

Cambridge Lower Secondary Checkpoint

CANDIDATE
NAME

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CENTRE
NUMBER

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CANDIDATE
NUMBER

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SCIENCE

0893/02

Paper 2

May 2026

45 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen. Do **not** use correction fluid or tape.
- Do **not** write on any bar codes.
- You should show all your working in the booklet.
- You may use a calculator.

INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [].

This document has **20** pages. Any blank pages are indicated.



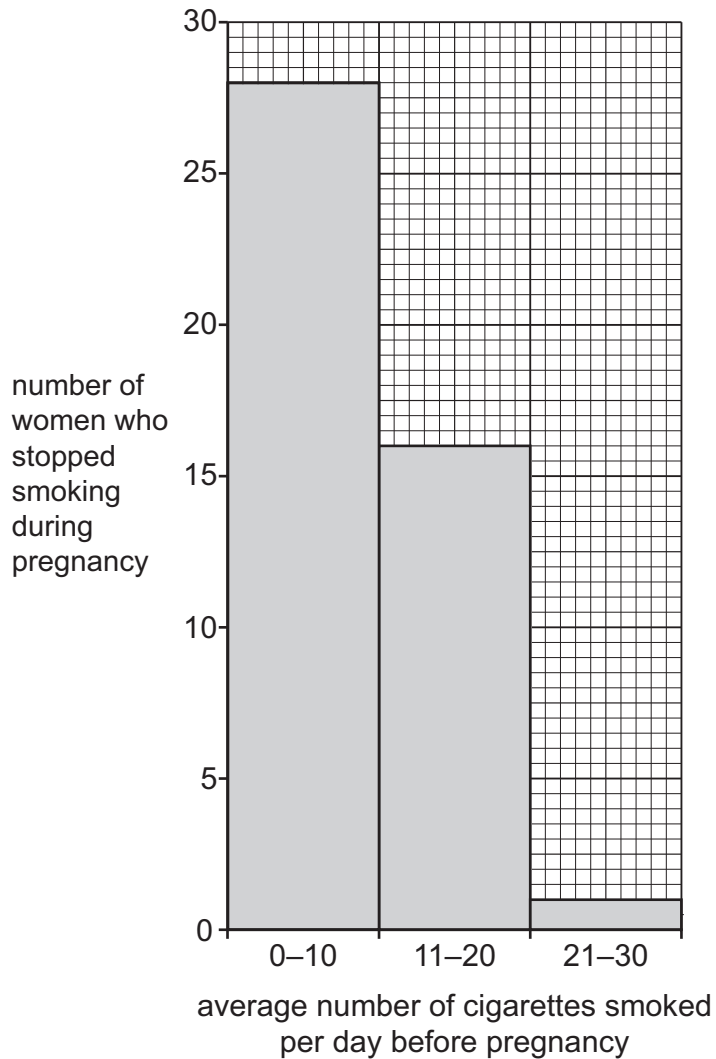
1 This question is about fetal development and smoking.

(a) Blessy uses a computer model to predict the effect of smoking on fetal development.

Suggest **one** reason why Blessy uses a computer model for this investigation.

.....
 [1]

(b) Look at the chart.



Use the chart to complete the table.

average number of cigarettes smoked per day before pregnancy	number of women who stopped smoking during pregnancy
0-10	
11-20	
21-30	

[1]

(c) Describe **two** ways smoking during pregnancy affects fetal development.

1

.....

2

.....

[2]

2 Blessy uses an electric kettle.



(a) (i) What is the unit for electrical resistance?

..... [1]

(ii) The supply voltage to the kettle is 240 V.

The current in the kettle is 12 A.

Calculate the electrical resistance of the kettle.

electrical resistance of kettle = [2]

(b) Blessy uses the kettle to boil water.

Explain how the outside of the kettle becomes hot.

Use ideas about thermal energy in your answer.

.....

 [2]

(c) Blessy makes a risk assessment for using the electric kettle to boil water.

Complete the table by:

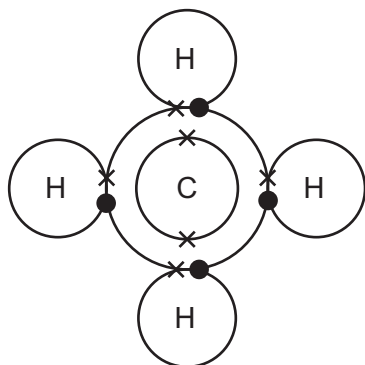
- identifying **one different** risk
- describing how **each** risk is controlled.

risk	how risk is controlled
electric shock	

[3]

3 This question is about molecules, ions and atoms.

(a) Look at the structure of a molecule of methane, CH_4 .



