

## 138. Creating and Interpreting Time Series Graphs

### Practice Questions

1. A shop records its daily sales over a week:  
Monday - 120, Tuesday - 100, Wednesday - 110, Thursday - 95, Friday - 130, Saturday - 150, Sunday - 140.  
Plot this data on a time series graph and identify which day had the highest sales.
2. A school tracks the temperature at 12 PM each day for a week:  
Mon - 10°C, Tue - 12°C, Wed - 14°C, Thu - 11°C, Fri - 15°C, Sat - 18°C, Sun - 17°C.  
Draw a line graph and determine the temperature trend over the week.
3. A weather station records the amount of rainfall (mm) for 5 days:  
Day 1 - 5mm, Day 2 - 12mm, Day 3 - 7mm, Day 4 - 10mm, Day 5 - 15mm.  
Plot a time series graph and identify the day with the highest rainfall.
4. A hospital tracks patient arrivals per hour from 8 AM to 2 PM:  
8 AM - 5, 9 AM - 12, 10 AM - 20, 11 AM - 18, 12 PM - 25, 1 PM - 22, 2 PM - 15.  
Plot this data on a time series graph and identify when the highest number of patients arrived.
5. A company monitors the stock price of a business over 6 days:  
Day 1 - £200, Day 2 - £205, Day 3 - £210, Day 4 - £198, Day 5 - £195, Day 6 - £202.  
Draw a line graph and describe the overall trend.
6. A bus company records average travel times (minutes) for a route over 7 days:  
Monday - 30, Tuesday - 32, Wednesday - 28, Thursday - 35, Friday - 40, Saturday - 25, Sunday - 20.  
Plot this data and determine which day had the longest travel time.
7. A school records test scores of a class over 5 weeks:  
Week 1 - 65, Week 2 - 70, Week 3 - 75, Week 4 - 72, Week 5 - 78.  
Draw a time series graph and identify the overall trend.
8. A supermarket tracks daily milk sales (litres) over 5 days:  
Monday - 250L, Tuesday - 270L, Wednesday - 230L, Thursday - 290L, Friday - 310L.  
Plot this data and find which day had the lowest sales.
9. A football team records the number of goals scored in 6 matches:  
Match 1 - 2, Match 2 - 3, Match 3 - 1, Match 4 - 4, Match 5 - 0, Match 6 - 2.  
Draw a line graph and identify the match with the highest goals.
10. A restaurant tracks the number of customers per day for a week:  
Monday - 50, Tuesday - 55, Wednesday - 45, Thursday - 60, Friday - 80, Saturday - 100, Sunday - 90.  
Plot this data and determine the busiest day.

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### Scenario Questions

1. A school tracks the number of late arrivals per day for two weeks:

Week 1: Mon - 5, Tue - 8, Wed - 10, Thu - 6, Fri - 12.

Week 2: Mon - 4, Tue - 9, Wed - 7, Thu - 5, Fri - 11.

Create a line graph and compare the two weeks.

2. A weather station records daily high temperatures over 10 days:

Day 1 - 18°C, Day 2 - 20°C, Day 3 - 22°C, Day 4 - 19°C, Day 5 - 23°C, Day 6 - 25°C, Day 7 - 24°C, Day 8 - 26°C, Day 9 - 28°C, Day 10 - 27°C.

Plot a time series graph and identify any trends.

3. A train service records daily delays in minutes:

Mon - 3 min, Tue - 5 min, Wed - 2 min, Thu - 6 min, Fri - 8 min, Sat - 10 min, Sun - 7 min.

Create a line graph and describe the pattern in delays.

4. A shopping centre records foot traffic over 10 days:

Day 1 - 500, Day 2 - 550, Day 3 - 600, Day 4 - 580, Day 5 - 620, Day 6 - 700, Day 7 - 680, Day 8 - 710, Day 9 - 750, Day 10 - 720.

Plot a time series graph and describe the trend in visitors.

5. A factory monitors daily production of items:

Day 1 - 800, Day 2 - 750, Day 3 - 820, Day 4 - 790, Day 5 - 860, Day 6 - 900, Day 7 - 880.

Draw a line graph and identify the highest production day.

6. A university records attendance rates over 8 weeks:

Week 1 - 92%, Week 2 - 91%, Week 3 - 89%, Week 4 - 90%, Week 5 - 88%, Week 6 - 86%, Week 7 - 85%, Week 8 - 87%.

Create a time series graph and describe the trend in attendance.

7. A sports coach records an athlete's running times (seconds) over 6 training sessions:

Session 1 - 14s, Session 2 - 13.8s, Session 3 - 13.6s, Session 4 - 13.5s, Session 5 - 13.3s, Session 6 - 13.2s.

Plot a line graph and identify the trend in performance.

8. A hotel tracks daily room bookings:

Monday - 20, Tuesday - 22, Wednesday - 18, Thursday - 25, Friday - 30, Saturday - 40, Sunday - 35.

Create a time series graph and determine the busiest day.

9. A coffee shop monitors sales of lattes over 5 days:

Monday - 80, Tuesday - 90, Wednesday - 85, Thursday - 100, Friday - 95.

Draw a line graph and find the peak sales day.

10. A school records the number of students attending an after-school club for 6 weeks:

Week 1 - 10, Week 2 - 12, Week 3 - 15, Week 4 - 18, Week 5 - 20, Week 6 - 22.

Create a time series graph and describe the attendance trend.

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### Practice Questions

1. **Day with the highest sales:** Saturday
2. **Temperature trend:** Increasing over the week
3. **Day with the highest rainfall:** Day 5
4. **Time with the highest number of patients:** 12 PM
5. **Overall trend:** Slight decrease with fluctuations
6. **Day with the longest travel time:** Friday
7. **Overall trend:** Increasing with a slight dip in Week 4
8. **Day with the lowest sales:** Wednesday
9. **Match with the highest goals:** Match 4
10. **Busiest day:** Saturday

## Answers

### Scenario Questions

1. **Comparison:** Week 2 had fewer late arrivals on Monday and Thursday but more on Tuesday and Friday.
2. **Trend:** Increasing temperatures with a peak on Day 9.
3. **Pattern in delays:** Increasing delays with a peak on Saturday.
4. **Trend in visitors:** Increasing foot traffic with a peak on Day 9.
5. **Highest production day:** Day 6
6. **Trend in attendance:** Decreasing attendance with slight fluctuations.
7. **Trend in performance:** Decreasing running times, indicating improvement.
8. **Busiest day:** Saturday
9. **Peak sales day:** Thursday
10. **Attendance trend:** Increasing attendance over the weeks.