

Sukindi

— LEARNING —

Homework without the hassle

Sukindi is an Australian learning platform that supports Teachers, Parents and Students with an interactive homework app and downloadable resources.



Scan to start your
free 7-day trial

www.sukindi.com.au



Line Graphs - Year 5

Table of Contents	
Presentation: Line Graphs	
Line Graphs: Change Over Time Display	
Line Graphs Reference Card	
Trend Detectives: Interpreting Task Cards	
Graph Story Match	
Line Graph Investigation Lab	
Worksheet: Line Graph Essentials	
Worksheet: Reading and Comparing Line Graphs	
Worksheet: Making Inferences from Trends	
Worksheet: Missing Labels and Context Clues	
Worksheet: Constructing Line Graphs	
Quiz: Line Graphs	
Assessment: Community Bike Share Line Graph Assessment	
Rubric: Line Graphs Rubric	

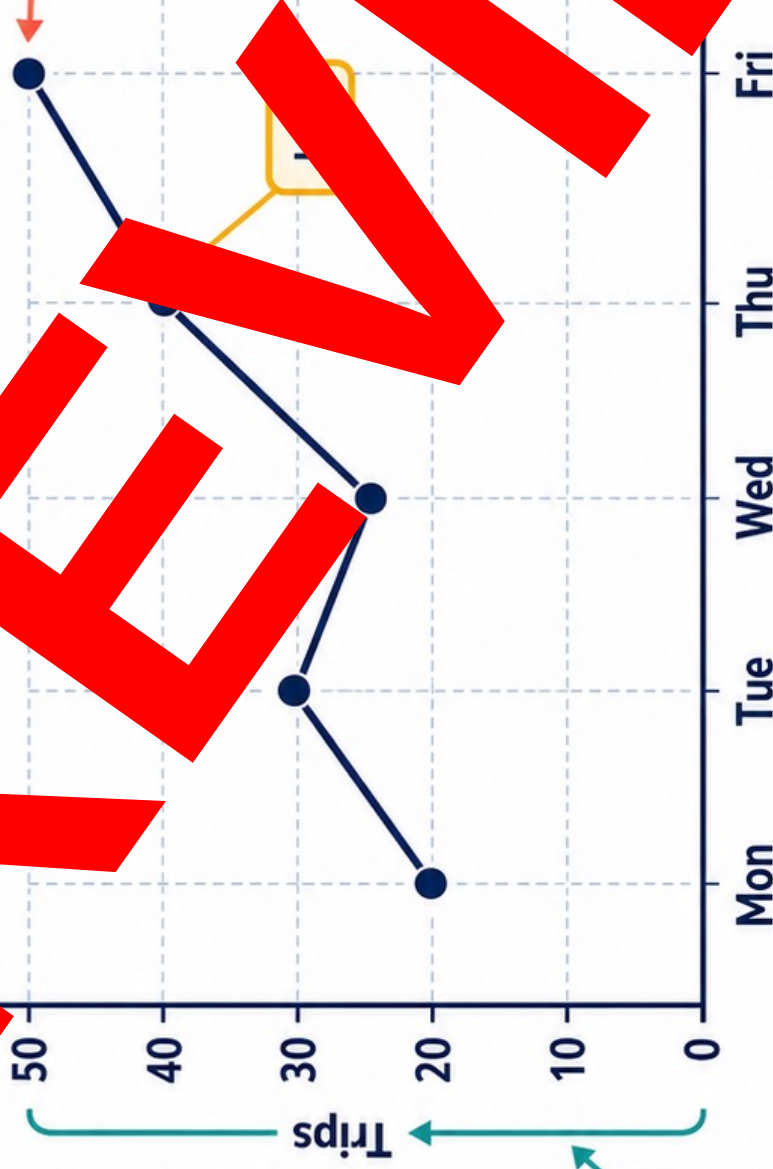


Line Graphs: Change Over Time

Bike-Hire Trips

Title

Data point



Vertical axis

Scale

Horizontal axis



Read exact values.



Describe the trend.



Support conclusions with data.

Line Graphs Reference Card

1

1. Read the title

What is changing over time?



2

2. Check the axes and units

What does each axis measure?



3

3. Read the scale

Are the intervals equal?



4

4. Find exact points

Trace across and read each value.



5

5. Describe the trend

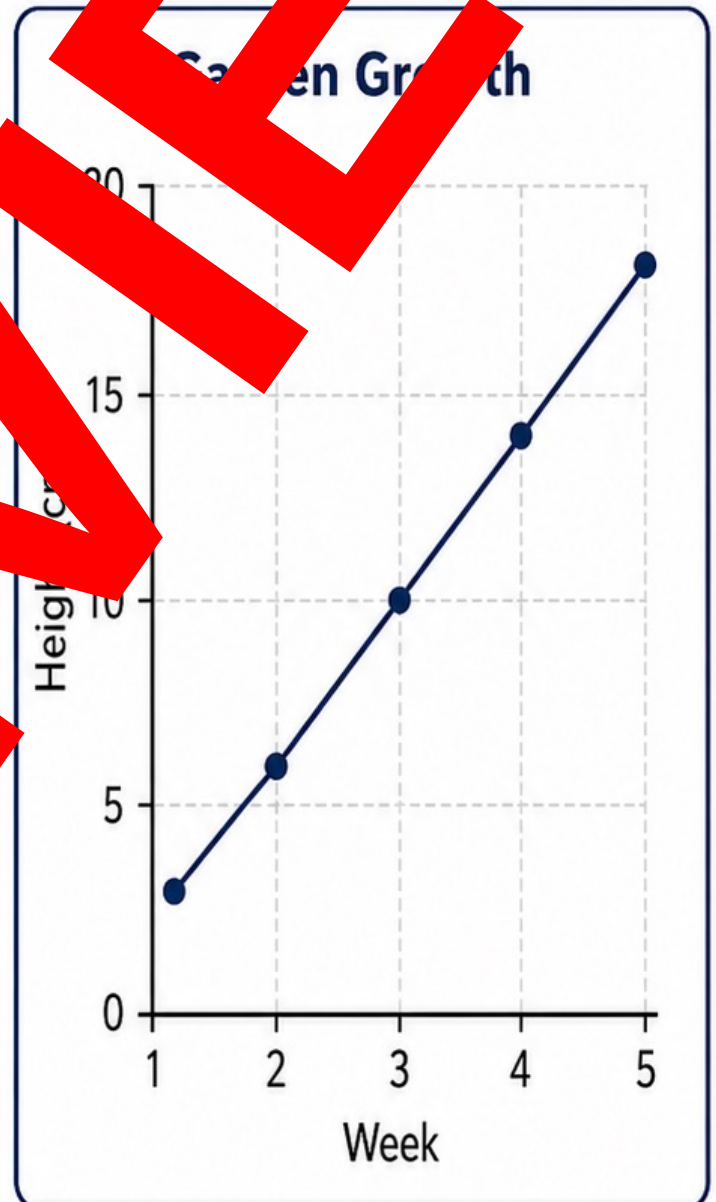
Is it increasing, decreasing, or fluctuating?



6

6. Make a conclusion

Use data as evidence.