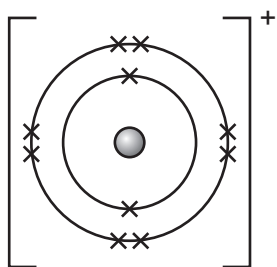
Write down what is meant by a molecule.

.....

.....

..... [2]

(b) Look at the structure of a sodium ion, Na^+ .



Describe how a sodium atom makes a sodium ion.

..... [1]

4 Complete the sentences about nebulae.

Choose words from the list.

dust **gas** **gravity**
light **nurseries** **water**

Nebulae are clouds of and

Nebulae are areas where new stars begin to form.

These areas are called stellar

[2]

5 Complete the sentences about chloroplasts.

Chloroplasts are in plant cells.

Chloroplasts contain a green pigment called

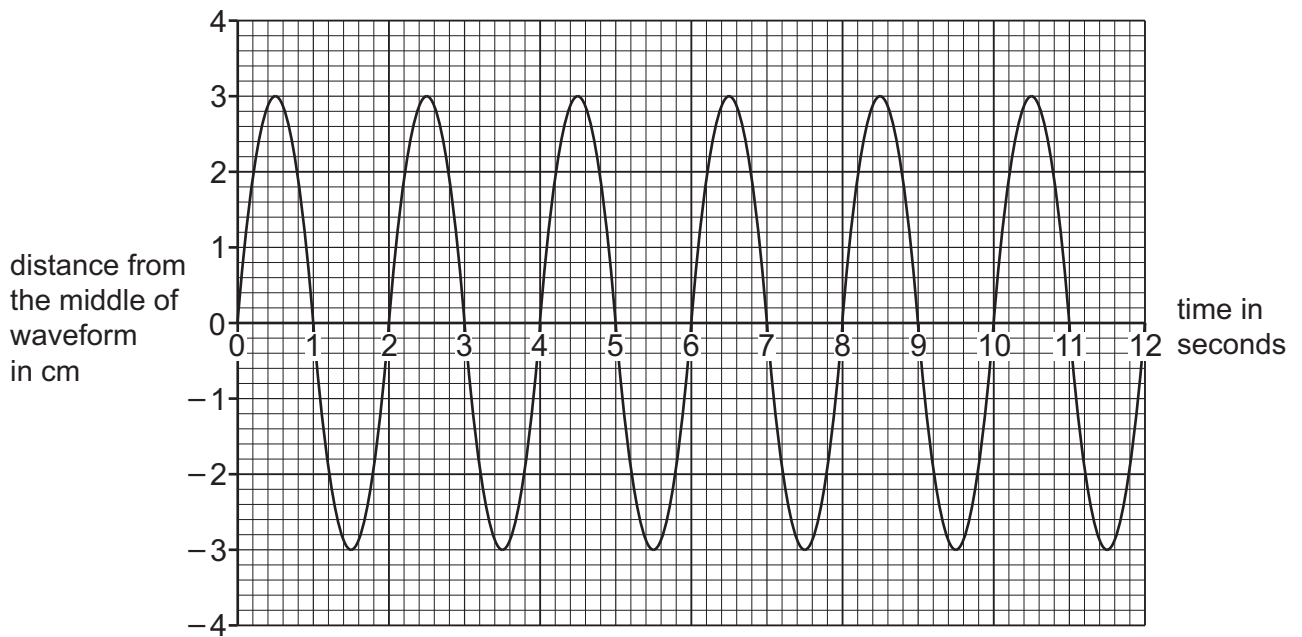
During photosynthesis, this green pigment traps energy from the

The two products of photosynthesis are

and

[3]

6 Look at the graph of a waveform from 0 seconds to 12 seconds.



(a) Write down the amplitude of this waveform.

