Whitstone School
inspiring futures

Science Home Learning Task

Year 7

First steps into Science

Name _____

Tutor Group _____

Teacher _____

Given out: Monday 16 September Hand in: Monday 23 September

Parent/Carer Comment
Staff Comment
Target

Investigating Science

Welcome to your first Science homework booklet. This booklet is designed to give you some of the basic skills you need to do well in Science.

Don’t forget to ask a parent/carer to sign the box on the front of the booklet. Enjoy!

<u>TASK 1</u>- Reading task

Read the following article and answer the questions that follow.

<u>Stephen Hawking</u>

Stephen Hawking was an English scientist, **cosmologist**, teacher and author. He used a wheelchair to move around and a computer with a voice synthesiser to talk, after being diagnosed with a degenerative motor neurone disease called ALS when he was at University. He is best known for discovering how the universe was formed and predicting what might happen to it in the future.

Early life

Stephen William Hawking was born on January 1942 in Oxford, England. He was born exactly 300 years after the death of the famous **astronomer** Galileo – a fact that Stephen was very proud of. He was the eldest child of Frank Hawking, a medical researcher, and Isobel Walker, a Scottish secretary. His parents loved learning and both went to the University of Oxford. His father studied medicine, while his mother studied **philosophy** and politics.

Stephen was born during the Second World War. At this time, London was a very dangerous place. To make sure that Stephen would be safe when he was born, his mother moved from their home in Highgate, London to Oxford. During the time that they lived in Oxford, Hawking's parents had more children so he gained three siblings: two sisters named Philippa and Mary and an adopted brother named Edward.

Childhood

In 1950, the Hawking family moved to St Albans in Hertfordshire. People who knew the family thought that they were rather odd; instead of talking or watching television, the family would sit in silence and read a book while they ate meals. They are said to have kept a beehive in their basement and made fireworks in their greenhouse!

From an early age, Stephen showed an interest in science, especially space. He loved to lie on the grass in the garden and watch the stars with his mother. Stephen enjoyed playing board games and making model aeroplanes and boats. With the help of his

maths teacher, Stephen built a computer out of old clock and telephone parts at just 16 years old.

Scientific discoveries

Just like his parents, Stephen went to the University of Oxford at just 17 years old, passing his exams a year early. He was said to find the work "ridiculously easy" and he received the highest award possible for his degree in natural sciences.

Stephen then moved on to study at the University of Cambridge. While he was there, Stephen studied black holes. At the time, people thought that black holes were places in space where gravity pulls so much that even light cannot get out. Yet, Stephen discovered that one thing could escape from a black hole: **radiation.** This type of radiation, now known as Hawking radiation, was named after him and, using what he had learned, Stephen helped to prove the idea that the universe began with the Big Bang. Stephen's work, along with his incredible sense of humour, inspired millions of people to become interested in science.

Questions

1. Which two subjects did Stephen's mother study at University? Circle the correct answers
    a. Astrology
    b. Medicine
    c. Politics
    d. Philosophy

2. In which year did Stephen's family move to St Albans? Circle the correct answer
    a. 1942
    b. 1947
    c. 1950
    d. 1955

3. Who helped Stephen build a computer? How old was he when he built it?

_____
_____
_____

4. Why did Stephen go to university earlier than normal?

_____
_____

5. What was Hawking diagnosed with?

_____
_____

6. Explain why you think people thought the Hawking family were unusual.

_____
_____
_____

7. Choose one of the science words highlighted in bold in the text and find out what it means.

   Word _____

   Meaning

_____
_____
_____

8. Sum up the importance of Stephen's scientific discoveries.

_____
_____
_____
_____
_____
_____

<u>TASK 1</u> continued – research task

You have just read an article about a scientist who became famous for his scientific discoveries. Find out about a famous scientist of your choice, using the internet or books. Write about their life and discoveries. You can include pictures if you like.

