# Homework/Extension
# Step 4: Line Graphs

## National Curriculum Objectives:

Mathematics Year 4: (4S1) Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs

Mathematics Year 4: (4S2) Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

## Differentiation:

Questions 1, 4 and 7 (Varied Fluency)
**Developing** Answer questions including comparison, sum and difference questions, using increments of 1 on the y axis. Using up to 5 recordings per graph.
**Expected** Answer questions including comparison, sum and difference questions, using increments of 2 and 10 on the y axis. Using up to 8 recordings per graph.
**Greater Depth** Answer questions including comparison, sum and difference questions, using increments of 2, 5 and 10 on the y axis, where not all increments are marked. Using up to 8 recordings per graph.

Questions 2, 5 and 8 (Varied Fluency)
**Developing** Complete questions and answers using a given line graph, using increments of 1 on the y axis. Using up to 5 recordings per graph.
**Expected** Complete questions and answers using a given line graph, using increments of 2 and 10 on the y axis. Using up to 8 recordings per graph.
**Greater Depth** Complete questions and answers using a given line graph, using increments of 2, 5 and 10 on the y axis, where not all increments are marked. Using up to 8 recordings per graph.

Questions 3, 6 and 9 (Reasoning and Problem Solving)
**Developing** Explain which story matches the line graph, using increments of 1 on the y axis. Using up to 5 recordings per graph.
**Expected** Explain which story matches the line graph, using increments of 2 and 10 on the y axis. Using up to 8 recordings per graph.
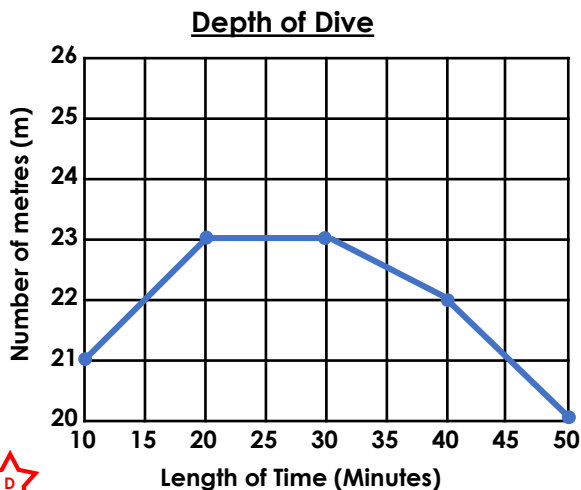**Greater Depth** Explain which story matches the line graph, using increments of 2, 5and 10 on the y axis, where not all increments are marked. Using up to 8 recordings per graph.

More Year 4 Statistics resources.

Did you like this resource? Don't forget to review it on our website.

# Line Graphs

## 1. Use the line graph below to answer the following questions about the depth of a recent dive.

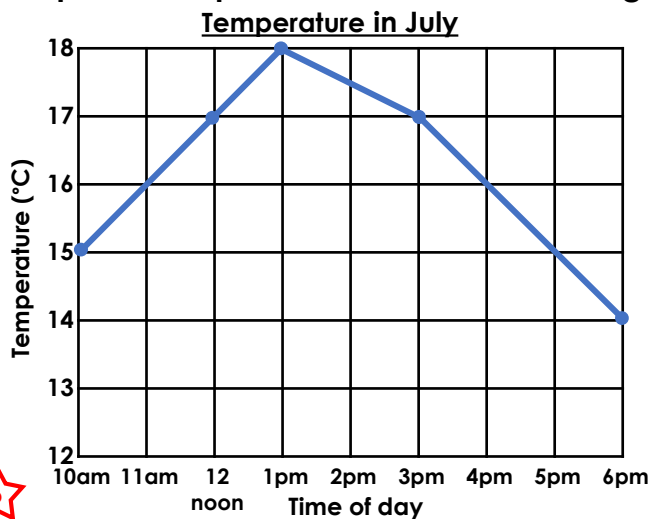**Depth of Dive**

Number of metres (m) / Length of Time (Minutes)

A. How deep was the dive after 40 minutes?

B. When was the dive 23 metres?

C. How many metres did the person dive between 20 minutes and 45 minutes?

D. What was the difference between the depth of the dive after 20 minutes and 50 minutes?

## 2. Brad has been measuring the temperature at different points during the day. Complete the questions and answers using Brad's graph.