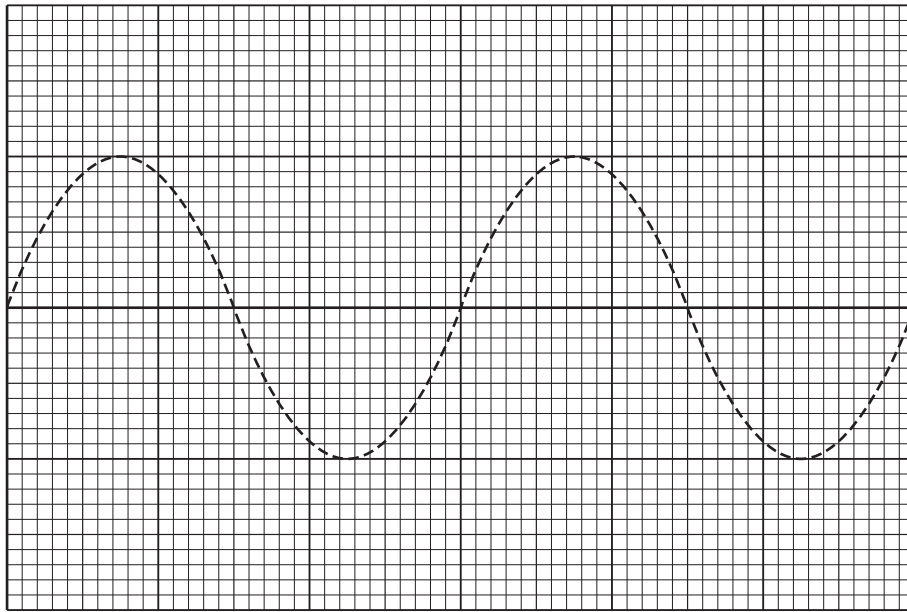
amplitude = cm [1]

(b) There are six complete waves on this graph.

Write down the time it takes for one complete wave.

time = seconds [1]

(c) Look at this waveform.



Sound waves interact to cancel each other out.

Describe the waveform needed to cancel out this waveform.

You may draw on the graph to help you describe your answer.

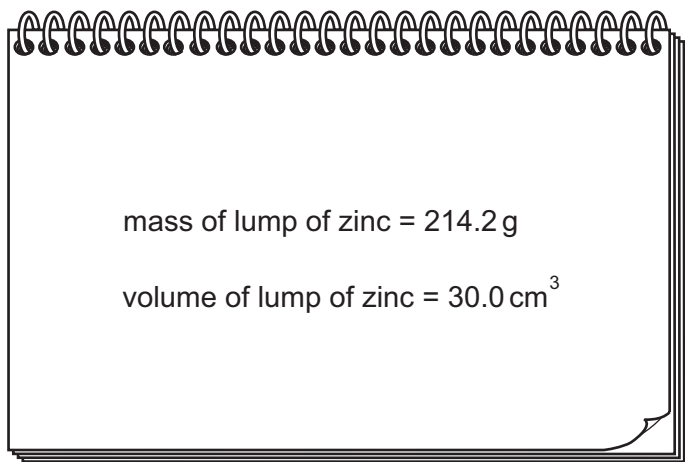
.....

.....

..... [2]

7 Mike measures the density of a lump of zinc.

Look at his results.



(a) Calculate the density of zinc.

Include:

- the equation you use to calculate density
- the unit of density.

equation to calculate density:

density of zinc = unit

[3]

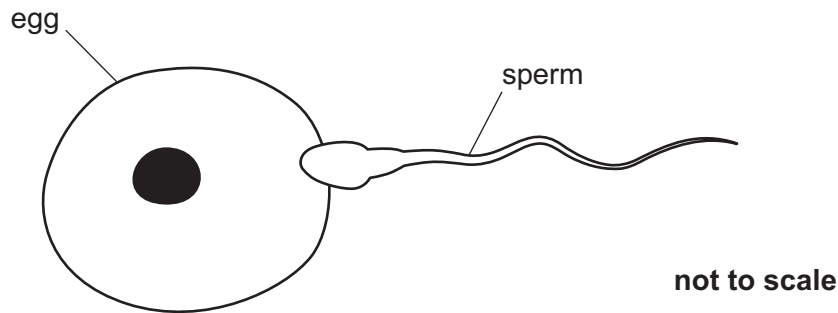
(b) Describe how the density of oxygen gas at room temperature compares to the density of solid zinc.

.....

..... [1]

8 This question is about human reproduction.

(a) The diagram shows a human egg joining with a human sperm.



Name the process shown in the diagram.

..... [1]

(b) The diagram shows the possible combinations of chromosomes in a human mother and human father when they have children.

		mother	
		X	X
father	X	XX	XX
	Y	XY	XY

Use the diagram to work out the ratio of female to male children.

ratio = : [1]

(c) Children have different natural eye colours.