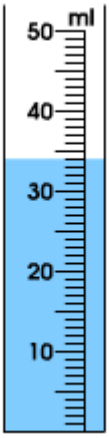
<u>Use this space to plan your article</u>

Write about your scientist here

<u>TASK 2</u>- Reading scales

Read each scale and write the value shown on it on the space provided. Don't forget to add the units.

a)



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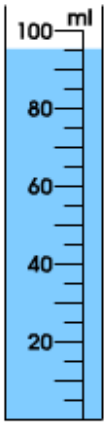
b)



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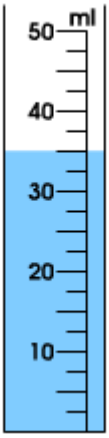
c)



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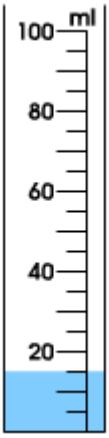
d)



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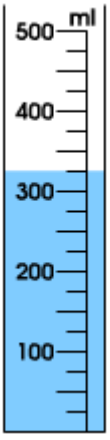
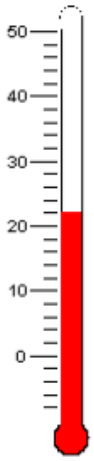
e)



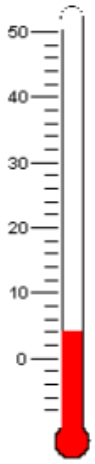
_____

f)


50
40
30
20
10
0

_____

g)


50
40
30
20
10
0

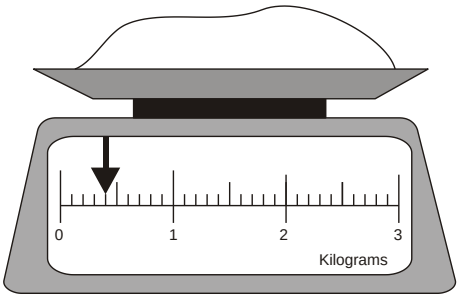
_____

h)


0
10
20
30
40
50
60
70
80
90
100
110
kg

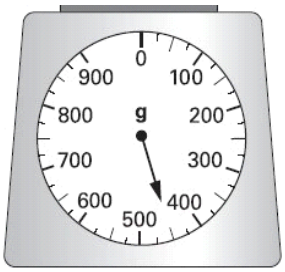
_____

i)


0
1
2
3
Kilograms

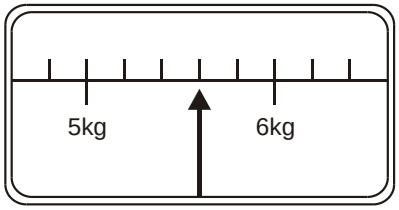
_____

j)


0
100
200
300
400
500
600
700
800
900
g

_____

k)

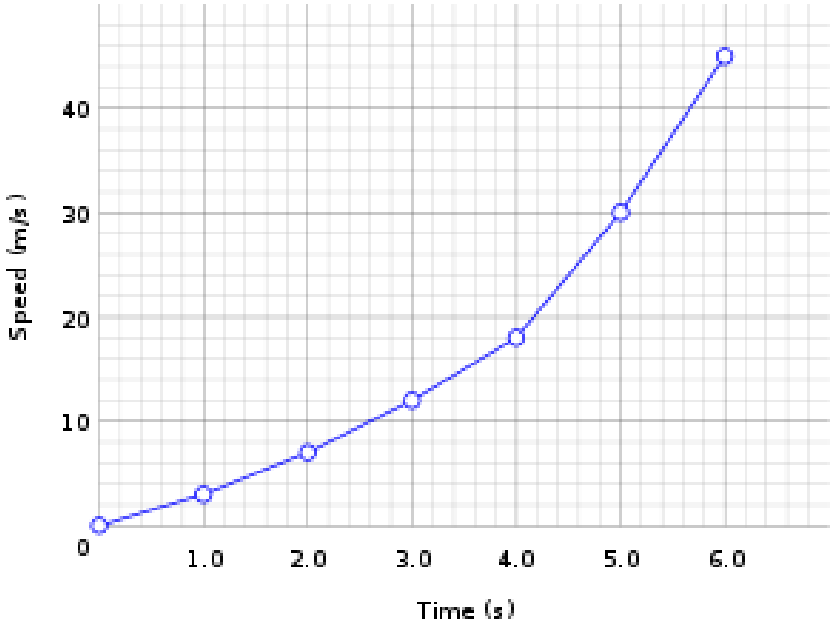

5kg
6kg

_____

<u>TASK 3</u> – Drawing graphs

Use the data in the table underneath to draw a **line graph** like the one below, on the square paper on the next page.