**Temperature in July**

Temperature (°C) / Time of day

A. How much did the temperature increase by between 10am and 1pm?

B. Did the temperature drop more between 1pm and 3pm or 3pm and 6pm?

C.

3 °C
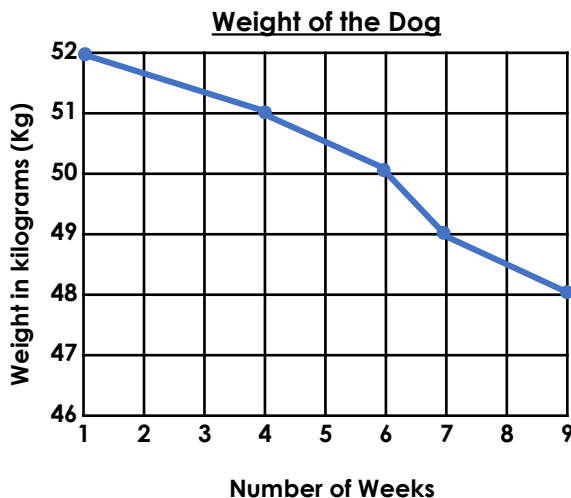
## 3. Four children recorded a dog's weight over time. Which story matches the line graph below? Explain your answer.

**Weight of the Dog**

Weight in kilograms (Kg) / Number of Weeks

Adam weighed the dog on week 4 and week 7 and it had decreased by 3kg.

Felix weighed the dog on week 4 and week 9 and it had increased by 3kg.

Tia thinks the weight lost between week 1 and week 6 is 1kg.

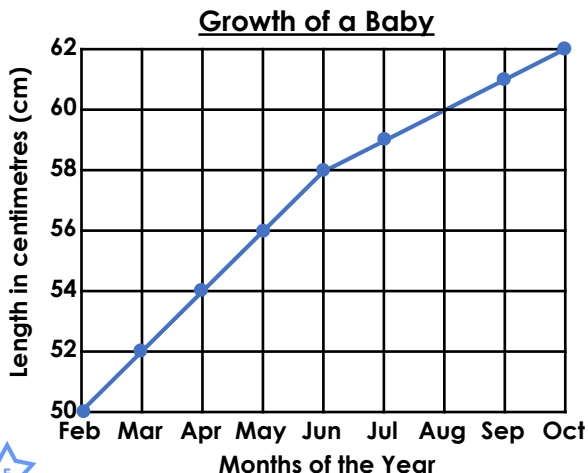Tom weighed the dog on week 4 and week 7 and it had decreased by 2kg.

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## Homework/Extension – Line Graphs – Year 4 Developing

# Line Graphs

**4. Use the line graph below to answer the following questions about the growth of a newborn baby over 9 months.**

**Growth of a Baby**

_Length in centimetres (cm)_ (y-axis: 50, 52, 54, 56, 58, 60, 62)

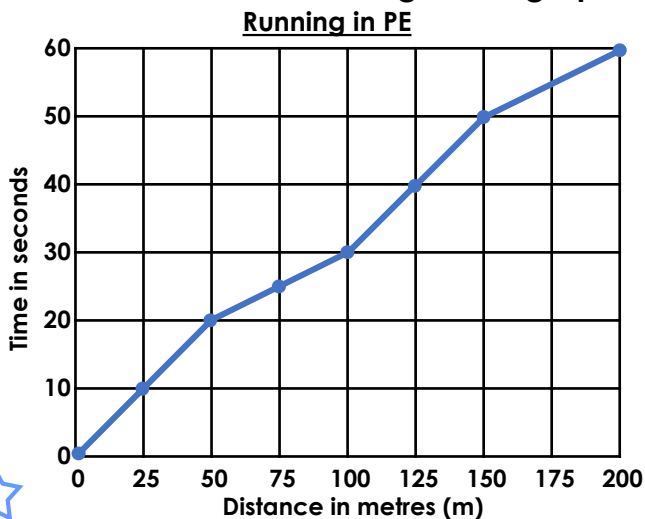_Months of the Year_ (x-axis: Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct)