What causes different natural eye colours?

..... [1]

9 An impact crater forms when an asteroid collides with the surface of the Earth.

(a) An asteroid makes a large impact crater.

Suggest **two different** properties of this asteroid that affect the size of the impact crater.

1

2

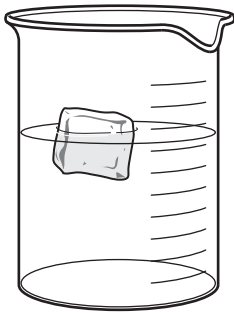
[2]

(b) Describe **one other** consequence of an asteroid collision with the Earth.

.....

..... [1]

10 Look at the picture of ice in liquid water.



Which sentence describes why ice floats in liquid water?

Tick (✓) the correct answer.

Water is a liquid and ice is a solid.

☐

Liquid water is more dense than ice.

☐

Liquid water is transparent and ice is opaque.

☐

Liquid water is warmer than ice.

☐

[1]

- 11 (a) The word equation for the reaction between zinc and copper sulfate is shown.

zinc + copper sulfate $\longrightarrow$ zinc sulfate + copper

Write down the name of this **type** of reaction.

..... [1]

- (b) Complete this word equation.



[2]

- (c) Silver does **not** react with zinc sulfate solution.

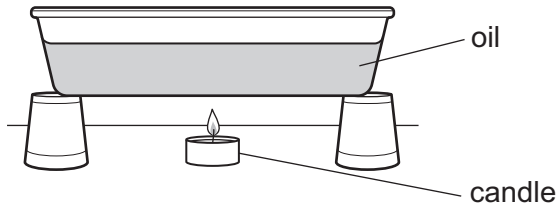
Explain why.

.....
.....
..... [1]

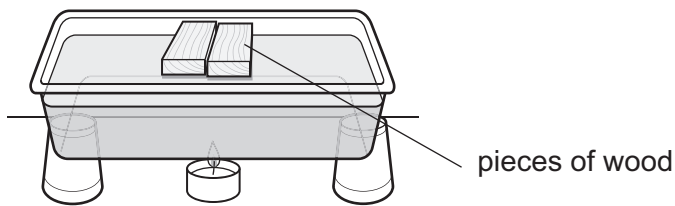
12 Mia investigates the movement of tectonic plates.

She:

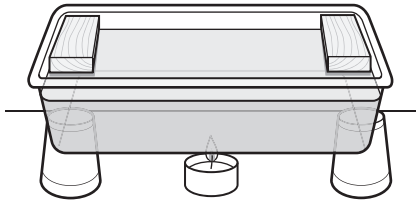
- puts oil into a glass container
- heats the oil in the middle of the container



- adds two pieces of wood to the surface of the oil in the middle of the container



- measures the time for the pieces of wood to touch each end of the glass container.



As soon as the pieces of wood touch each end of the glass container, she repeats the experiment using the same oil.

Look at her results.

experiment number	time in seconds
1	28.4
2	26.1
3	21.3
4	17.5
5	12.2

- (a) Explain what causes the movement of the pieces of wood.

.....

.....

..... [2]

- (b) Complete the sentence about this investigation.

As the experiment number increases, the

..... [1]

- (c) Suggest **one** improvement to this experiment.

Explain your answer.

improvement

.....

explanation

.....

[2]