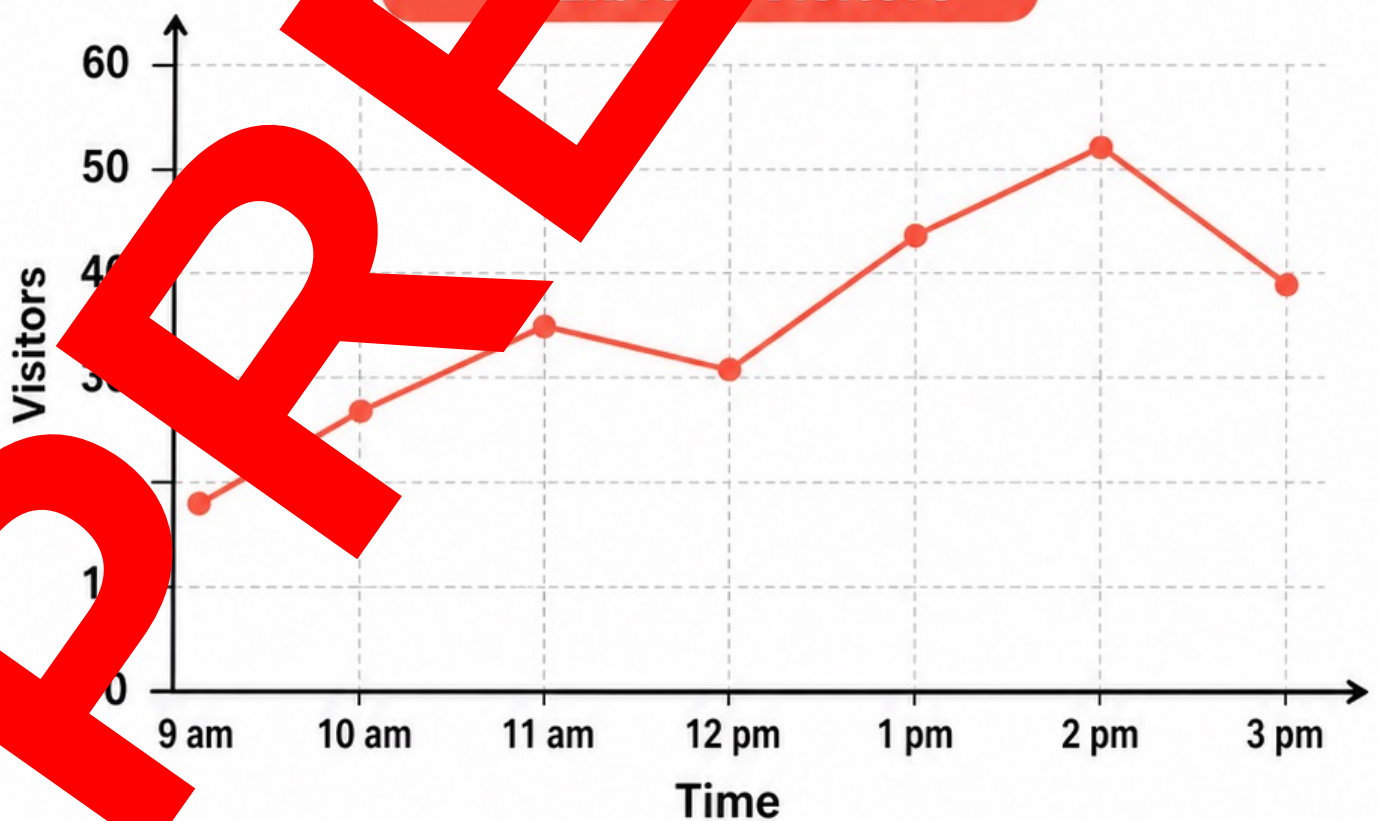
Trend Detectives: Graph Cards A



A. Creek Water Level

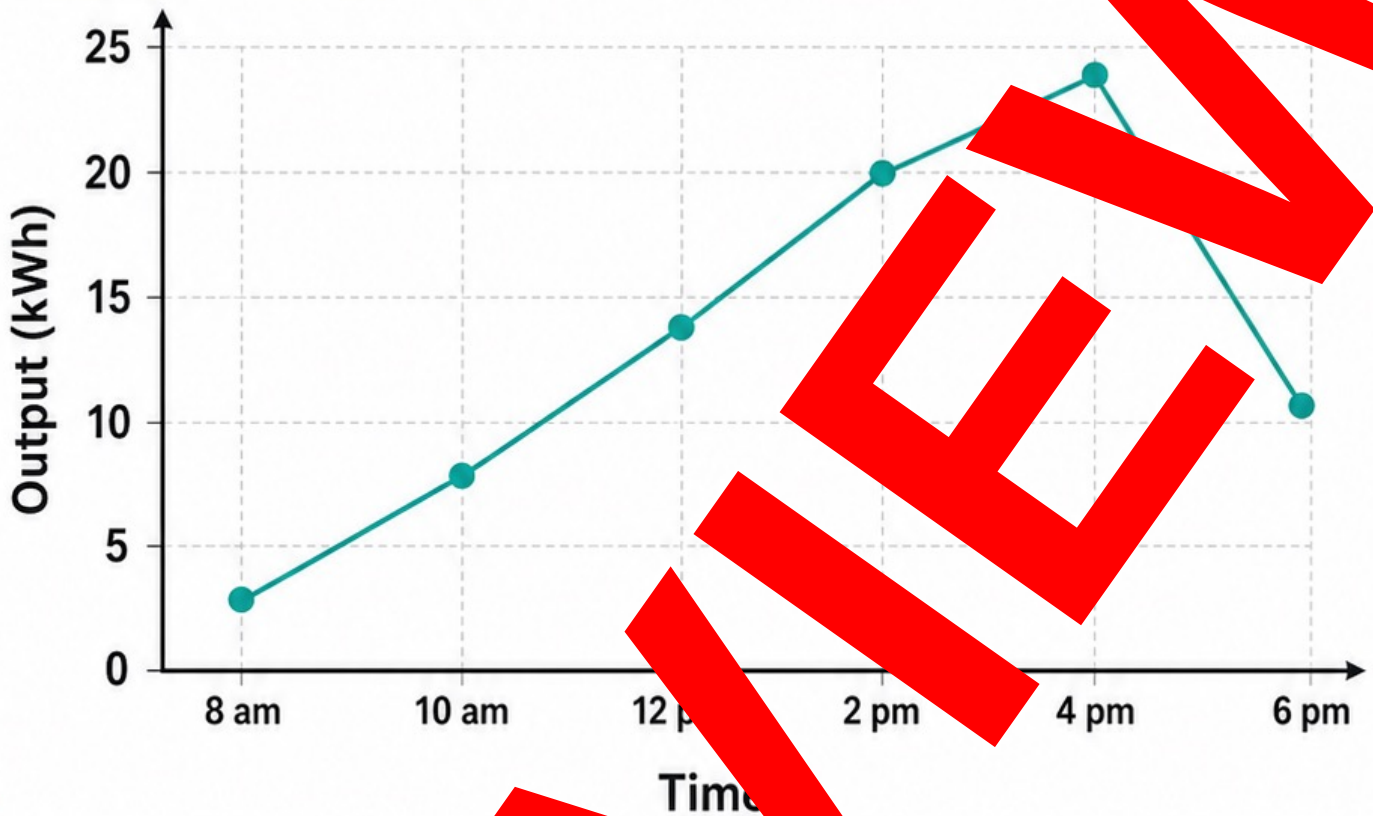


B. Library Visitors

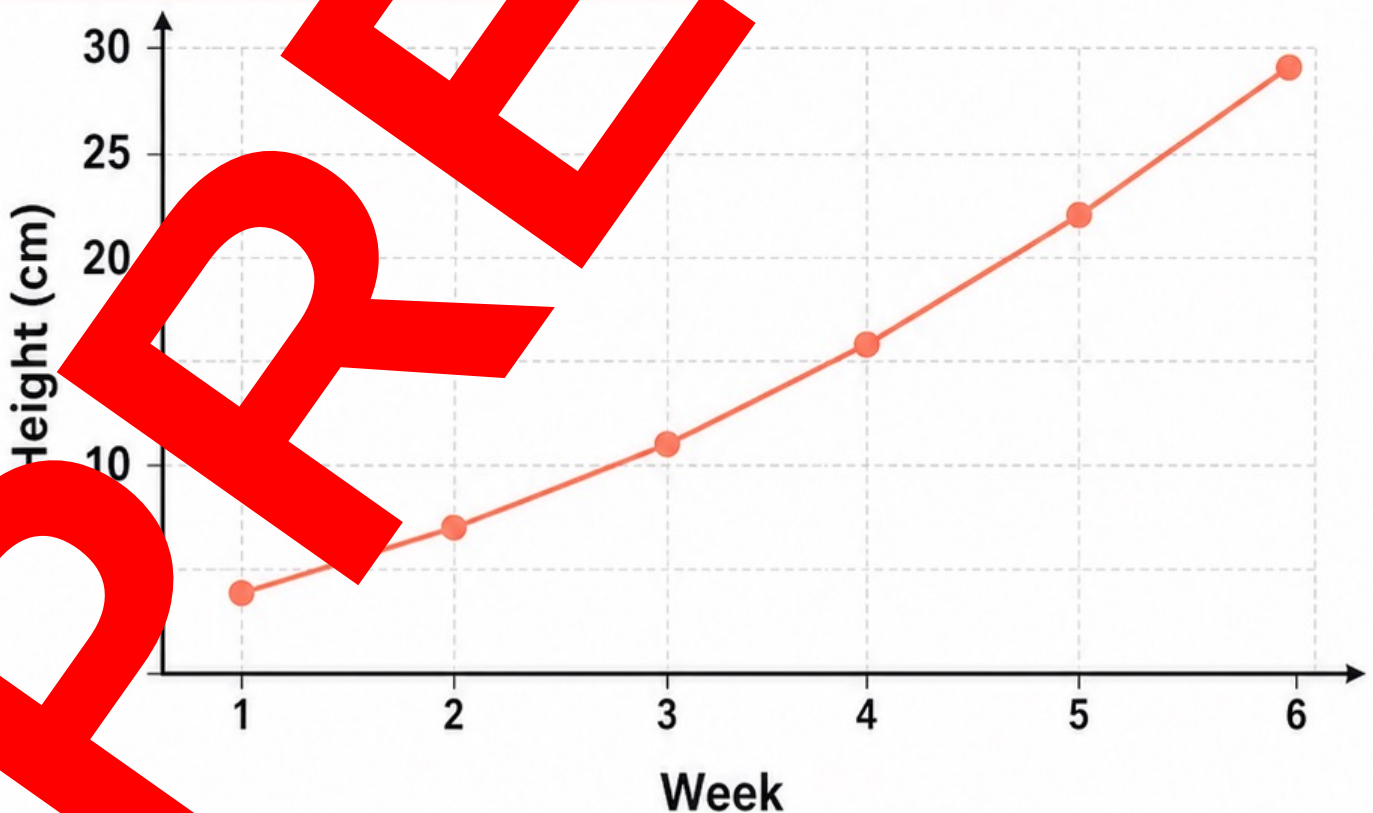


Trend Detectives: Graph Cards C & D

C. Solar Output



D. School Garden Growth



Trend Detectives: Question Cards A-1

A1

Graph A: What was the creek water level on Day 5?

A2

Graph A: Between which two consecutive days was the greatest rise? Calculate the rise.

B1

Graph B: At what time were the daily visitors highest? Give the value.

B2

Graph B: Mia says, 'Visitor numbers generally increased from 9 am to 2 pm.' Is she correct? Justify your conclusion with two data values.

Trend Detectives: Question Cards C-D

C1

Graph C: Describe the turning point after 4 pm.

C2

Graph C: Compare the speed of output at 10 am and 4 pm. What is the difference?

D1

Graph D: Between which two consecutive weeks was the greatest increase? Calculate it.

D2

Graph D: Write one evidence statement that proves the plants grew overall.

Graph Story Match: Story Cards

A

A. "Campsite Temperature: The morning began cool. The temperature rose steadily to a mid-afternoon high, then fell towards evening."



B

B. "Bus Passengers: Passenger numbers rose over the first two stops, dipped at the third stop, then rose to their highest point."



C

C. "Plant Height: The seedling grew by the same amount each week for four weeks."



D

D. "Water-Tank Level: The level fell steadily for five readings, then rose sharply after the tank was refilled."

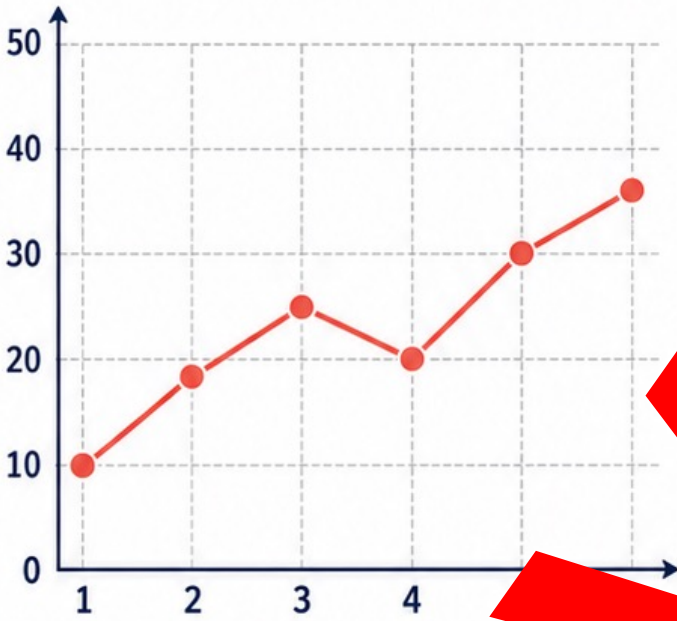


Cut out the cards. Match each story to an unlabelled graph.

