

FOR OFFICIAL USE

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**G**

KU PS

Total Mark

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**3700/402**

NATIONAL  
QUALIFICATIONS  
2010

THURSDAY, 27 MAY  
10.20 AM – 11.35 AM

SCIENCE  
STANDARD GRADE  
General Level

**Fill in these boxes and read what is printed below.**

Full name of centre

Town

Forename

Surname

Date of birth

Day    Month    Year

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Scottish candidate number

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Number of seat

- 1 Answer as many questions as you can.
- 2 Read the whole of each question carefully before you answer it.
- 3 Write your answers in the spaces provided. Showing working may help in some questions.
- 4 Before leaving the examination room you must give this book to the Invigilator. If you do not, you may lose all the marks for this paper.







Marks

KU	PS

4. (a) Complete this table by providing suitable headings.

aluminium iron nickel	salt nylon concrete

1

(b) Garden chairs can be made from different types of material. List **three types** of materials that can be used.

1 .....

2 .....

3 .....



1

(c) Here are some properties of materials used to make a bicycle.

1		2	
	strong		heat resistant
3		4	
	thermal conductor		wear resistant

Which box shows the **most important** property for the material used to make

(i) the tyres?

Box number .....

(ii) the frame?

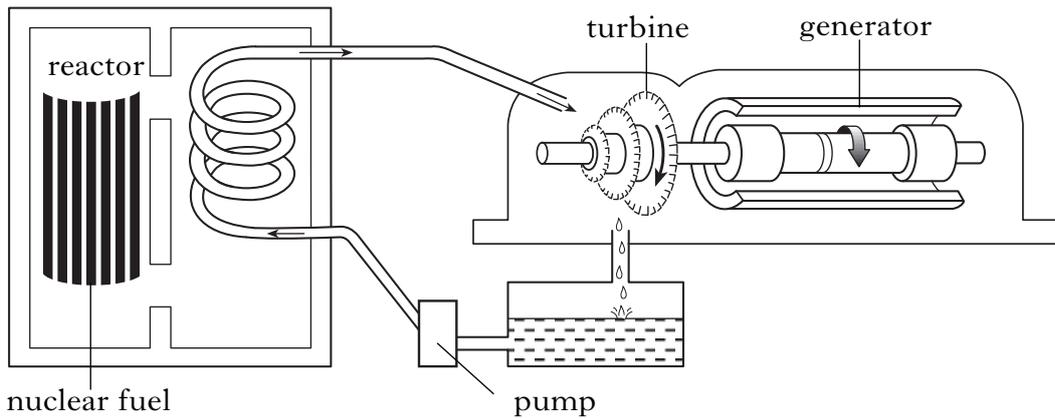
Box number .....



2

Marks

5. A diagram of a nuclear power station is shown below.



(a) What type of energy is produced by nuclear fuel?

- A light
- B sound
- C heat
- D movement

Underline the correct answer.

1

(b) What turns the turbine?

- A water
- B steam
- C air
- D nuclear fuel

Underline the correct answer.

1

(c) The radioactive waste from a nuclear power station is very dangerous. Describe **one** way of storing the waste as safely as possible.

.....  
.....

1

[Turn over

KU	PS





Marks

9. Complete the following sentences about steel by circling the correct answer in each box.

(a) The steel used for a screwdriver is more **wear resistant** because it contains

the element

- chromium
- nickel
- tungsten



1

(b) **Stainless** steel used for scissor blades contains

the elements

- chromium and tungsten
- chromium and nickel
- tungsten and nickel



1

(c) The steel used for a saw blade is **heated and quickly cooled** to make

the steel

- more flexible
- stronger
- harder



1

10. The recommended daily allowances of fat, fibre and sugar for an adult are given in the table.

<i>Substance</i>	<i>Recommended daily allowance</i> (g)
fat	25
fibre	30
sugar	5

A portion of yoghurt contains 2.5 g of fat.

What percentage of the recommended daily allowance of fat is in the yoghurt?

