**Science Skills**

**Reading Line Graphs**

**Level 3
Book 1**

****

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Line Graphs**

**Line graphs** are used to **track** things when changes have been made.
**Example**:
The line graph below shows the temperature in Edinburgh and in Rome on 14th May.

Study the line graph.
Can you see how the following statements were inferred from the graph?

1. **Recognising what is being compared**
a) the temperatures in two cities at different times of day are being compared
b) the temperature in the individual cities at different times of day are being compared

2. **Finding data**
The temperature in Edinburgh at noon is 15ºC
The temperature in Rome at 6am is 17ºC
The temperature in Rome is lowest at 6am
The temperature in Edinburgh is highest at 2pm
If the temperature is 9º, it must be 6am in Edinburgh

3. **Calculating differences from the data**
At 10am, the temperature in Rome is 8º higher than the temperature in Edinburgh
At 4pm, the temperature in Edinburgh is 12.5º less than the temperature in Rome.

4. **Recognising trends** (A *trend* is the way things are going)
In both cities, the temperature rises between 6am and 2pm, then the temperature falls.

5. **Drawing conclusions**
At all times of day, the temperature in Rome is higher than the temperature in Edinburgh
Between 6am and 2 pm, the later in the day, the higher the temperature in both cities.
Between 2pm and 6pm, the later in the day, the lower the temperature in both cities.

6. **Predicting**At 8 pm in Rome the temperature is likely to be less than 24ºC.
In Edinburgh at 4am, the temperature is likely to be less than 9ºC

1. Students took samples of leaves at different heights from an **oak tree** and a **sycamore tree**.
They recorded the **number of caterpillars** in each sample.

Their results are shown in the graph.

a) How many caterpillars were found in the leaf sample from the oak tree at a height
 of 15 metres?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ caterpillars

b) In a leaf sample collected at a height of 24 metres, there are 10 caterpillars.
 What type of tree did the sample come from?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tree

2. The graph below shows the recommended daily allowance of Vitamin A and calcium
 for children of different ages.



a) Complete the **conclusion** below by inserting either **increases,** **decreases** or **stays the
 same.**

**As the age of a child increases, the recommended daily allowance

of calcium \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

b) **Calculate the** **increase** in the recommended daily allowance of vitamin A between the
 ages of 4 and 6 years.

 Working

*Answer*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mg

3. The line graph shows how a person’s blood alcohol level changed over a period
 of time.



a) What is the person’s blood alcohol level after 6 hours?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mg/100ml

b) Look back to question 2 on page 4 to see how a conclusion is usually written, or back to the help on page 2.

Draw **one** conclusion from the information in the graph above.

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. The graph shows the **voltage** produced by a solar cell when **light of different
 intensities** shines on it.



a) Look back to question 2 on page 4 to see how a conclusion is usually written, or back to
 the help on page 2.

 Draw **one** conclusion from the information in the graph above.

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) What is the voltage when the light intensity is 70 units?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mV

5. Weasels are known to attack the nests of small birds.
The graph shows how the distance between the birds’ nests affects how many are attacked by weasels.



Complete the **conclusion** below, filling in either **increases**, **decreases** or **stays the same**.

**As the distance between birds’ nests \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the

number of nests attacked by weasels \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

6. Plaster is mixed with fibre to make plasterboard.
 The graph shows how the **percentage of fibre** in plasterboard affects the **strength
 of the plasterboard.**



a) Complete the **conclusion** below:

**The higher the percentage of fibre in the plasterboard, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

b) What is the strength of plasterboard that contains 25% fibre?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ units

7. Light enters the eye through the pupil.

 The graph shows how the diameter (distance
 across) of the pupil changes as the
 brightness of light changes.



Complete the **two** **conclusions** below, filling in either **increases**, **decreases** or **stays the same**.

**As the brightness of light increases from 0 to 5 units, the diameter of the pupil**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**As the brightness of light increases from 5 to 8 units, the diameter of the pupil**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

8. The resistance of an LDR is measured as the light level increases.
 The results are shown on the graph.



Looking at the graph, state what happens to the **resistance** of the LDR **as the light level increases**.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. When petrol is burnt, carbon dioxide is produced.
The graph shows that the level of carbon dioxide in the atmosphere is falling.



The UK government has set targets to reduce carbon dioxide levels.
This is shown in the graph.

In what **year** will the government targets be met? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. The graph shows how the solubility of oxygen in water changes with temperature.



Use the graph to complete the conclusion below:

**As the temperature of the water increases, the solubility of oxygen\_\_\_\_\_\_\_\_\_\_\_\_.**

11. This graph can be used to describe weight.

A man who is **1.70** metres tall weighs **80** kilograms.
Using the graph, how can the man be described? (tick)

 a) obese b) overweight c) ideal d) underweight