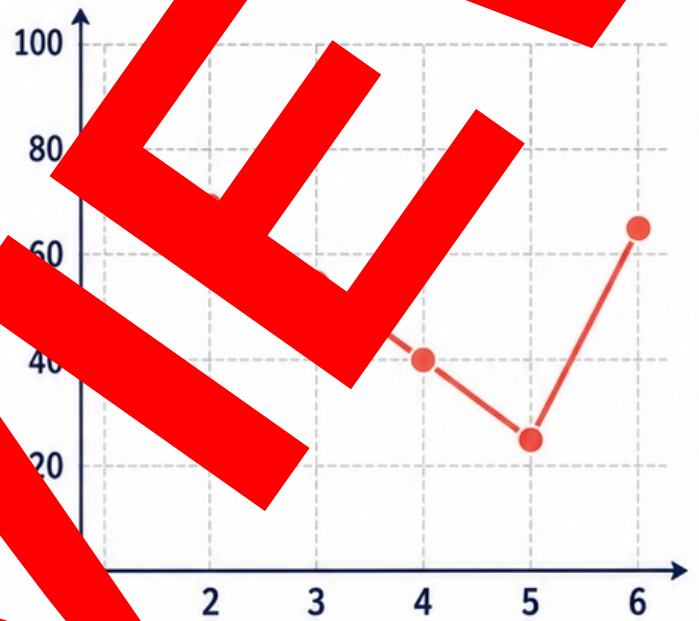
Graph Story Match: Graph Cards



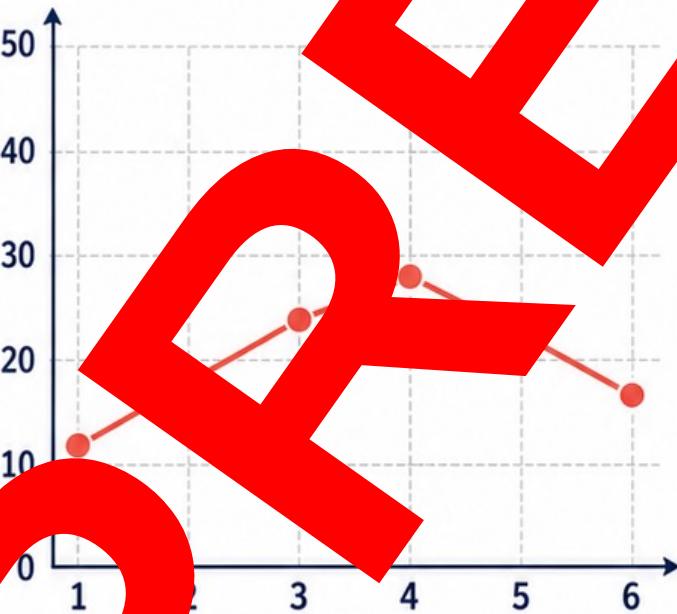
Graph 1



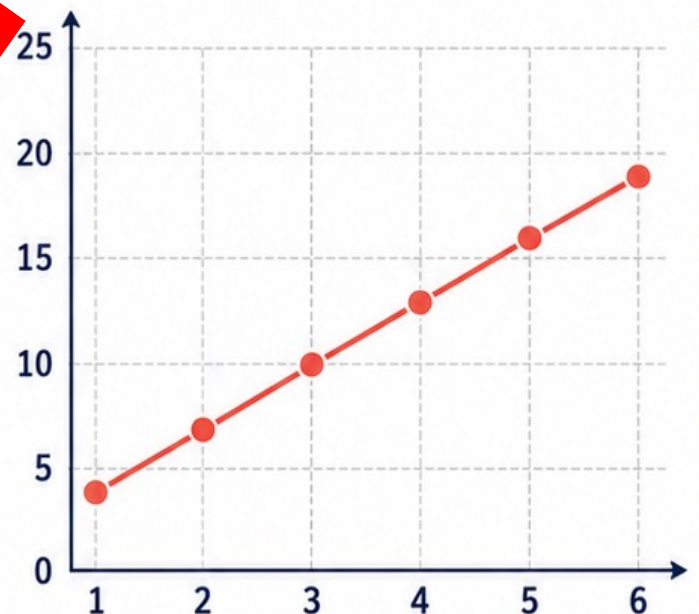
Graph 2



Graph 3



Graph 4



Match each graph to Story A, B, C or D.

Graph Story Match: Recording and Reasoning Mat

Name: _____

Date: _____

Story	Graph	Evidence of the shape
A		
B		
C		
D		



Challenge

Choose one. Explain the turning point or trend that proved your choice.

Line Graph Investigation Lab: Data Cards

1. Canteen Smoothies



Day	Mon	Tue	Wed	Th	Fri	Sat
Smoothies sold	28	35	42	44	52	47



Create a line graph. Then describe the trend and support one conclusion with data.



2. Playground Temperature (°C)



	8 am	10 am	12 pm	2 pm	4 pm	6 pm
Temperature (°C)	14	18	23	27	25	19



Create a line graph. Then describe the trend and support one conclusion with data.

3. Bike Rack Use



Time	8 am	9 am	10 am	11 am	12 pm	1 pm	2 pm	3 pm
Bikes	12	26	31	38	35	33	33	18



Create a line graph. Then describe the trend and support one conclusion with data.

4. Rainfall (mm)



Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Rainfall (mm)	4	0	7	12	5	2	9



Create a line graph. Then describe the trend and support one conclusion with data.



Line Graph Investigation Lab: Reusable Graph Mat



Title	Horizontal axis	Vertical axis	Units	Scale



Graph check

- ☐ Clear title
- ☐ Axes labelled
- ☐ Units shown
- ☐ Equal scale intervals
- ☐ Points plotted accurately
- ☐ Points joined in order





Line Graph Investigation Lab

Discussion Challenges



1

What is the highest value? When does it occur?



2

What is the lowest value? When does it occur?



3

Between which two points is the greatest change? Calculate the change.



4

Describe the overall trend and any turning point.



5

Make one conclusion and support it with two data values.



6

What extra data would help you make a stronger conclusion?

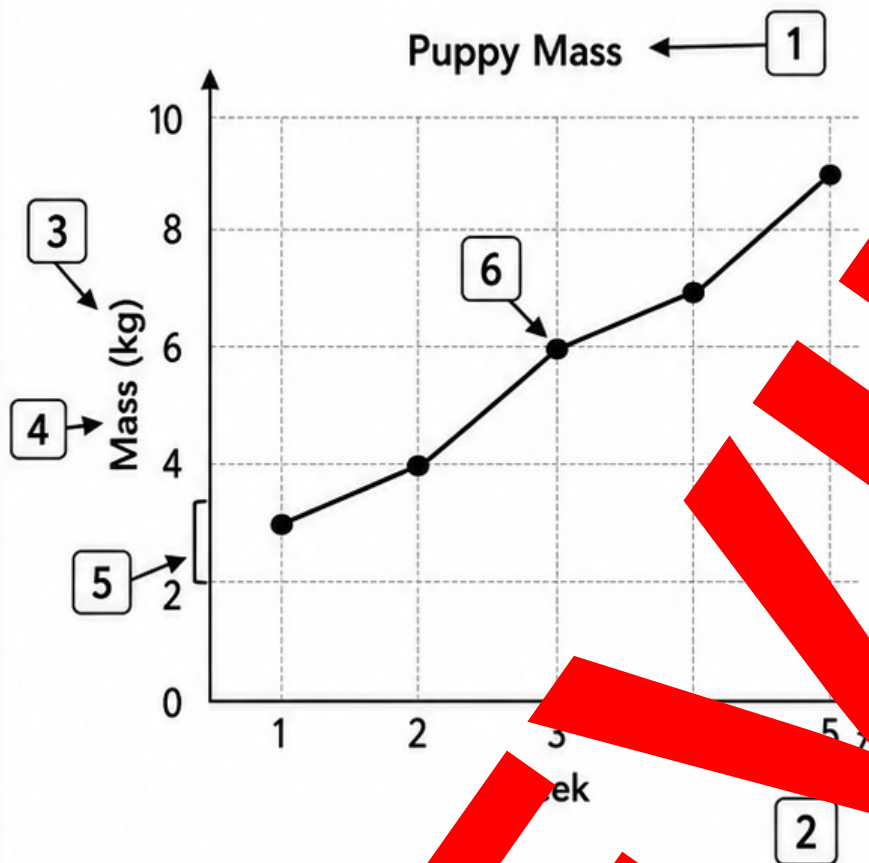


Name: _____

Date: _____

Worksheet: Line Graph Essentials

1. Name the graph features



title • horizontal axis • vertical axis • unit • scale • data point

2. Choose a suitable scale

A graph must show values from 0 to 40. Circle the most sensible equal interval: 1 5 25

3. Read exact values

a. What was the puppy's mass in Week 2? _____

b. What was the puppy's mass in Week 5? _____

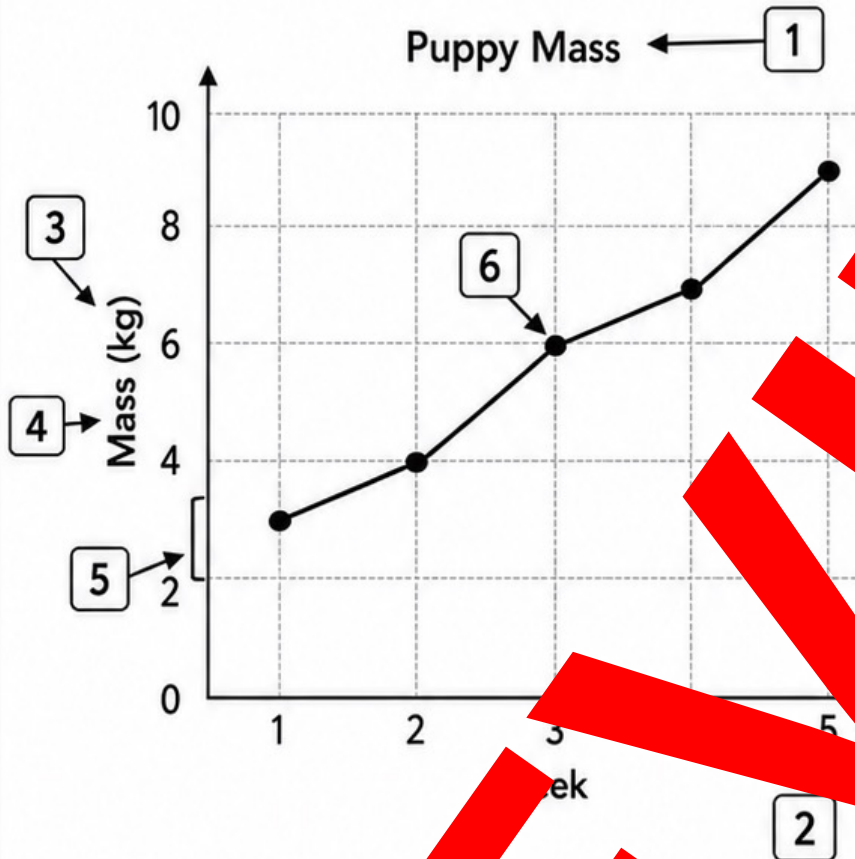
How much did the puppy's mass increase from Week 3 to Week 5? _____

Name: ANSWERS

Date: _____

Worksheet: Line Graph Essentials

1. Name the graph features



1. title

2. horizontal axis

3. vertical axis

4. unit

5. scale

6. data point

title • horizontal axis • vertical axis • unit • scale • data point

2. Choose a suitable scale

A graph will show values from 0 to 40. Circle the most sensible equal interval: 1 5 25

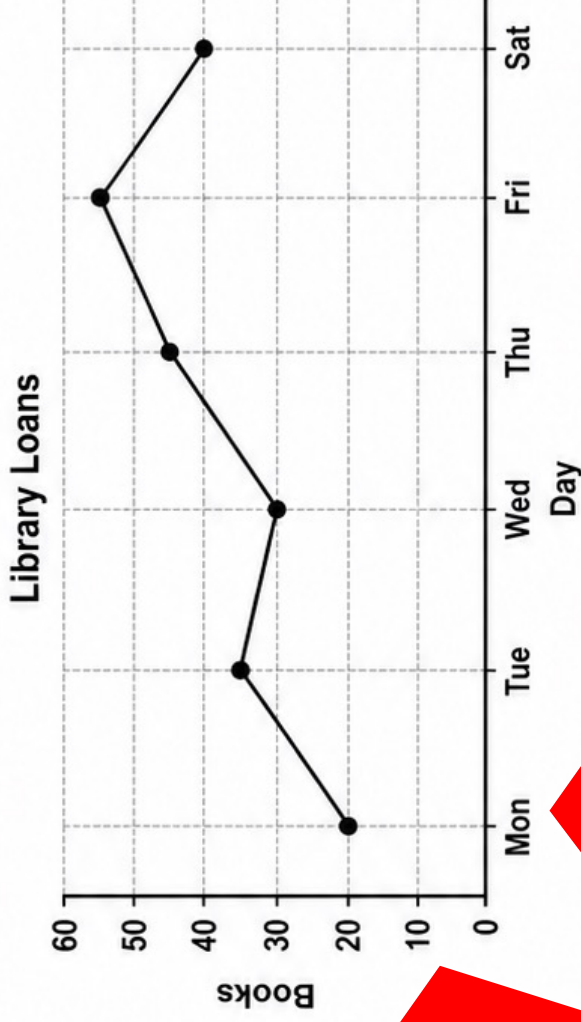
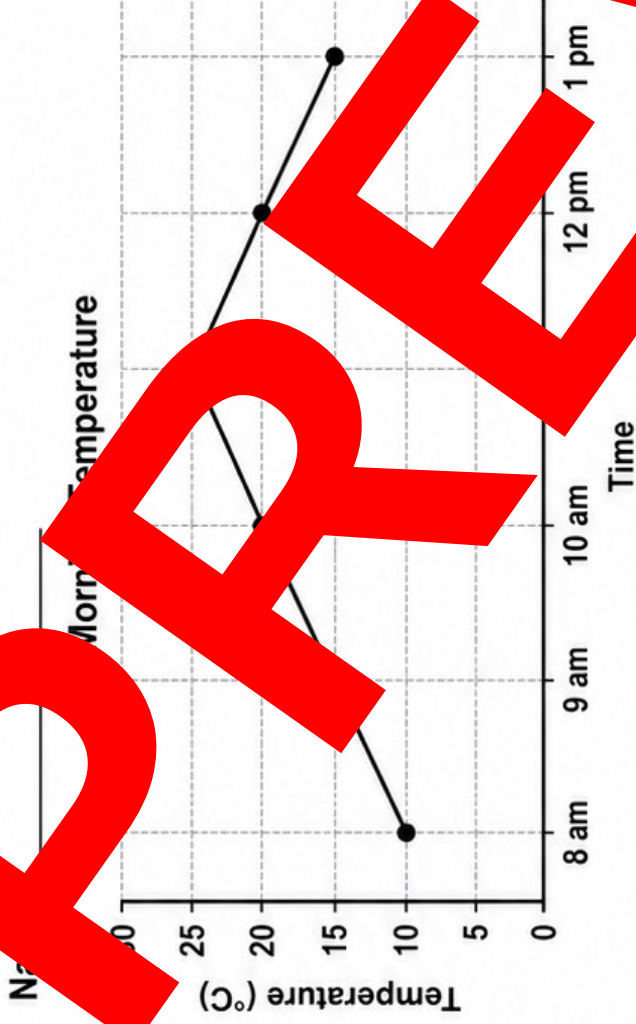
3. Read exact values

