

GCSE Science Flying Start

Name: College Year:

Previous GCSE results (if you sat these exams):

Core Science:

Additional Science:

English:

Maths:

Instructions:

This Flying Start activity is for us to gauge how much science you know already and to enable us to identify, initially, which tier paper you should be sitting. This may well change as we progress through the course!



For official staff use only:

Mark =




Grade =

Answer **all** questions in the spaces provided.

- 1** The diagrams in **List A** show three electrical appliances. Each appliance is designed to transfer electrical energy.

Draw **one** straight line from each appliance in **List A** to the useful energy output produced by that appliance in **List B**.

Draw only **three** lines.

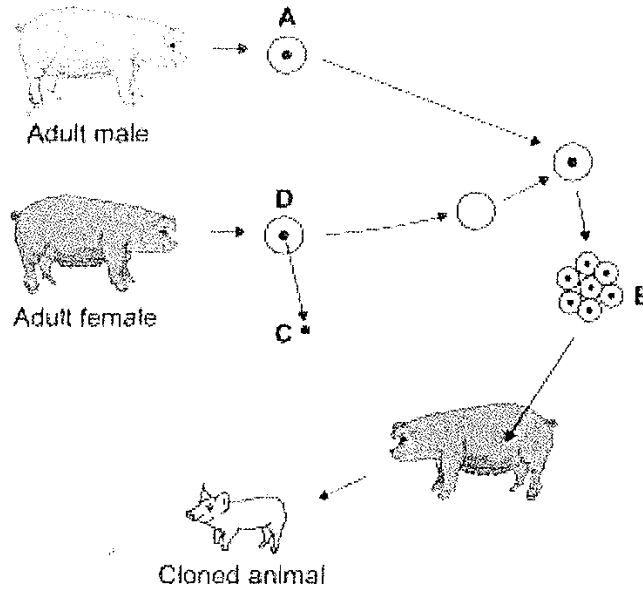
List A Appliance	List B Useful energy output
 <p data-bbox="464 831 592 853">MP3 player</p>	<p data-bbox="935 736 991 763">Light</p>
 <p data-bbox="437 1025 612 1048">Food processor</p>	<p data-bbox="922 887 995 909">Sound</p>
 <p data-bbox="459 1227 580 1249">Desk lamp</p>	<p data-bbox="916 1178 995 1200">Kinetic</p>

(3 marks)

3

Answer **all** questions in the spaces provided.

2 (a) The diagram shows how pigs can be cloned.



For each question write the correct letter in the box.

Which structure, **A**, **B**, **C** or **D** is:

2 (a) (i) an egg cell

(1 mark)

2 (a) (ii) a nucleus

(1 mark)

2 (a) (iii) an embryo?

(1 mark)

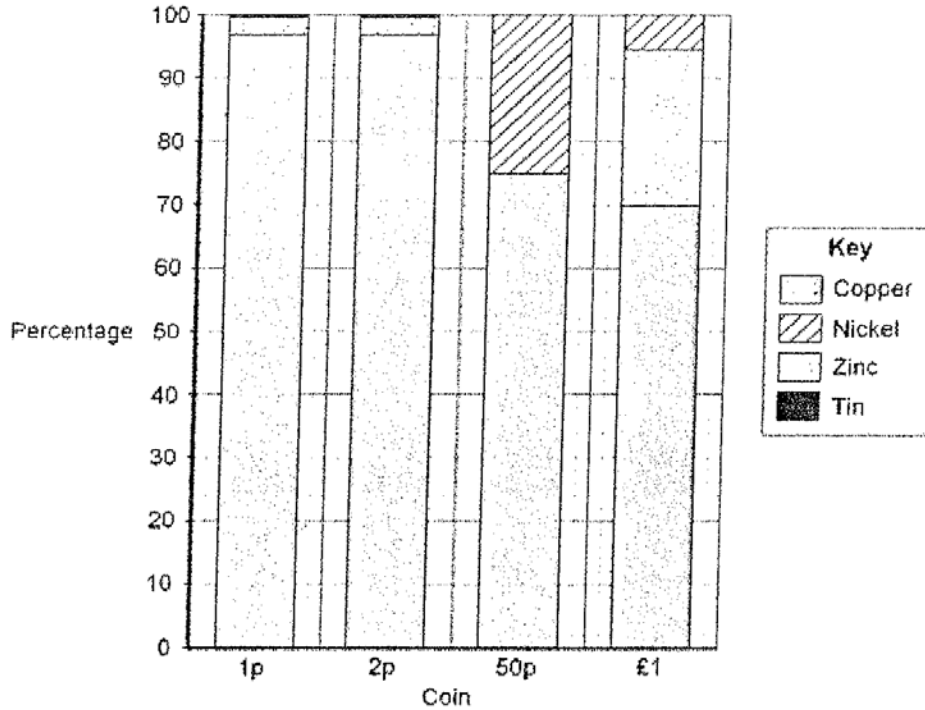
(3 marks)

3

4 This is a headline from a newspaper.

'Why is a 2p coin made in 1991 now worth 3.3p?'

4 (a) The bar chart shows the percentages of metals in UK coins in 1991.