**A. How long was the baby in April?**

**B. When was the baby 59cm long?**

**C. How many centimetres did the baby grow between March and September?**

**D. What was the difference between the length of the baby in May and October?**

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**5. Tara has been timing herself in PE when running for 60 seconds. Complete the questions and answers using Tara's graph.**

**Running in PE**

_Time in seconds_ (y-axis: 0, 10, 20, 30, 40, 50, 60)

_Distance in metres (m)_ (x-axis: 0, 25, 50, 75, 100, 125, 150, 175, 200)

**A. How much further did Tara run in the final 10 seconds than in the first 10 seconds?**

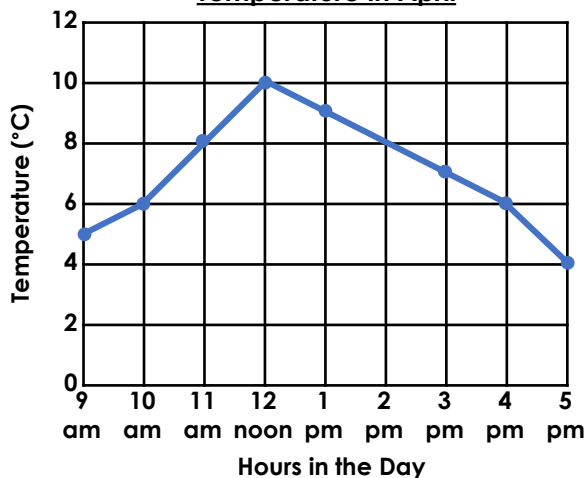**B. Was Tara faster running 50 to 75 metres or 100 to 125 metres?**

**C.**

**10 seconds**

VF
HW/Ext

**6. Some children recorded the temperature in April. Which story matches the line graph below? Explain your answer.**

**Emily took the temperature at 9am, by 1pm it had increased by 5 degrees.**

**Max took the temperature at 9am, by 5pm it had decreased by 1 degree.**

**Temperature in April**

_Temperature (°C)_ (y-axis: 0, 2, 4, 6, 8, 10, 12)

_Hours in the Day_ (x-axis: 9 am, 10 am, 11 am, 12 noon, 1 pm, 2 pm, 3 pm, 4 pm, 5 pm)

**Maya took the temperature at 10am, by 5pm it was 1 degree less.**

**Pearl took the temperature at 9am, by 3pm it had decreased by 1 degree.**

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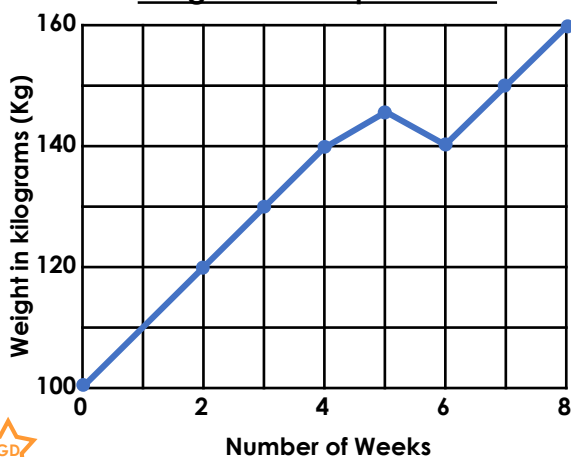**Homework/Extension – Line Graphs – Year 4 Expected**