a. What was the puppy's mass in Week 2? 4 kg

b. What was the puppy's mass in Week 5? 9 kg

c. How much did the puppy's mass increase from Week 3 to Week 5? 3 kg

Worksheet: Reading and Comparing Line Graphs – Page 1



1. What was the temperature at 10 am?

2. When was the temperature highest? Give the value.

3. Describe the change from 12 pm to 1 pm.

4. How many books were loaned on Thursday?

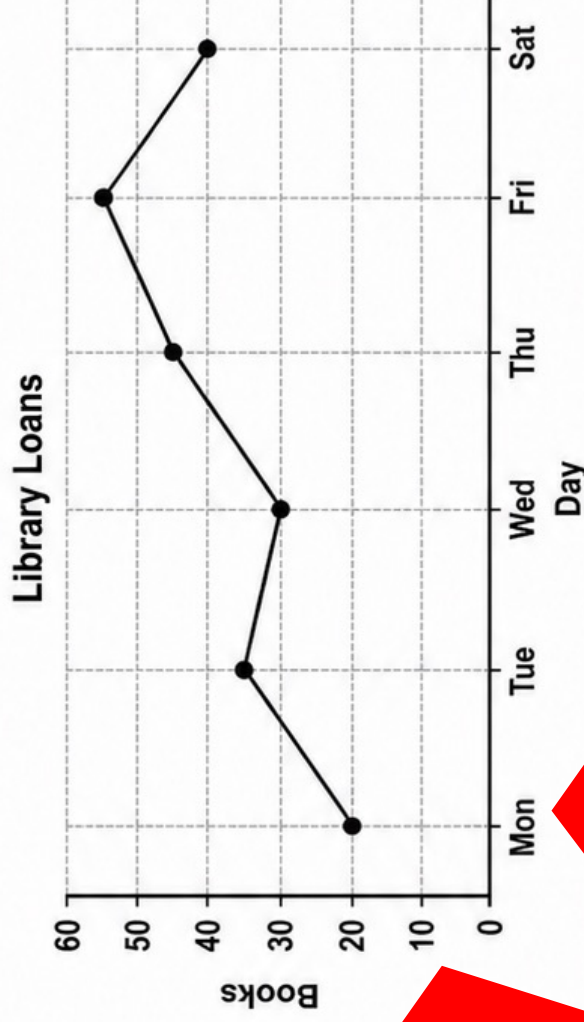
5. On which day were the fewest books loaned? Give the value.

6. How did library loans change overall from Monday to Saturday? Calculate the change.

Worksheet: Reading and Comparing Line Graphs – Page 1

Name: _____

Date: _____

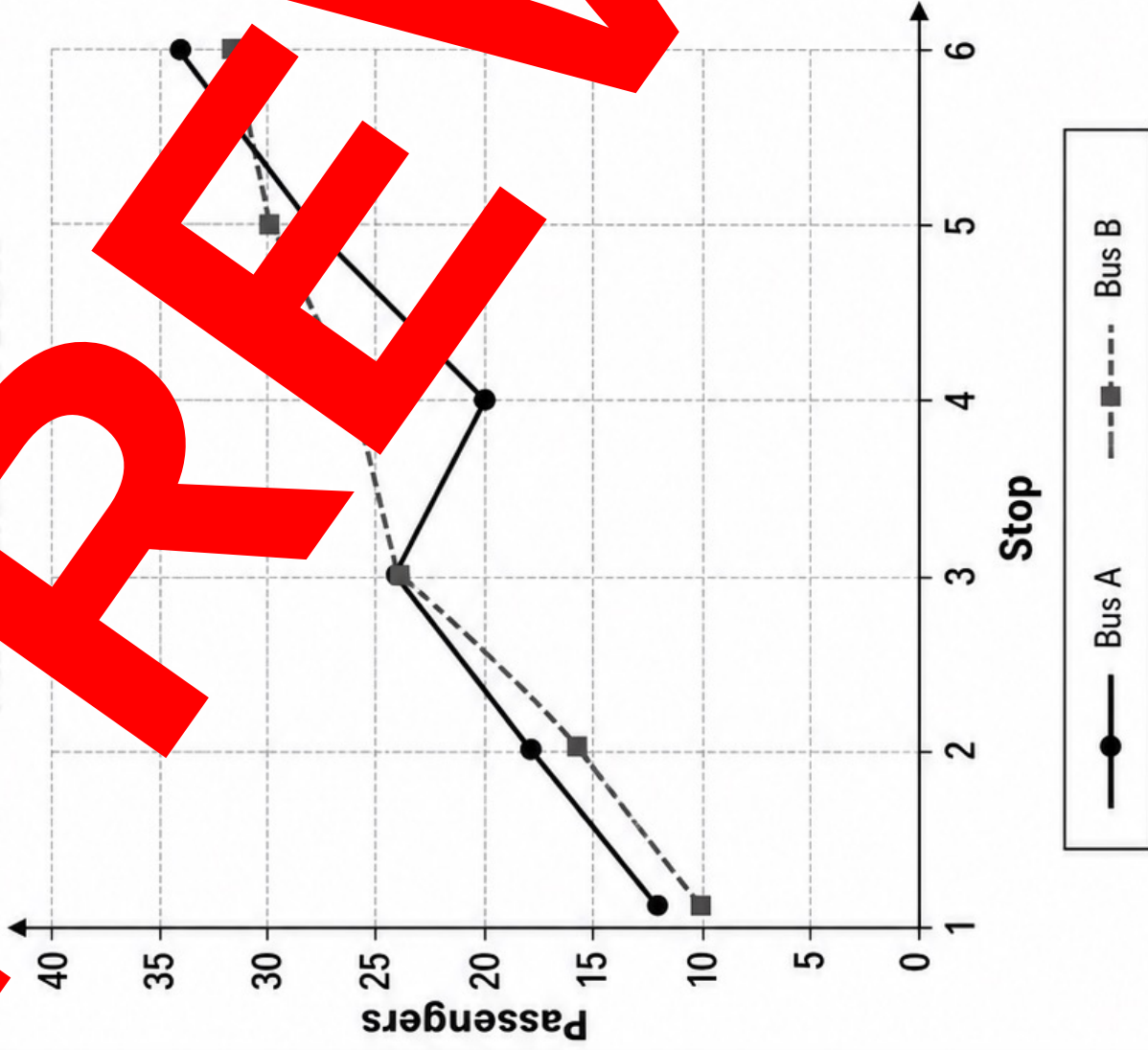


1. What was the temperature at 10 am?
- **20°C**
2. When was the temperature highest? Give the value.
- **11 am; 25°C**
3. Describe the change from 12 pm to 1 pm.
- **It decreased from 20°C to 15°C, a decrease of 5°C.**
4. How many books were loaned on Thursday?
- **45 books**
5. On which day were the fewest books loaned? Give the value.
- **Monday; 20 books**
6. How did library loans change overall from Monday to Saturday? Calculate the change.
- **Loans increased from 20 to 40 books, an overall increase of 20.**

Worksheet: Reading and Comparing Line Graphs – Page 2

Date: _____

Number of Passengers on Two Buses



1. How many passengers were on Bus A at Stop 2?

2. How many passengers were on Bus B at Stop 4?

3. At which stop did both buses have the same number of passengers?

4. At Stop 5, which bus had more passengers, and by how many?

5. Between which stops did Bus A have its greatest increase?

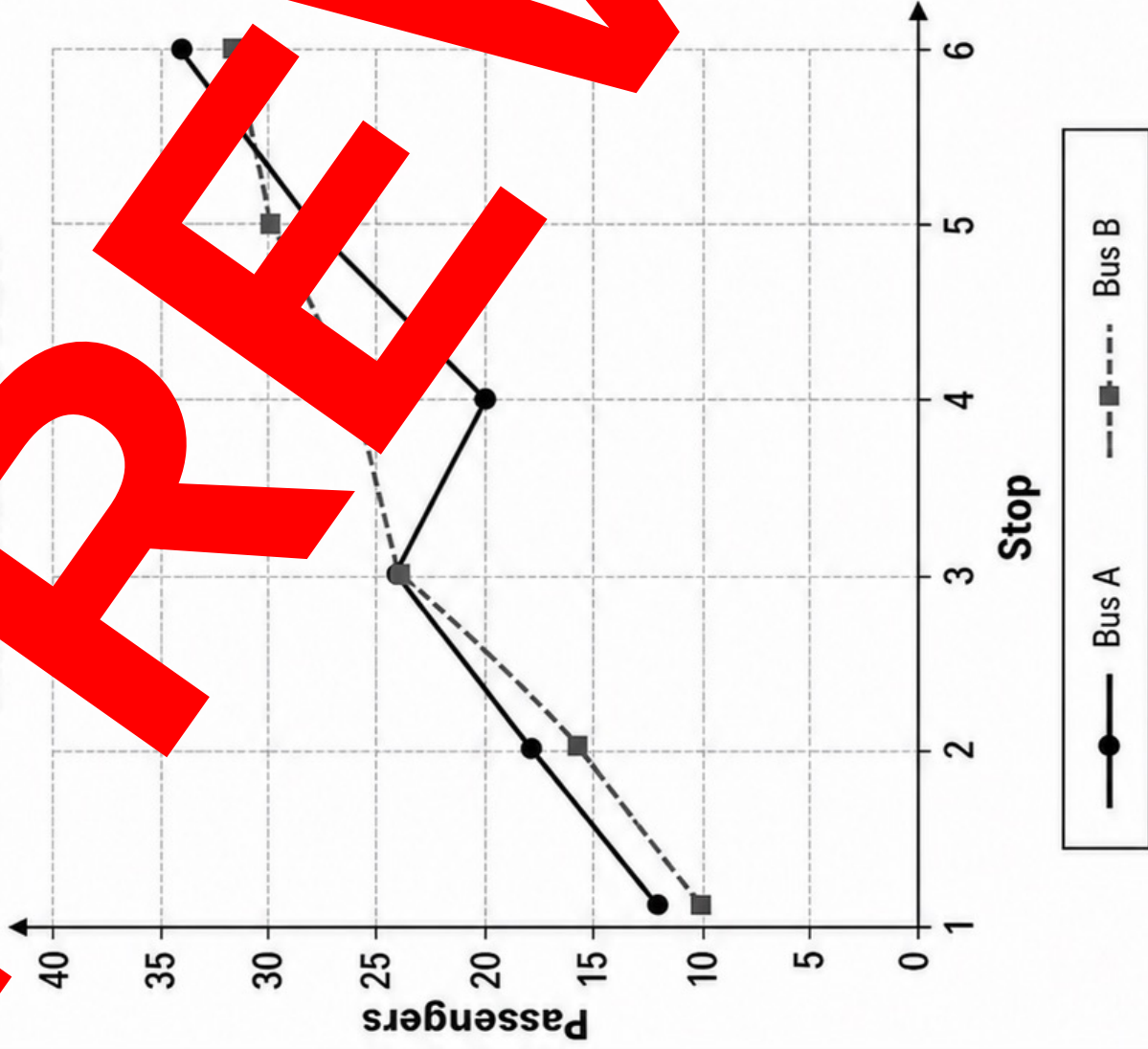
6. Compare the overall change in passengers for Bus A and Bus B from Stop 1 to Stop 6.