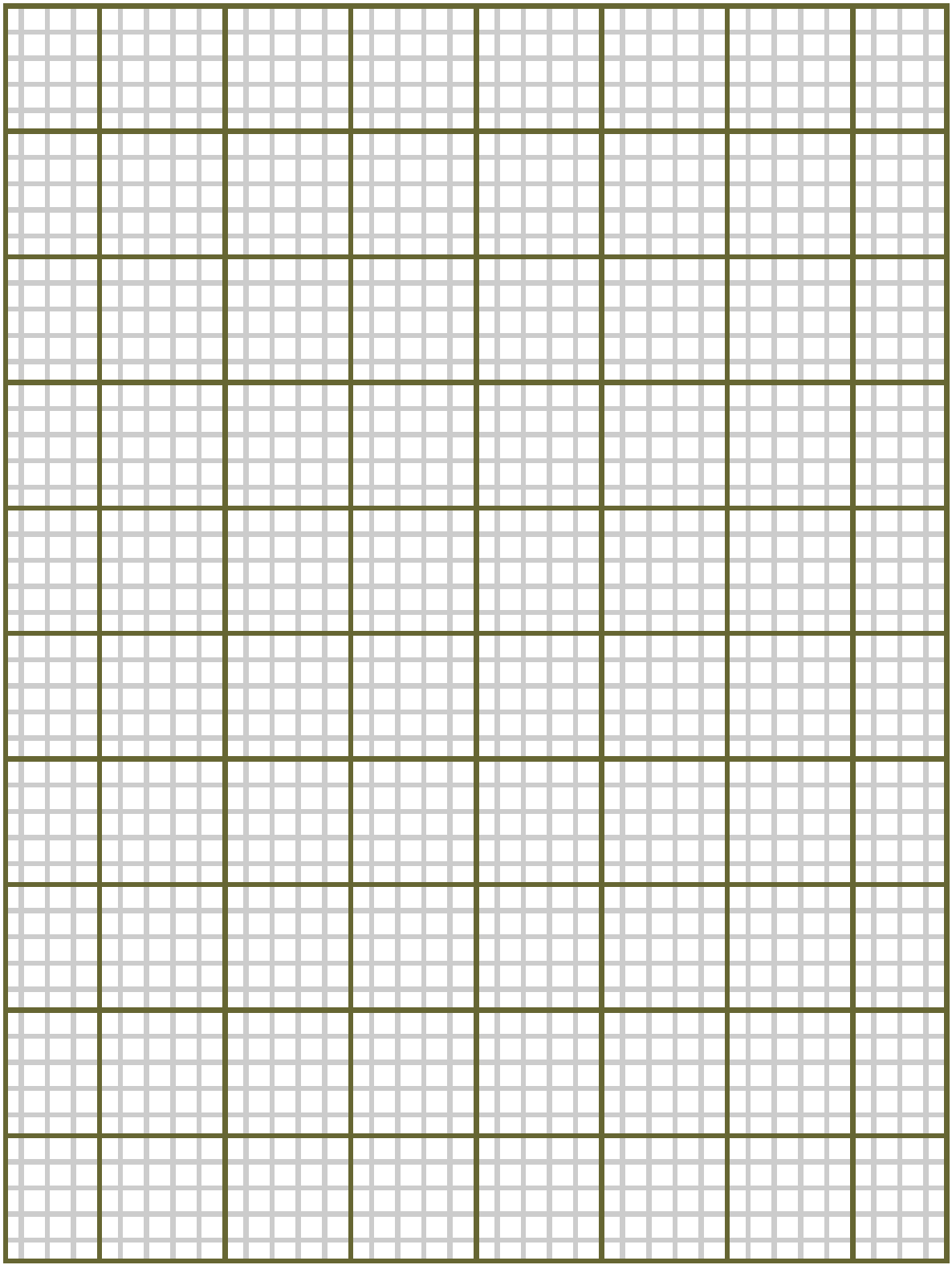
Example of a line graph



Draw your own using these numbers.