# Line Graphs

**7.** Use the line graph below to answer the following questions about the weight of an elephant calf.

**Weight of an Elephant Calf**



Y-axis: Weight in kilograms (Kg) — 100, 120, 140, 160
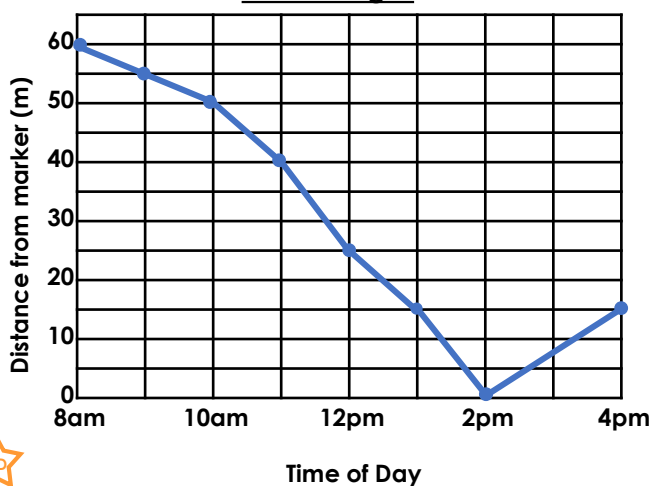X-axis: Number of Weeks — 0, 2, 4, 6, 8

A. How many kilograms did the elephant calf weigh in week 7?

B. When did the elephant calf weigh 130kg?

C. How many kilograms did the calf gain between week 1 and week 6?

D. What was the difference between the weight of the calf at week 2 and week 5?

**8.** Beth measured the changes of a tide. Complete the questions and answers using Beth's graph.

**Tide changes**



Y-axis: Distance from marker (m) — 0, 10, 20, 30, 40, 50, 60
X-axis: Time of Day — 8am, 10am, 12pm, 2pm, 4pm

A. How much further did the tide come in during 12pm and 2pm than the first 2 hours?

B. Was the tide quicker at changing between 55 to 40 metres or 25 to 15 metres?
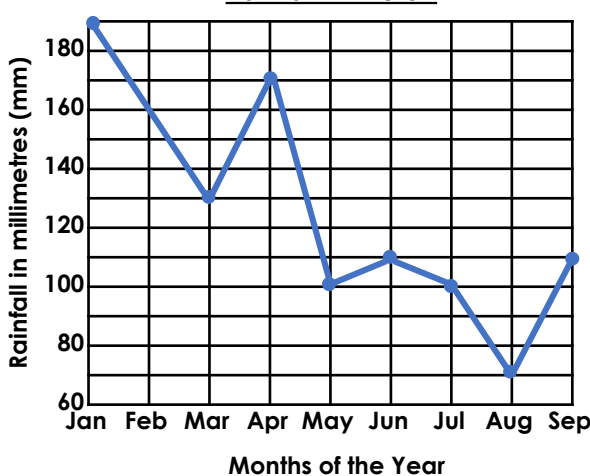
C.

3 hours

**9.** Four children are investigating rainfall over time. Which stories match the line graph below? Explain your answer.

**Rainfall in the UK**



Y-axis: Rainfall in millimetres (mm) — 60, 80, 100, 120, 140, 160, 180
X-axis: Months of the Year — Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep

Erol took the measurement in March, by June it was 40mm less.

Tahida took the measurement in July, in June it was 20mm more.

Maisie took the measurement in April, by August it was 100mm less.

Patrick took the measurement in May, by August it was 30mm less.

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**Homework/Extension – Line Graphs – Year 4 Greater Depth**

# Homework/Extension
## Line Graphs

### Developing
1. A. 22 m; B. Between 20 and 30 minutes; C. 2m; D. 3m.
2. A. 3 degrees; B. 3pm and 6pm; C. Various answers including questions such as – What is the difference in the temperature between 10am and 1pm?
3. Tom is correct because on week 4 the dog weighed 51kg and on week 7 the dog weighed 49kg. The weight had decreased by 2kg.

### Expected
4. A. 54 cm; B. July; C. 9cm; D. 6cm.
5. A. 25 metres; B. 50 to 75 metres; C. Various answers including questions such as – How long did it take Tara to run 50 to 100 metres?
6. Max is correct because at 9am the temperature was 5 degrees and at 5pm it was 4 degrees. The temperature had decreased by 1 degree.

### Greater Depth
7. A. 150kg; B. Week 3; C. 30kg; D. 25kg
8. A. 15 metres; B. 25 to 15 metres; C. Various answers including questions such as  – How long did it take for the tide to change from 50 to 15 metres from the marker?
9. Maisie and Patrick are both correct. Maisie is correct because in April the rainfall was 170mm and in August it was 70mm. The rainfall had decreased by 100mm. Patrick is also correct because in May the rainfall was 100mm and in August is was 70mm. The rainfall had decreased by 30mm.