Worksheet: Reading and Comparing Line Graphs – Page 2

ANSWERS

Date: _____

Passengers on Two Buses



1. How many passengers were on Bus A at Stop 2?

18 passengers

2. How many passengers were on Bus B at Stop 4?

26 passengers

3. At which stop did both buses have the same number of passengers?

Stop 3

4. At Stop 5, which bus had more passengers, and by how many?

Bus B had 8 more passengers.

5. Between which stops did Bus A have its greatest increase?

Stops 4 and 5, an increase of 8

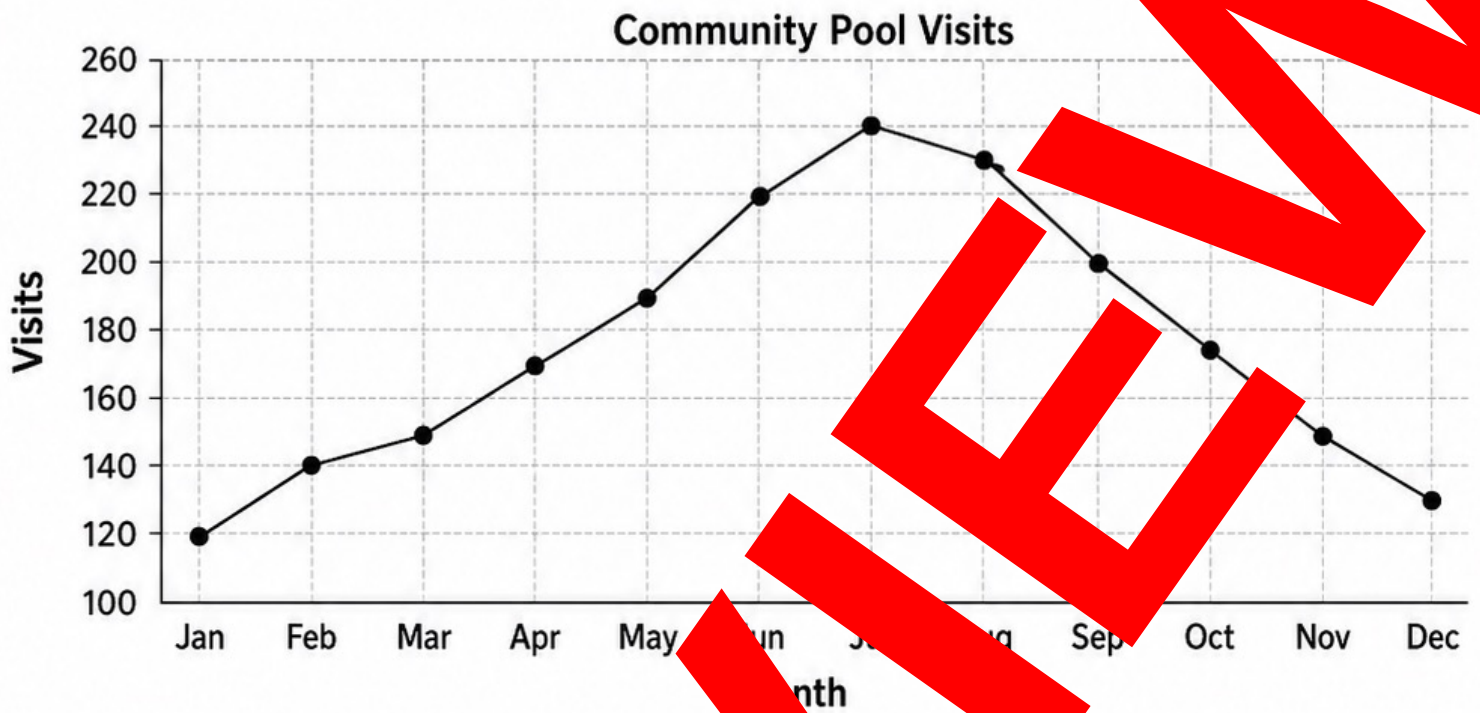
6. Compare the overall change for Bus A and Bus B from Stop 1 to Stop 6.

Bus A: +22. Bus B: +22. Both increased by the same amount.

Name: _____

Date: _____

Worksheet: Making Inferences from Trends



1. In which month were visits highest? Give the value.

2. How much did visits increase from January to July?

3. After which month did the main downward trend begin?

4. What seasonal pattern might the graph suggest? Use two data values as evidence.

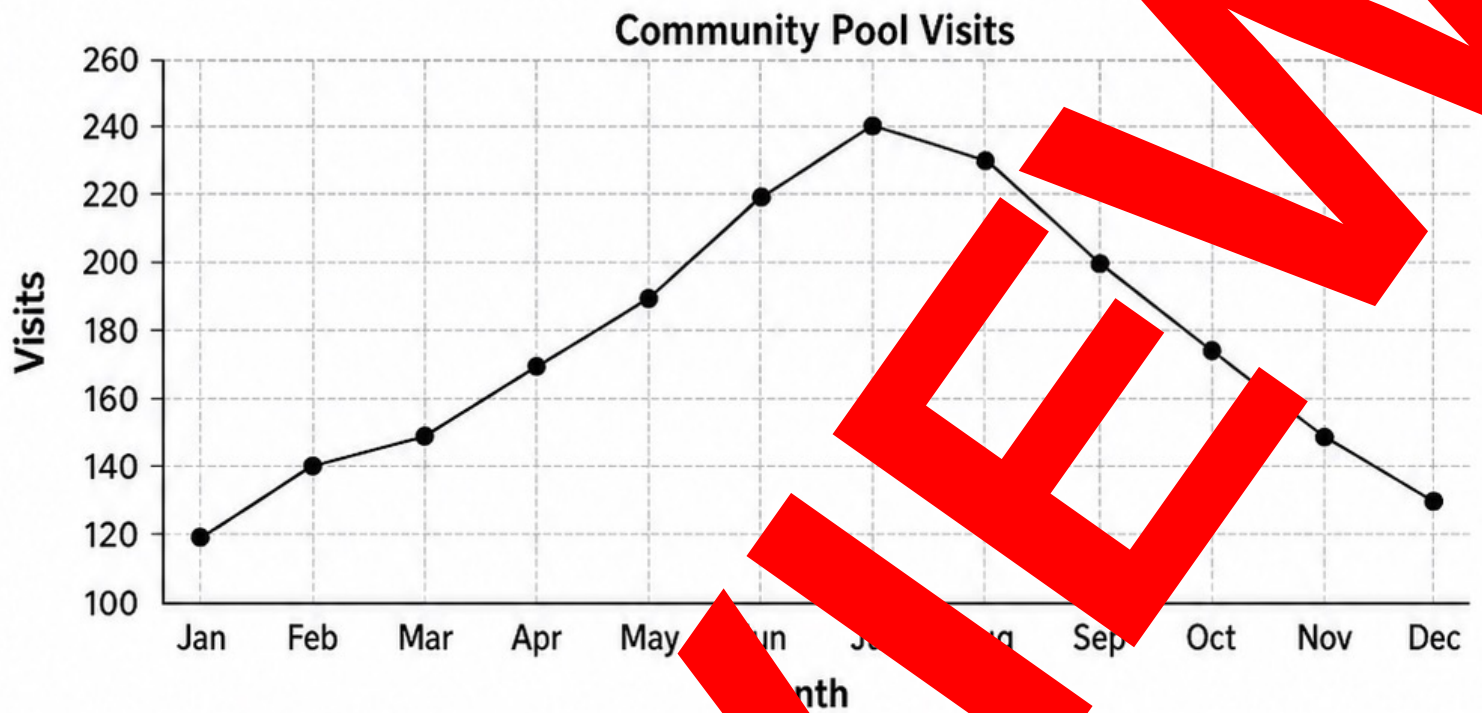
5. Write one supported conclusion about visits from May to September.

6. Can the graph prove why visits fell after July? Explain.

Name: ANSWERS

Date: _____

Worksheet: Making Inferences from Trends



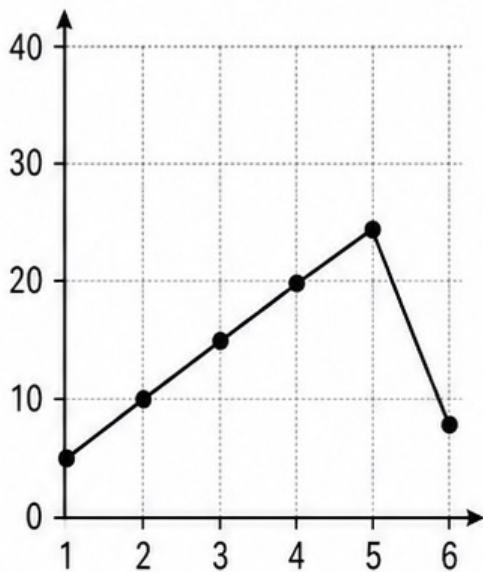
1. In which month were visits highest? Give the value.
July; 240 visits.
2. How much did visits increase from January to July?
120 visits (240 - 120).
3. After which month did the main downward trend begin?
After July.
4. What seasonal pattern might the graph suggest? Use two data values as evidence.
Mid-summer visits were high. July had 240, compared with 120 in January.
5. Write one supported conclusion about visits from May to September.
Visits rose from 190 in May to 240 in July, then fell to 200 in September.
6. Can the graph prove why visits fell after July? Explain.
No, the graph shows what changed, but it does not give a cause.

Worksheet: Missing Labels and Context Clues – Part 1

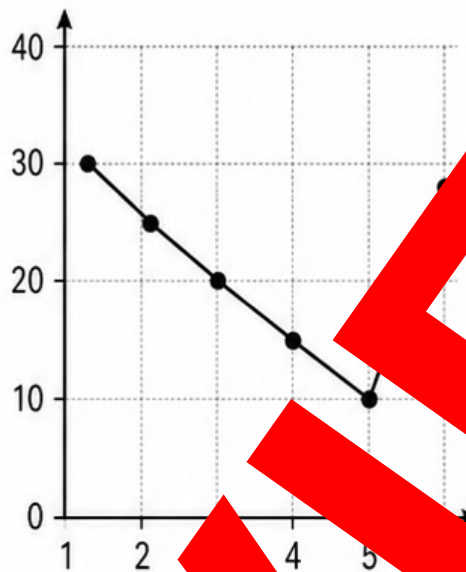
Name: _____

Date: _____

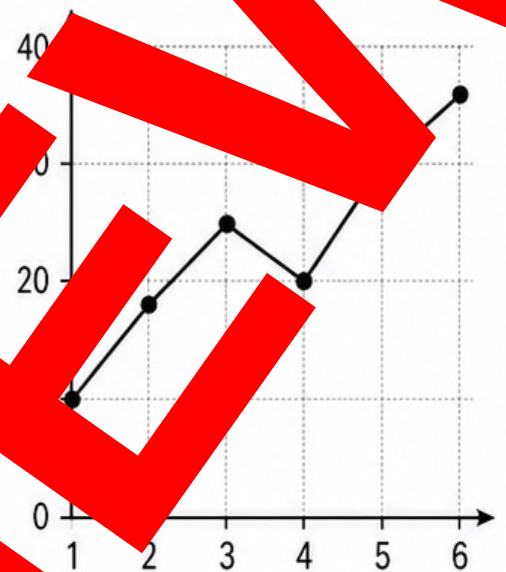
Graph A



Graph B



Graph C



Match the contexts

1. A plant grew steadily, then was cut and finally died.
2. A water tank drained steadily, then was refilled.
3. Bus passenger numbers rose, peaked, then fell to their highest point.