Time (s)	Mass (g)
1	60
2	45
3	33
4	20
5	9

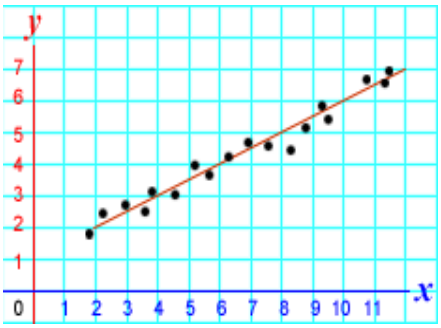
Your graph

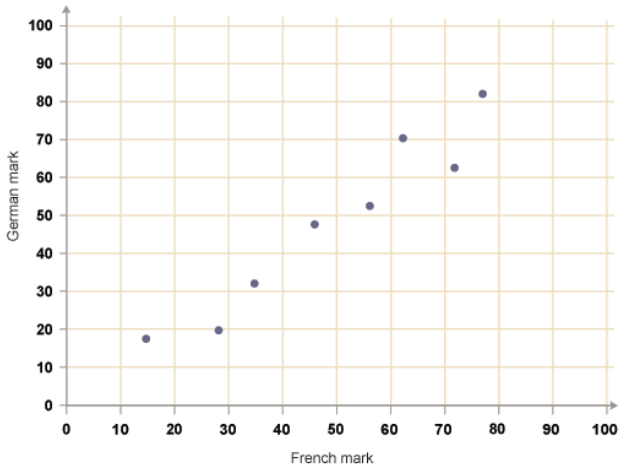


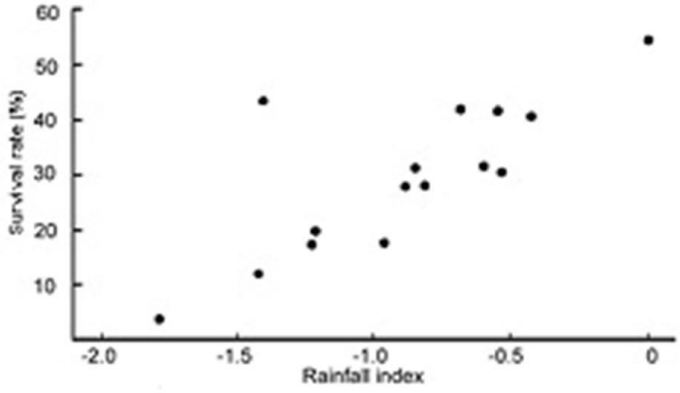
<u>TASK 4</u> – Interpreting graphs

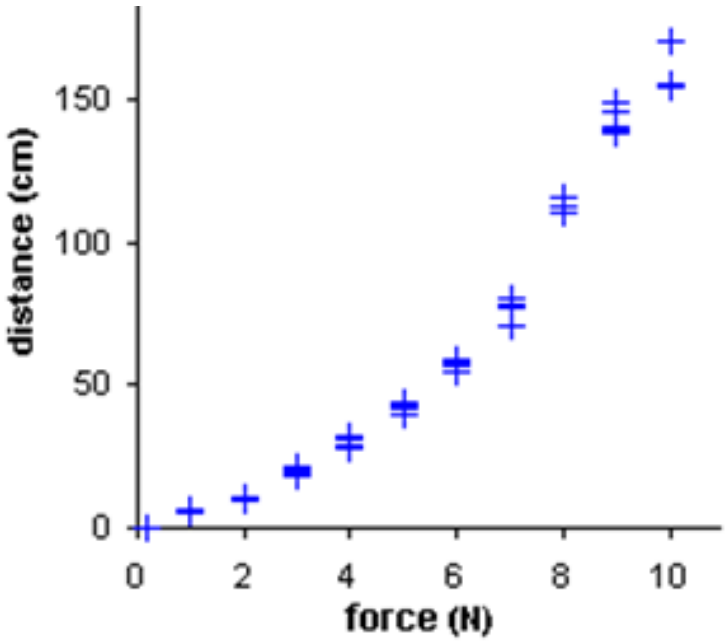
Look at the graph below. When we draw a line graph, we add a **line of best fit** like the one shown below. This is a line that passes through or as close to as many points as possible – **it can be a curved line too**. Draw a line of best fit on each graph below.