Space for working

Answer .....%

2

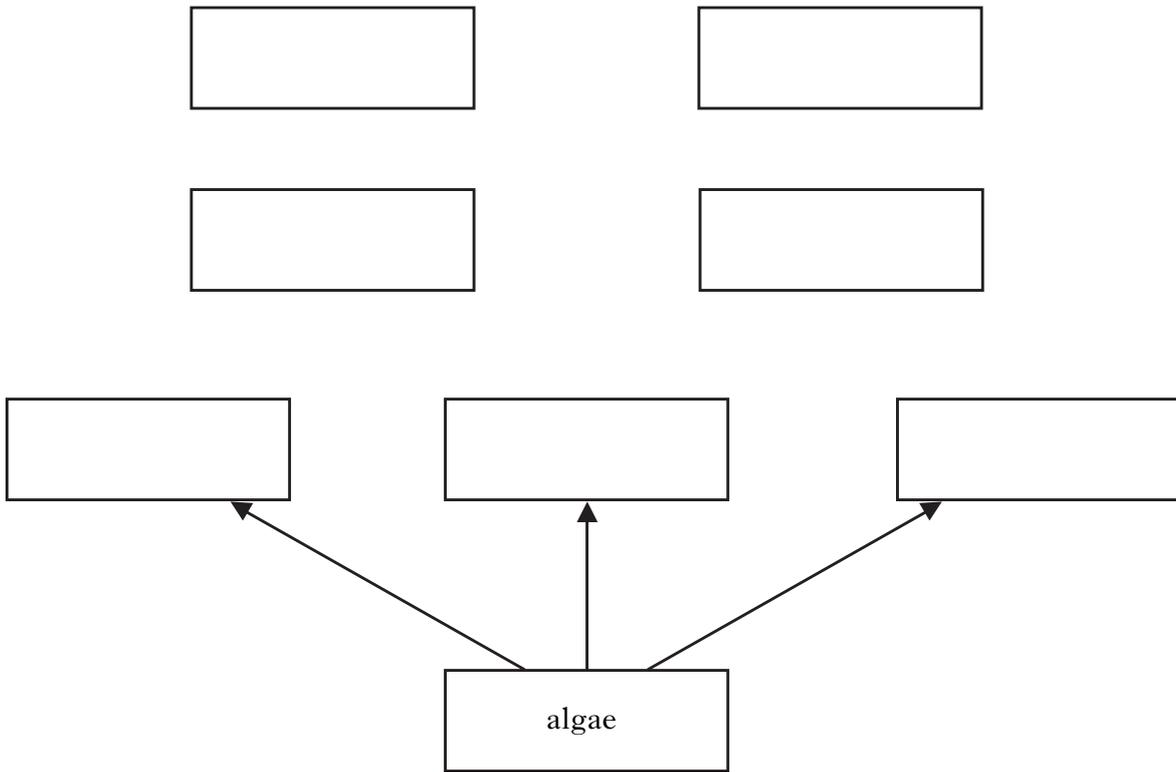
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1		
1		
1		
2		

Marks

11. Four food chains from a pond are shown below.

- 1 algae → water flea → stickleback → eel
- 2 algae → tadpole → stickleback → eel
- 3 algae → water flea → stickleback → great diving beetle
- 4 algae → midge larvae → leech → great diving beetle

(a) Use the food chains to complete the food web.



(b) All the leeches were removed from the pond.

How would this affect the size of the midge larvae population?

.....

(c) What happens to the amount of energy as it passes along a food chain?

.....

(d) Which type of energy do green plants, such as algae, use to make food?