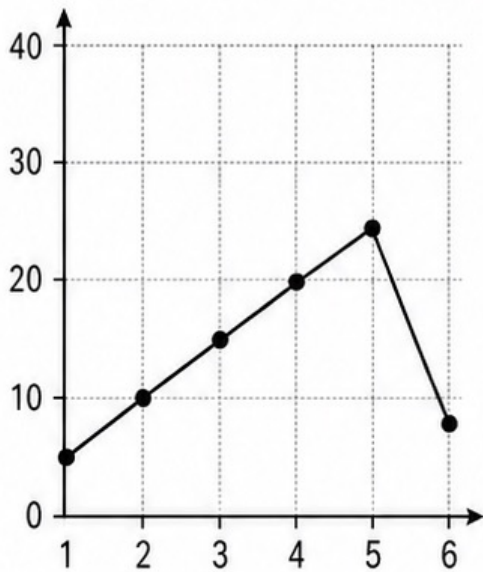
Context	Graph A	Graph B	Graph C	Match the graph and axis labels	Evidence from the shape
1					
2					
3					

Worksheet: Missing Labels and Context Clues – Page 1

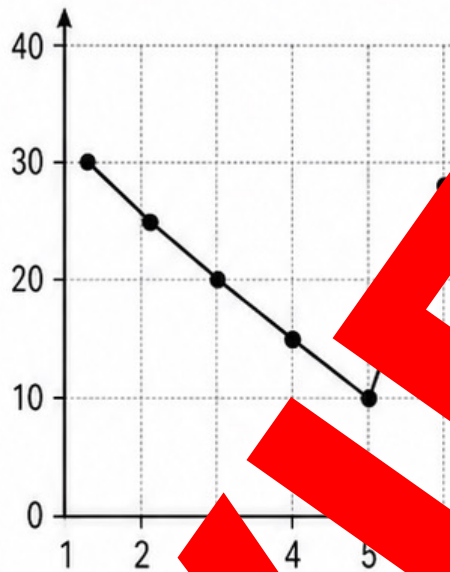
Name: ANSWERS

Date: _____

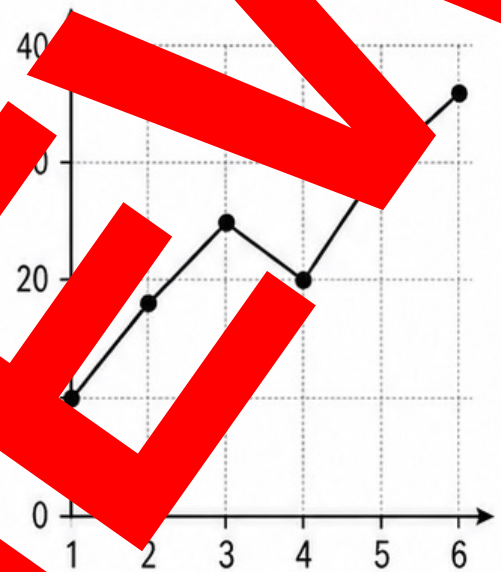
Graph A



Graph B



Graph C



Match the contexts

1. A plant grew steadily, then was cut and finally fell.
2. A water tank drained steadily, then was refilled.
3. Bus passenger numbers rose, dipped, then rose to their highest point.

Context	Graph	Labels and axis labels	Evidence from the shape
1	A	Plant Height Over Time; x: Reading; y: Height (cm)	Steady rise, then a sharp fall.
2	B	Water-Tank Level; x: Reading; y: Level (L)	Steady fall, then a sharp rise.
3	C	Bus Passengers; x: Stop; y: Passengers	Rise, dip, then rise to the highest point.

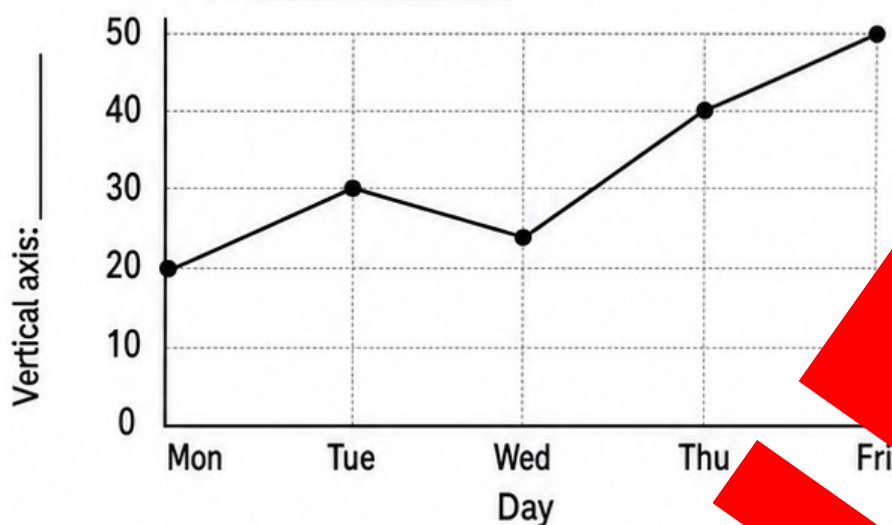
Name: _____

Date: _____

Worksheet: Missing Labels and Context Clues – Page 2

Graph A:

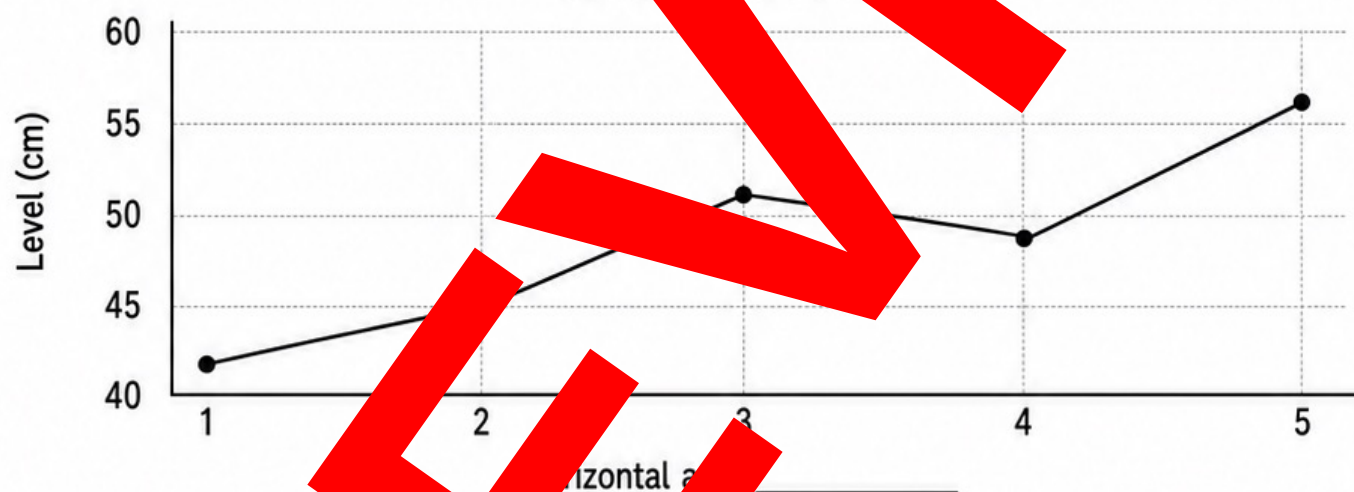
Title: _____



Context: a school records the number of bicycle hires each day.

Graph B:

Creek Water Level



1. Write the most useful title for Graph A.

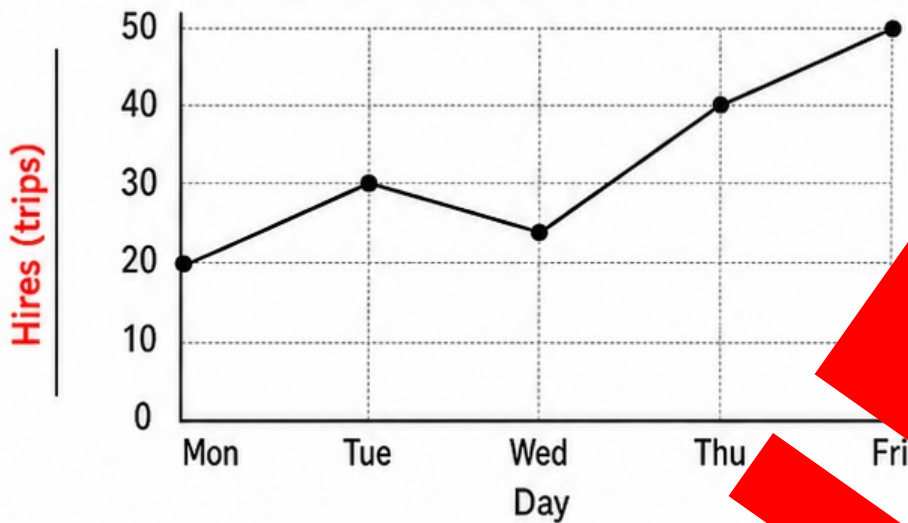
2. Complete Graph A's vertical-axis label and unit.

3. Complete Graph B's horizontal-axis label.

4. Why do titles, labels and units matter when interpreting a line graph?

Worksheet: Missing Labels and Context Clues – Page 2

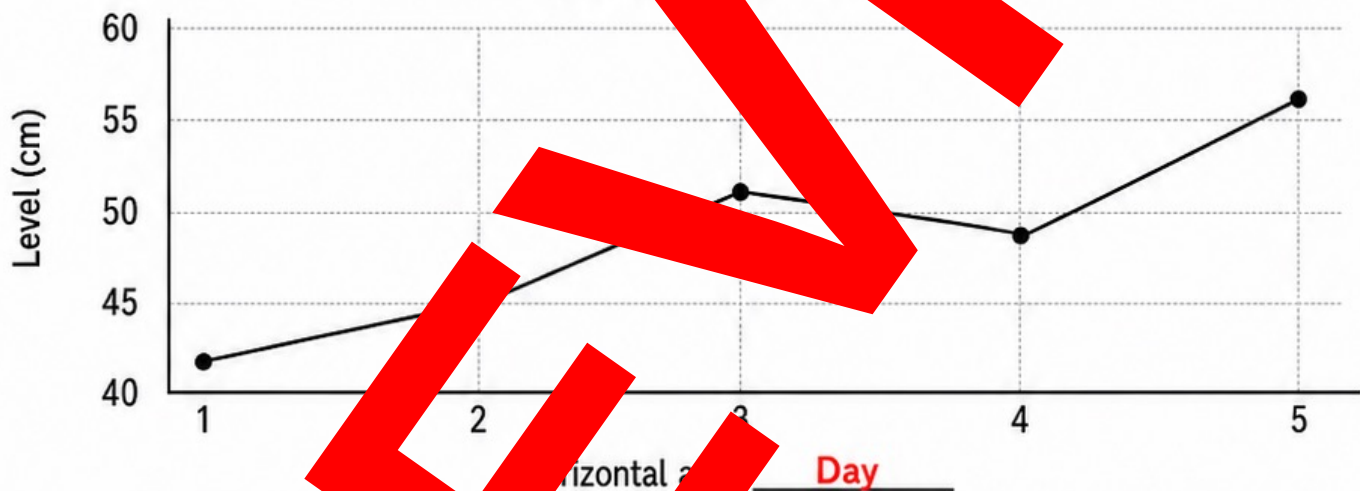
Graph A:

Title: School Bicycle Hires

Context: a school records the number of bicycle hires each day.