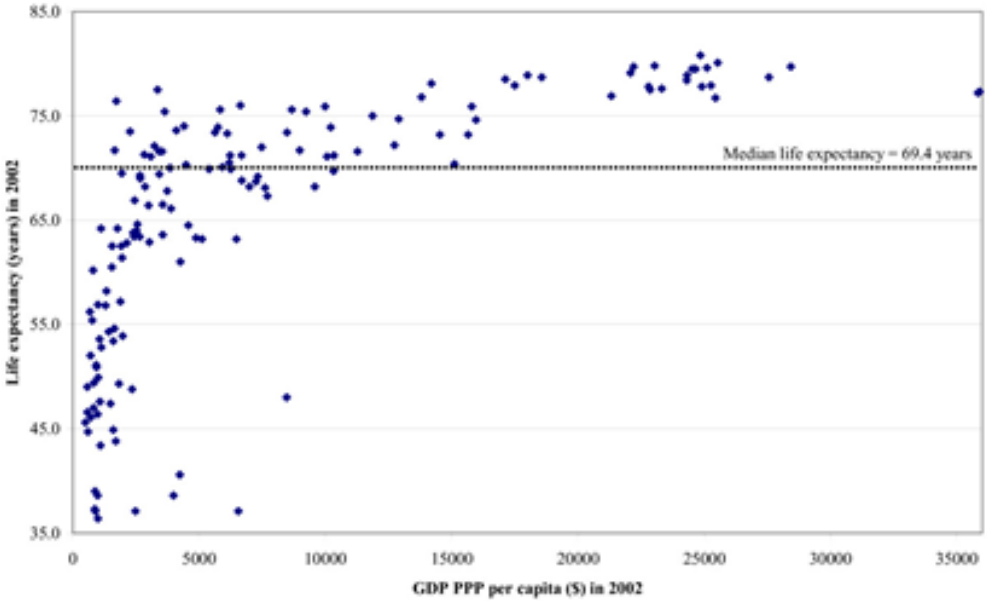
Example







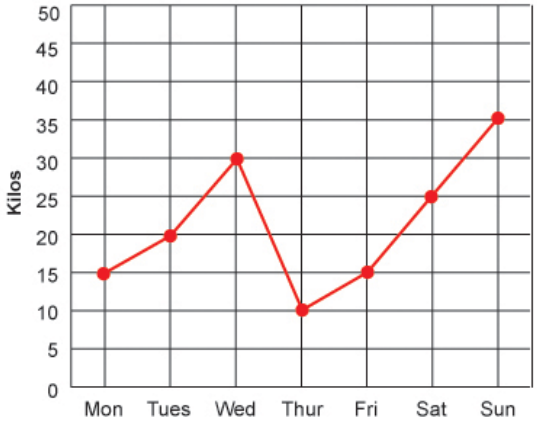

distance (cm)
150
100
50
0
0
2
4
6
8
10
force (N)


85.0
75.0
65.0
55.0
45.0
35.0
Life expectancy (years) in 2002
Median life expectancy = 69.4 years
0
5000
10000
15000
20000
25000
30000
35000
GDP PPP per capita ($) in 2002