**Circle** the correct answer.

- light                      chemical                      sound                      heat

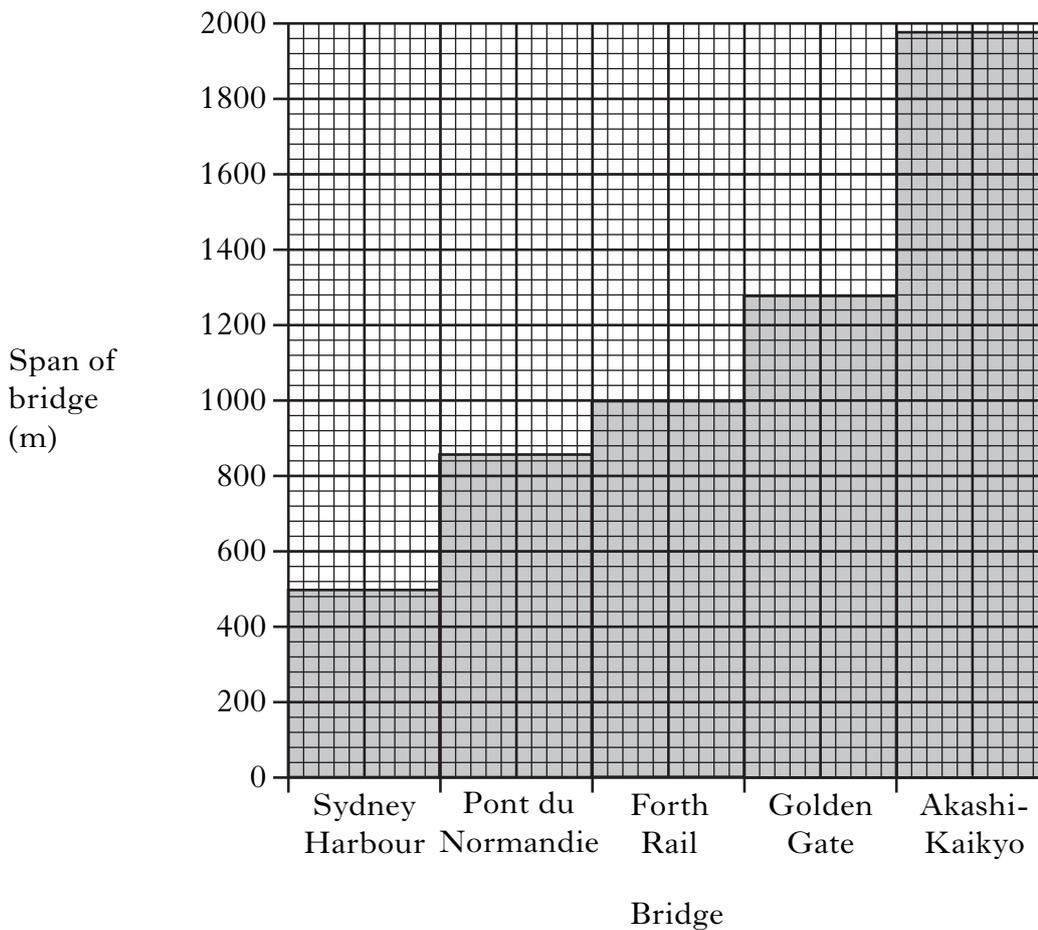
	KU	PS
3		
1		
1		
1		

12. The table below shows information about some famous bridges.

<i>Bridge</i>	<i>Type</i>	<i>Country</i>	<i>Total length (m)</i>
Sydney Harbour	arch	Australia	1149
Pont du Normandie	cable-stayed	France	2143
Forth Rail	cantilever	Scotland	2529
Golden Gate	suspension	America	2737
Akashi-Kaikyo	suspension	Japan	3911

The **span** of a bridge is the distance between its support towers.

The graph below shows the span of each bridge.













Marks

19. Mrs Shepherd is installing new lighting in her hall.  
She buys 2 lights costing £45 each and 3 switches costing £14 each.  
Calculate the total cost.

Space for working

Answer £.....

2

20. Some **fractions** obtained from crude oil and their **uses** are shown below.

- (a) Match each fraction to its use.  
The first one has been done for you.

Fraction	Use
gasoline	aviation fuel
paraffin	plastics
bitumen	fuel for cars
diesel	road surfaces
naphtha	fuel for lorries

- (b) Which fraction is the least flammable?

.....

3

1

KU	PS

Marks

21. A group of students counted the caterpillars on the cabbages in five vegetable plots.

Their results are shown below.