13 Rajiv investigates the reaction between solid sodium carbonate and dilute hydrochloric acid.

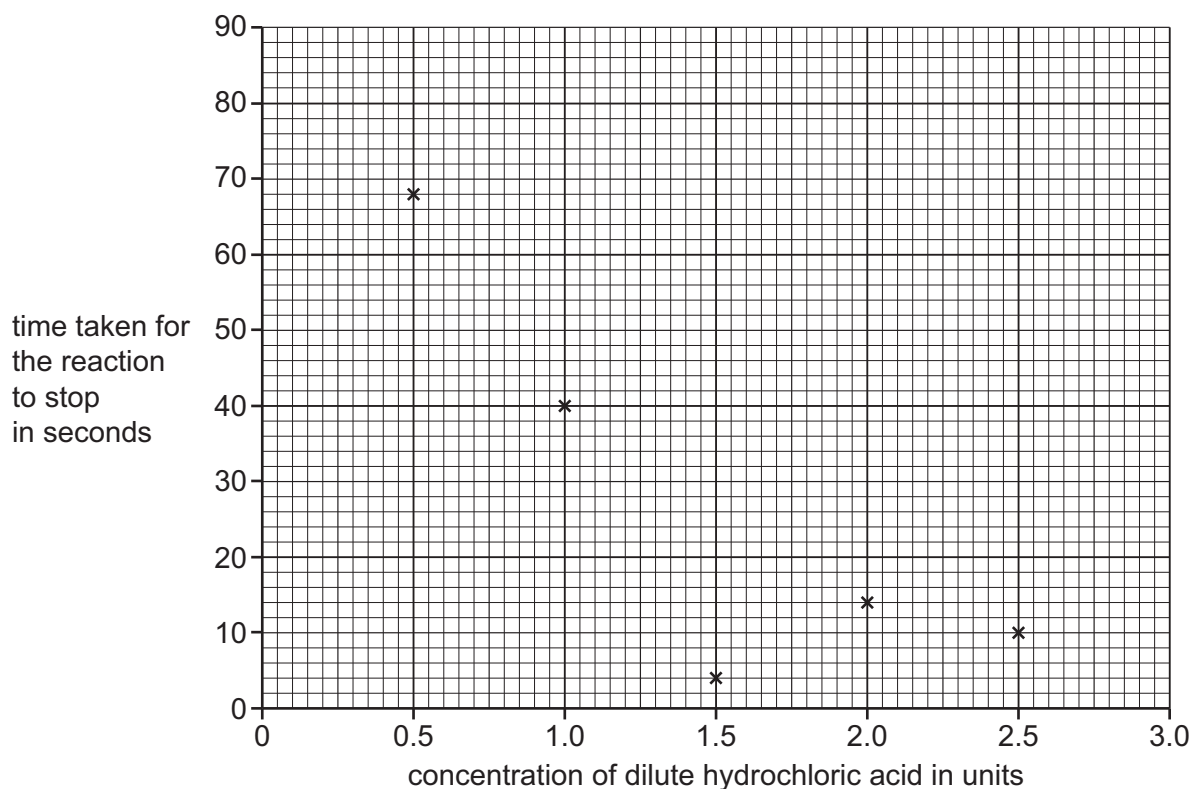
In his first experiment Rajiv:

- adds 1 g of sodium carbonate to 50 cm³ of dilute hydrochloric acid
- measures the time taken for the reaction to stop.

Rajiv repeats the experiment four more times.

Each time he uses a different concentration of dilute hydrochloric acid at the same temperature.

Look at the graph of his results.



(a) One of his results is anomalous.

Circle the anomalous result.

[1]

(b) Describe the trend between concentration of dilute hydrochloric acid and time taken for the reaction to stop.

.....

..... [1]

- (c) Rajiv concludes that increasing the concentration of dilute hydrochloric acid increases the rate of reaction.

Do his results support his conclusion?

Tick (✓) the correct box.

yes ☐ no ☐

Explain your answer.

.....

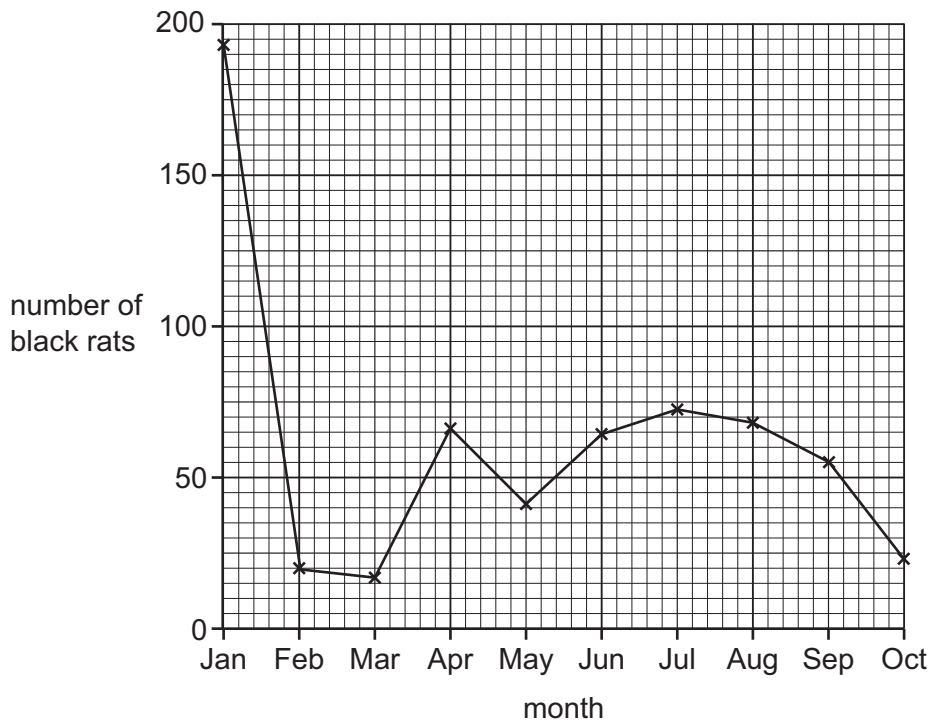
.....