Use the bar chart to answer these questions.

4 (a) (i) Which metal is in all of these coins? (1 mark)

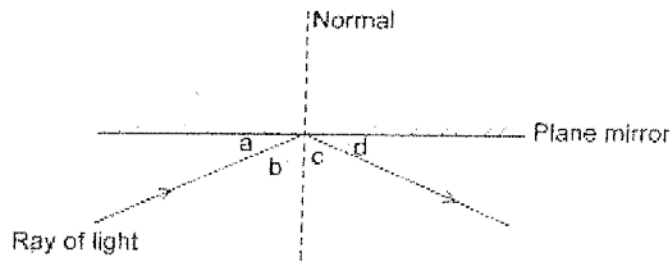
4 (a) (ii) Which coin does **not** contain zinc? (1 mark)

4 (a) (iii) What is the percentage of nickel in a 50p coin? % (1 mark)

4 (b) Suggest **two** reasons why a 2p coin made in 1991 is now worth 3.3p.
.....
.....
.....
.....

(2 marks) 5
Turn over ▶

- 5 (a) The diagram shows a ray of light being reflected by a plane mirror.



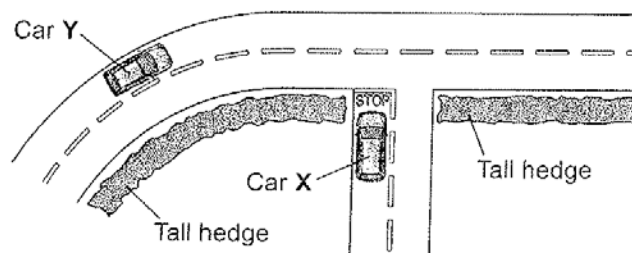
Which of the angles, **a**, **b**, **c** or **d**, is:

the angle of incidence;

the angle of reflection?

(2 marks)

- 5 (b) The diagram shows a road junction seen from above.



A mirror placed at the side of the road allows the driver of car **X** to see car **Y**.

Using the same mirror symbol given in part (a), draw a plane mirror to show how it should be placed so that the driver of car **X** can see car **Y**.

(2 marks)

4

6 Dr Semmelweiss collected data about the number of deaths in the two maternity wards in the hospital where he worked.

- From 1833 to 1838 there were the same number of doctors and midwives delivering babies in both **Ward 1** and **Ward 2**.
- From 1839 to 1847 medical students and doctors delivered babies in **Ward 1**; midwives delivered babies in **Ward 2**.

Dr Semmelweiss also noticed that doctors often came straight from examining dead bodies to the delivery ward.

The table shows the number of patients and the number of deaths in the two wards.

Years	Ward	Number of patients	Number of deaths	Death rate as deaths per 1000 patients
1833–1838	Ward 1	23 509	1505	64.0
	Ward 2	13 097	731	55.8
1839–1847	Ward 1	20 204	1989	98.4
	Ward 2	17 791	691	

6 (a) (i) Use the formula

$$\text{death rate} = \frac{\text{number of deaths} \times 1000}{\text{number of patients}}$$

to calculate the death rate for **Ward 2** in the years 1839–1847.

.....

Death rate =deaths per thousand
 (2 marks)

6 (a) (ii) Suggest a hypothesis for the difference in the death rates on **Ward 1** and **Ward 2** in the years 1839–1847.

.....

(2 marks)

6 (b) Antibiotics are now used in hospitals.

What is an antibiotic, and what does it do?

.....
.....
.....

(2 marks)

6 (c) MRSA is causing problems in hospitals.

Give **one** reason why.

.....
.....

(1 mark)

6 (d) How can the work of Semmelweiss help to reduce the problems caused by MRSA?

.....
.....

(1 mark)

GCSE Core Science

Getting Ready for the Controlled Assessment: Your Turn to Have a Go!

Name:

Teacher:



Caffeine in Cola Investigation

For official Staff use only:

Mark:

Projected Grade:

In a controlled assessment you will need to **research/find a method** that can be **used to test a hypothesis**. You can use the internet, a textbook, a scientific journal/magazine, etc. however you must keep a note of the URL for the internet site (i.e. the <http://www> address), the book/scientific title, author, publish date/ISBN number. You will be expected to **find 2 methods/sources** (that can be the same type of method just written by a different person) and then compare them to decide which one is best to use.

Hypothesis: My reaction time will improve with caffeine.

1) a) **Identify 2 sources** of information you used for your research:

b) **Which** of the sources did you find **more useful**?

c) **Why** was this source better than the other?

[3 marks]

2) a) Write down 1 **variable**/factor you will need to **control**:

b) **Describe** briefly **how** carrying out a **preliminary investigation** would help you decide on the **best value** for your named **control variable** above:

[3 marks]

- 3) **In your own words** (do NOT plagiarise) **write out the method you will use** to carry out the investigation name in the hypothesis, based upon the ones that you researched:

[9 marks]

4) **Why** is it a good idea to **compare** your results with **other people**?

[3 marks]

5) **Draw a table** to **record your results** in (we will perform the experiment in class so you need to draw the results table out first so we don't waste time in lesson):

[2 marks]