXT: COPY YOUR RESULTS ONTO THE COMPARE THE RESULTS PAGE.

CASE 01 | COMPARE & DECIDE

Compare the Results

Bring the three plans together before making your choice.

Copy each answer from the last page into the matching box. Then look across each row.

RESULT	PLAN A THE WHEEL	PLAN B THE CREWS	PLAN C THE SOURCE
YEARS			
TOTAL COST			
COST FOR 1 TON			

WHAT DO YOU NOTICE?

What patterns, surprises, or tradeoffs do you see when the results are side by side?

MAKE THE CALL

A **B** **C**

Which plan would you choose, and why? You can use two or more results if they help explain your thinking.

FIELD NOTE

Baltimore's trash-wheel family removes about 500 tons of debris from the harbor each year.

ANSWER KEY

The Solutions

Make the Call has no wrong answer. A clear, reasoned choice earns full credit.

CASE 01	The Plastic River	PLAN A	PLAN B	PLAN C
Years		3	12	5
Total		\$150,000	\$24,000	\$60,000
Per ton		\$2,500	\$400	\$1,000



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FOR THE GROWN-UPS

There is no rush here. Give children time to notice, calculate, compare, and explain. Independent thinking grows when it has room.

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Think deeply. Stay curious.