<i>Vegetable plot</i>	<i>Number of caterpillars</i>
A	27
B	42
C	31
D	25
E	30

(a) Calculate the average number of caterpillars in the vegetable plots.

Space for working

..... caterpillars

2

(b) Cabbages are green plants and make their own food.

This food is stored as

- A protein
- B fat
- C starch
- D water.

**Underline** the correct answer.

1

[Turn over

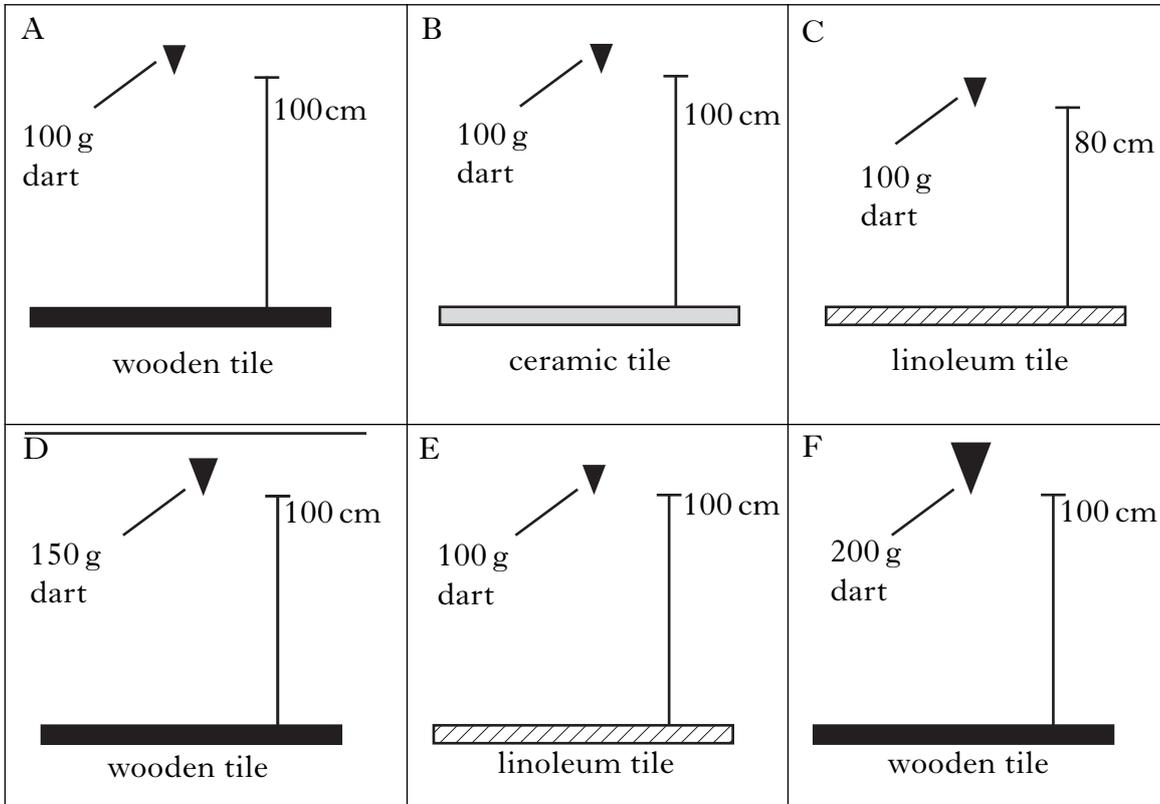
KU	PS

Marks

22. Jared was investigating the hardness of different floor tiles.

He set up the following experiments.

He dropped a steel dart from a certain height and measured the size of the mark which was made.



(a) Which **two** experiments should Jared compare to find out if a wooden tile is harder than a linoleum tile?

Letters ..... and .....

1

(b) Jared compared the results of experiments A, D and F.

What was he trying to find out?

.....  
.....