Graph B:

Creek Water Level



1. Write the most useful title for Graph A.

School Bicycle Hires

2. Complete Graph A's vertical-axis label and unit.

Hires (trips)

3. Complete Graph B's horizontal-axis label.

Day

4. Why do titles, labels and units matter when interpreting a line graph?

They show what is measured, when it is measured and the unit used, so values can be interpreted correctly.

Worksheet: Constructing Line Graphs – Page 1

Name: _____

Date: _____

Community Garden Water Use

Use the table to construct a complete line graph.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Water used (L)	18	22	27	25	31	35	30



you find

- ☐ A clear title
- ☐ L both axes
- ☐ w litres
- ☐ choose equal scale intervals
- ☐ every point accurately
- ☐ Jo points in time order

Worksheet: Constructing Line Graphs – Page 1

Name: ANSWERS

Date: _____

Community Garden Water Use

Use the table to construct a complete line graph.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Water used (L)	18	22	27	25	31	35	29



you find

- ☒ A clear title
- ☒ L both axes
- ☒ w litres
- ☐ choose equal scale intervals
- ☐ every point accurately
- ☒ Jo points in time order

Worksheet: Constructing Line Graphs – Page 2

Name: _____

Date: _____

Bike Rack Use

Use the table to construct a line graph, then interpret it.

Time	8 am	9 am	10 am	11 am	12 pm	1 pm	2 pm	3 pm
Bikes	12	26	31	24	38	46	35	28



1. At what time was bike rack use highest?

2. How much did bike rack use increase from 11 am to 1 pm?

3. Between which times was the greatest decrease? Calculate it.

4. Describe the overall change from 8 am to 3 pm and mention the fluctuations.

Worksheet: Constructing Line Graphs – Page

Name: ANSWERS

Date: _____

Bike Rack Use

Use the table to construct a line graph, then interpret it.

Time	8 am	9 am	10 am	11 am	12 pm	1 pm	2 pm	3 pm
Bikes	12	26	31	24	38	46	32	18

Bike Rack Use



1. At what time was bike-rack use at its best?

1 pm; 46 bikes

2. How much did bike-rack use increase from 11 am to 1 pm?

22 bikes (46 - 24)

3. Between which two times was the greatest decrease? Calculate it.

1 pm to 2 pm; a decrease of 14 bikes.

4. Describe the overall change from 8 am to 3 pm and mention the fluctuations.

Overall, use rose from 12 to 18 bikes (+6), with several rises and falls.

Community Bike Share Line Graph Assessment – Part 1

Name: _____ Date: _____ Score: _____

Construct a complete line graph from the data. Choose and show a sensible equal scale.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Trips	36	48	52	45	68		



Construct a line graph using the data.

- ☐ Clear title
- ☐ Axes labelled
- ☐ Units shown
- ☐ Equal scale intervals
- ☐ Points accurately plotted
- ☐ Points joined in order

Construction: ____ / 5

Community Bike Share Line Graph Assessment – Part 1

Name: ANSWERS

Date: _____

Score: _____

Construct a complete line graph from the data. Choose and show a sensible equal scale.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Trips	36	48	52	45	68	80	62



Construction: _____

- ☒ Title
- ☒ Both axes labelled
- ☒ Units shown
- ☒ Equal scale intervals
- ☐ Accurate points
- ☒ Points joined in order

Construction: 5 / 5

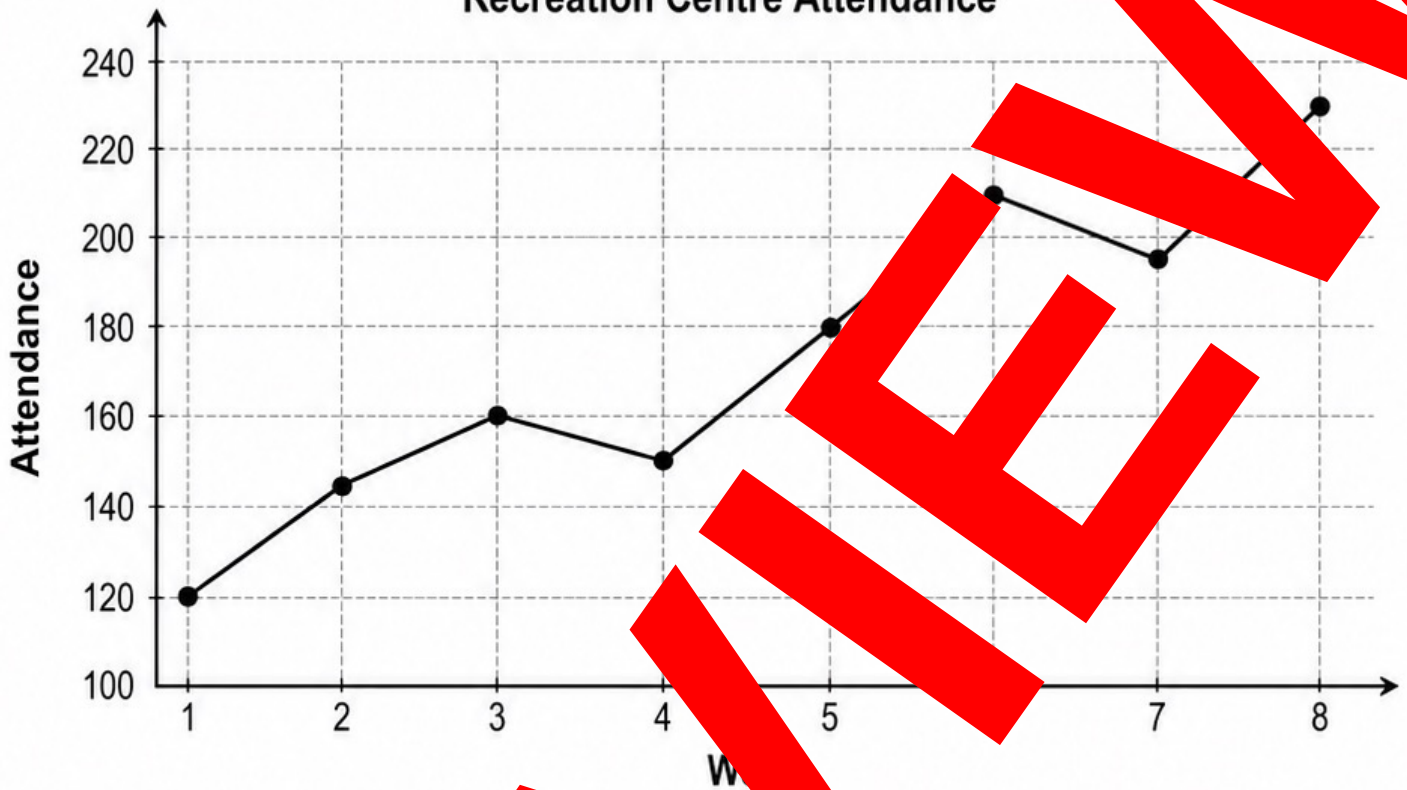
Community Bike Share Line Graph Assessment – Page 2

Name: _____

Date: _____

Score: _____ / 10

Recreation Centre Attendance



1. What was the attendance in Week 1?

2. In which week was attendance higher? Give the value.

3. Describe and calculate the change from Week 5 to Week 4.

4. Between which two weeks was the greatest increase? Calculate it.

5. What was the total change from Week 1 to Week 8?

6. Write the conclusion about the trend and support it with two data values.

Interpretation: _____ / 5

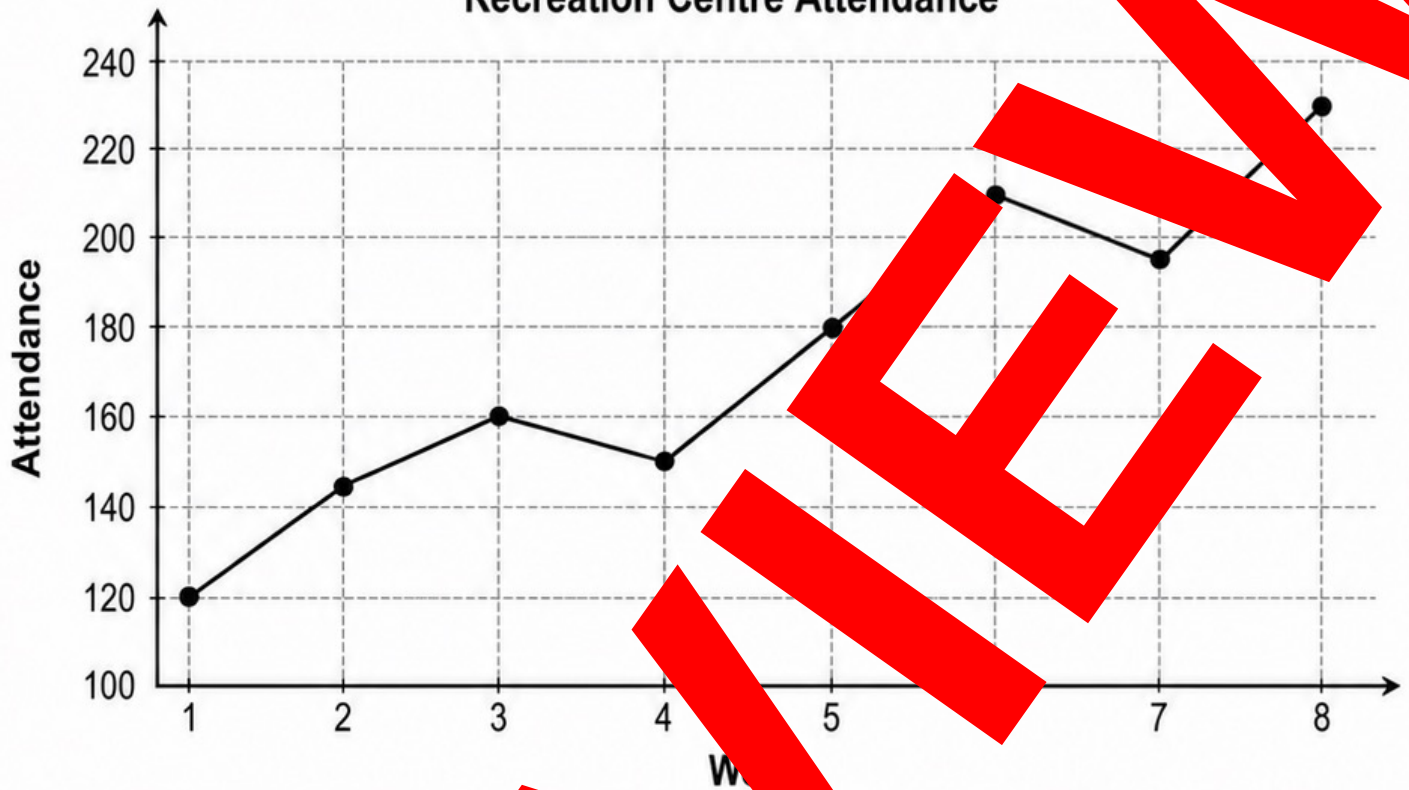
Community Bike Share Line Graph Assessment – Page 2

Name: ANSWERS

Date: _____

Score: _____

Recreation Centre Attendance



1. What was the attendance in Week 2?
145
2. In which week was attendance highest? Give the value.
Week 8; 230
3. Describe and calculate the change from Week 3 to Week 4.
It decreases from 160 to 150, a decrease of 10.
4. Between which two weeks was the greatest increase? Calculate it.
Week 6 to 7; an increase of 30.
5. What was the overall change from Week 1 to Week 8?
An increase of 110 (230 - 120).
6. Write a conclusion about the trend and support it with two data values.
Attendance generally rose from 120 in Week 1 to 230 in Week 8, despite dips in Weeks 4 and 7.