[1]

14 The drawing shows a black rat.



The graph shows data for the number of black rats captured in traps on an island.



(a) Describe the change in the number of black rats captured from:

- January (Jan) to March (Mar)
- April (Apr) to October (Oct).

January (Jan) to March (Mar)

.....

April (Apr) to October (Oct)

.....

[2]

(b) The number of black rats on the island is greater than the number shown in the graph.

Suggest **one** reason why.

.....

.....

[1]

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The Periodic Table of Elements

Group																													
1	2						3	4	5	6	7	8																	
				1 H hydrogen 1									2 He helium 4																
						Key atomic number atomic symbol name relative atomic mass																							
3 Li lithium 7	4 Be beryllium 9																												
11 Na sodium 23	12 Mg magnesium 24																												
19 K potassium 39	20 Ca calcium 40	21 Sc scandium 45	22 Ti titanium 48	23 V vanadium 51	24 Cr chromium 52	25 Mn manganese 55	26 Fe iron 56	27 Co cobalt 59	28 Ni nickel 59	29 Cu copper 64	30 Zn zinc 65	31 Ga gallium 70	32 Ge germanium 73	33 As arsenic 75	34 Se selenium 79	35 Br bromine 80	36 Kr krypton 84												
37 Rb rubidium 85	38 Sr strontium 88	39 Y yttrium 89	40 Zr zirconium 91	41 Nb niobium 93	42 Mo molybdenum 96	43 Tc technetium —	44 Ru ruthenium 101	45 Rh rhodium 103	46 Pd palladium 106	47 Ag silver 108	48 Cd cadmium 112	49 In indium 115	50 Sn tin 119	51 Sb antimony 122	52 Te tellurium 128	53 I iodine 127	54 Xe xenon 131												
55 Cs caesium 133	56 Ba barium 137	57–71 lanthanoids		72 Hf hafnium 178	73 Ta tantalum 181	74 W tungsten 184	75 Re rhenium 186	76 Os osmium 190	77 Ir iridium 192	78 Pt platinum 195	79 Au gold 197	80 Hg mercury 201	81 Tl thallium 204	82 Pb lead 207	83 Bi bismuth 209	84 Po polonium —	85 At astatine —	86 Rn radon —											
87 Fr francium —	88 Ra radium —	89–103 actinoids		104 Rf rutherfordium —	105 Db dubnium —	106 Sg seaborgium —	107 Bh bohrium —	108 Hs hassium —	109 Mt meitnerium —	110 Ds darmstadtium —	111 Rg roentgenium —	112 Cn copernicium —	113 Nh nihonium —	114 Fl flerovium —	115 Mc moscovium —	116 Lv livermorium —	117 Ts tennessine —	118 Og oganeson —											
lanthanoids																													
57 La lanthanum 139		58 Ce cerium 140		59 Pr praseodymium 141		60 Nd neodymium 144		61 Pm promethium —		62 Sm samarium 150		63 Eu europium 152		64 Gd gadolinium 157		65 Tb terbium 159		66 Dy dysprosium 163		67 Ho holmium 165		68 Er erbium 167		69 Tm thulium 169		70 Yb ytterbium 173		71 Lu lutetium 175	
89 Ac actinium —		90 Th thorium 232		91 Pa protactinium 231		92 U uranium 238		93 Np neptunium —		94 Pu plutonium —		95 Am americium —		96 Cm curium —		97 Bk berkelium —		98 Cf californium —		99 Es einsteinium —		100 Fm fermium —		101 Md mendelevium —		102 No nobelium —		103 Lr lawrencium —	
actinoids																													