TASK 4 continued

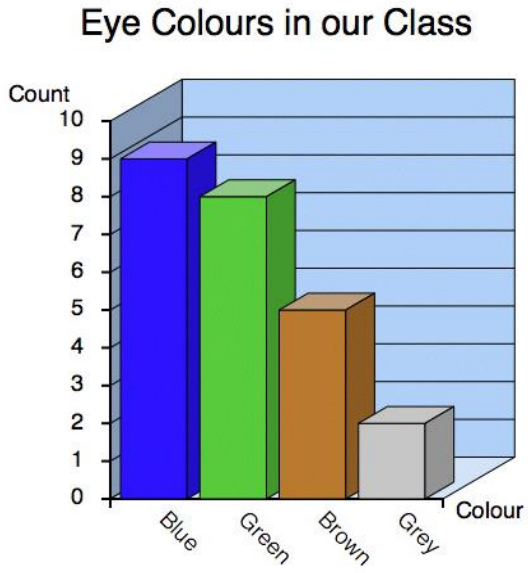
Graphs are used to show results and the effect that one factor has on another. For example, the graph below shows that most potatoes were eaten on Sunday. It also shows that the number of potatoes eaten increased from Thursday to Sunday.

Example



What do each of the graphs below show? Write your answer in the space provided. Use the keywords in the box below to help.

increase	**decrease**	**increases by….**
decreases by….	**highest**	**lowest**



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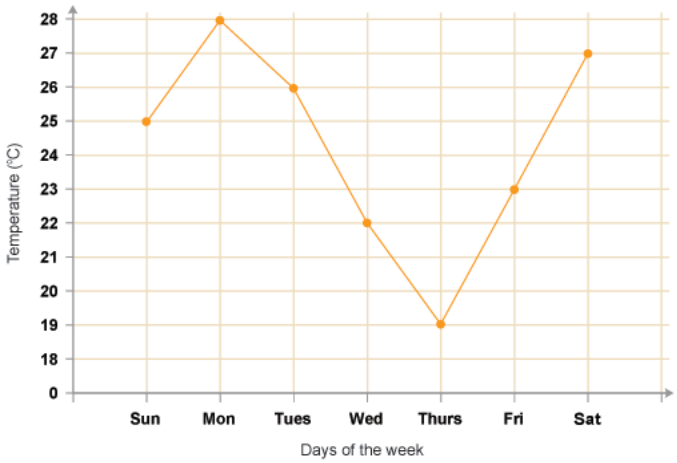

Temperature (°C)
28
27
26
25
24
23
22
21
20
19
18
0
Sun
Mon
Tues
Wed
Thurs
Fri
Sat
Days of the week

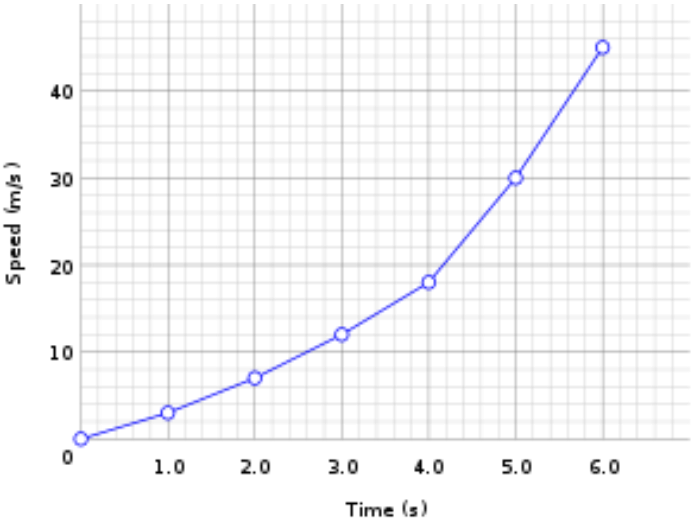
……

……

……

……

……


Speed (m/s)
40
30
20
10
0
1.0
2.0
3.0
4.0
5.0
6.0
Time (s)

……

……

……

……

……