Interpretation: 5 / 5

Line Graphs Rubric

Student: _____ Teacher: _____ Date: _____

CRITERIA	BEGINNING	DEVELOPING	ACHIEVING	CONFIDENT	EXCEEDING
1. Graph construction	Needs substantial support.	Needs some support.	Accurate graph with required labels.	Effective scale chosen independently.	Precise graph; choices justified.
2. Accurate reading and comparison	Reads few values accurately.	Reads some values; comparison uneven.	Reads and compares accurately.	Calculates changes accurately.	Synthesises complex comparisons.
3. Trends and relationships	Identifies trends with support.	Gives basic trend descriptions.	Describes trends and turning points.	Explains relationships.	Analyses nuanced patterns.
4. Evidence-based conclusions	Gives unsupported statements.	Uses one relevant value.	Supports conclusions with data.	Supports multiple conclusions; justify.	Evaluates conclusions and limitations.
5. Labels, units and communication	Labels or units often missing.	Some labels and units correct.	Clear labels, units and language.	Uses notation and language.	Excellent communication.

Overall feedback: _____

Line Graphs



Learning intention

- We are learning to interpret line graphs that show change over time.
- Read exact values and compare intervals.
- Describe trends and turning points.
- Support conclusions with evidence from the graph.



What does a line graph show?

- A line graph connects ordered data points.
- It shows how a numerical measure changes over time.
- The shape helps us see patterns, changes and relationships.



The essential parts

- Title — what the graph is about.
- Horizontal axis — the ordered time values.
- Vertical axis — the numerical measure and unit.
- Scale — equal numerical intervals.
- Data points and line — values joined in order.



Read the scale before the line

- Check the lowest and highest labelled values.
- Find the difference between adjacent labels.
- Count equal gaps, not just printed numbers.
- A point cannot be read accurately until the scale is known.



Worked example: Creek Water Level

Title: Creek Water Level

Horizontal axis: Day

Vertical axis: Water level (cm)

Scale: 40 to 65 in equal intervals of 5



Retrieve values and calculate changes

Day 3: 51 cm

Day 4 to Day 5: 49 cm to 56 cm

Increase: $56 - 49 = 7$ cm

Overall change: $60 - 42 = 18$ cm



Trend language

- Increasing — values move upward.
- Decreasing — values move downward.
- Steady — values stay the same.
- Fluctuating — values go up and fall.



Turning points

- A peak is a local or overall high point.
- A trough is a local or overall low point.
- A turning point is where the direction changes.
- Name what it is and describe the change.



Comparing two lines

- Use the same time point and scale.
- Read both values before comparing.
- State which is higher or lower.
- Calculate the difference and cite both values.



Write an evidence statement

CLAIM: State the pattern or relationship.

EVIDENCE: Give exact values and time points.

- LINK: Explain how the evidence supports the claim.

- Example: Temperature over a week from 20 on Monday to 50 on Friday



Fact or inference?

FACT: A value or pattern read directly from the graph.

INFERENCE: A reasonable idea that may explain a pattern.

- An inference must be supported by data.
- A graph can show what has changed, but not always why.



Supported conclusions

- Supported: "Values generally increased from 1 to 5"
- Not supported: "The increase was caused by sunny weather"
- Check whether every claim can be traced to visible data
- Avoid causes unless the graph provides causal evidence.



Missing labels

- Use the context to identify the measure.
- Use the ordered positions to identify time.
- Use the number range to infer a sensible unit.
- Then propose a year and axis labels.



Match a story to a graph

- Read the whole shape before matching details.
- Locate the peak, trough and turning point.
- Check the order of rises and falls.
- Explain the match using evidence from the shape.



Construct from a table

- Choose a clear title, axes and units first.
- Select an equal scale that includes every value.
- Place time values in the given order.
- Plan before drawing.

Day	Tue	Wed	Thur	Fri	Sat	Sun
21	22	23	24	25	26	27
28	29	30	31	1	2	3



Plot accurately

- Plot one point for each ordered time value.
- Trace across and up to locate each value.
- Check every point against the table.
- Join points only after all points are accurate.



Graph-check checklist

- ✓ Clear title
- ✓ Both axes labelled
- ✓ Units shown
- ✓ Equal scale intervals
- ✓ Points plotted accurately
- ✓ Points in correct time order



Guided review

1. What was attendance in Week 4?
2. Between which weeks was the greatest increase?
3. Describe one turning point.
4. Write one support and one conclusion using two values.





Well Done!

PREVIEW

Line Graphs Quiz



Question 1

What does the horizontal axis of a line graph usually represent?

- A. Ordered time values
- B. The graph title
- C. The largest data value
- D. A conclusion



Answer 1

A. Ordered time values

The horizontal axis commonly shows day, week, month, or years in order.



Question 2

The graph shows daily bike trips.
How many trips were recorded on
Friday?



Answer 2

50 trips

Read the Friday point across to the vertical scale.



Question 3

True or false?

A line graph can show how a numerical value changes across ordered time values.



Answer 3

TRUE

The ordered points reveal change and trends over time.



Question 4

During which interval was the greatest increase?

- A. Mon to Tue
- B. Tue to Wed
- C. Thu to Fri
- D. Fri to Sat



Answer 4

C. Thu to Fri

The value rose from 25 L to 31 L: an increase of 6 L.



Question 5

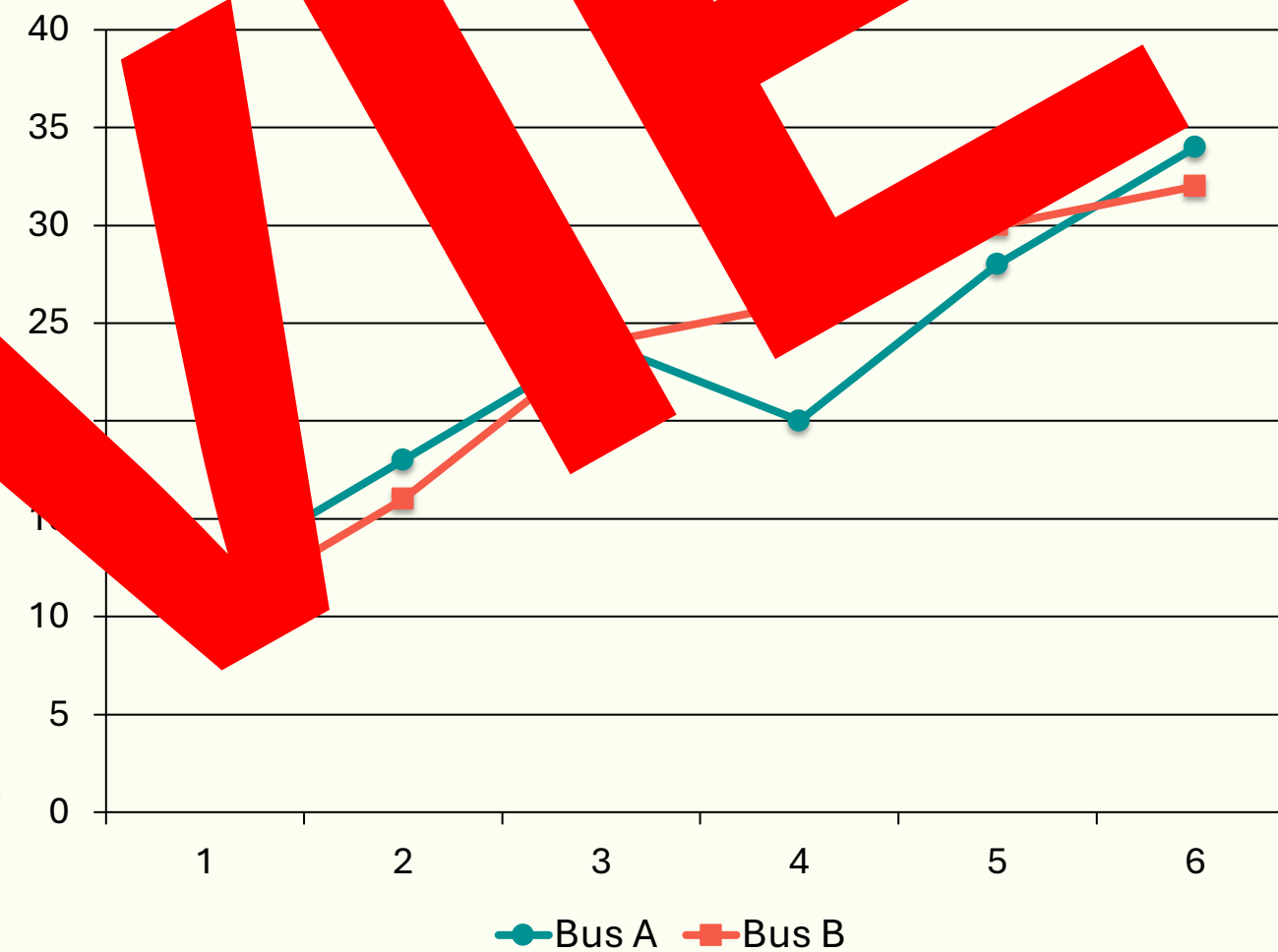
At Stop 4, which bus had more passengers?
State the difference.



Answer 5

Bus B had more passengers.

Bus B: 26; Bus A: 20; difference = 6
passengers.



Question 6

Which conclusion is supported by the graph?

- A. Wednesday was rainy.
- B. Loans generally rose from Monday to Friday despite a dip.
- C. Every visitor borrowed the book.
- D. Saturday was the busiest day.



Answer 6

B. Loans generally rose from Monday to Friday despite a dip. Loans rose from 20 on Monday to 55 on Friday, with a dip on Wednesday.



Question 7

True or false?

Equal numerical intervals may be shown with unequal vertical spacing on the vertical axis.



Answer 7

FALSE

Equal numerical intervals must have equal visual spacing or the graph is misleading.



Question 8

Suggest one reasonable inference about smoothie sales.
Support it with two data values.



Answer 8

Suggested answer:

Demand may have been stronger near the weekend: 52 were sold Friday compared with 28 Monday.

The graph supports a pattern, but not the claim.



Question 9

A student measured plant height once each week.

Which labels are most useful?

A. Garden Growth; Week; Height (cm)

B. Rainfall; Month; Millimetres

C. Bus Use; Stop; Passengers

D. Temperature; Hour; Degrees



Answer q

A. Garden Growth; Week; Height (cm)

The context supplies the measure, ordered time unit and measurement unit.



Question 10

Choose a sensible vertical scale for this data table.

Explain why your scale works.

Day	Tue	Tue	Wed	Th	Fri	Sat	Sun
		48	52	45	68	80	61



Answer 10

A suitable scale is 0 to 90 in equal intervals of 10.

It includes the maximum value, and keeps every interval equal.

Day	Tue	Th	Wed	Th	Fri	Sat	Sun
		48	52	45	68	80	61





Well Done!