1

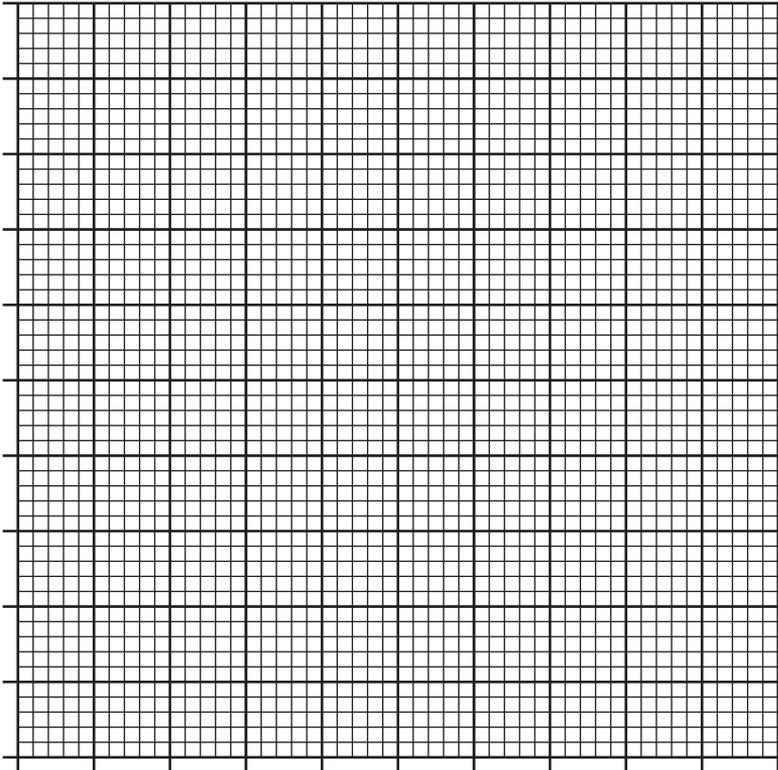
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1	





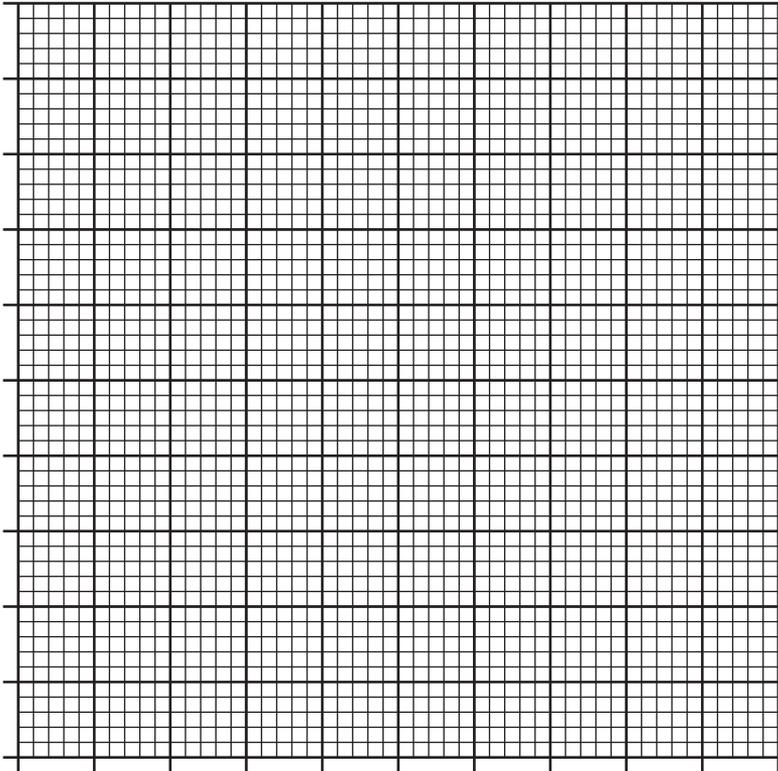


ADDITIONAL GRAPH PAPER FOR USE IN QUESTION 14



ADDITIONAL GRAPH PAPER FOR USE IN QUESTION 26

Number of  
lichen species



## ACKNOWLEDGEMENTS

Question 9—Photograph of an arca handsaw. Permission is being sought from Ark Tools International Corporation.

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