

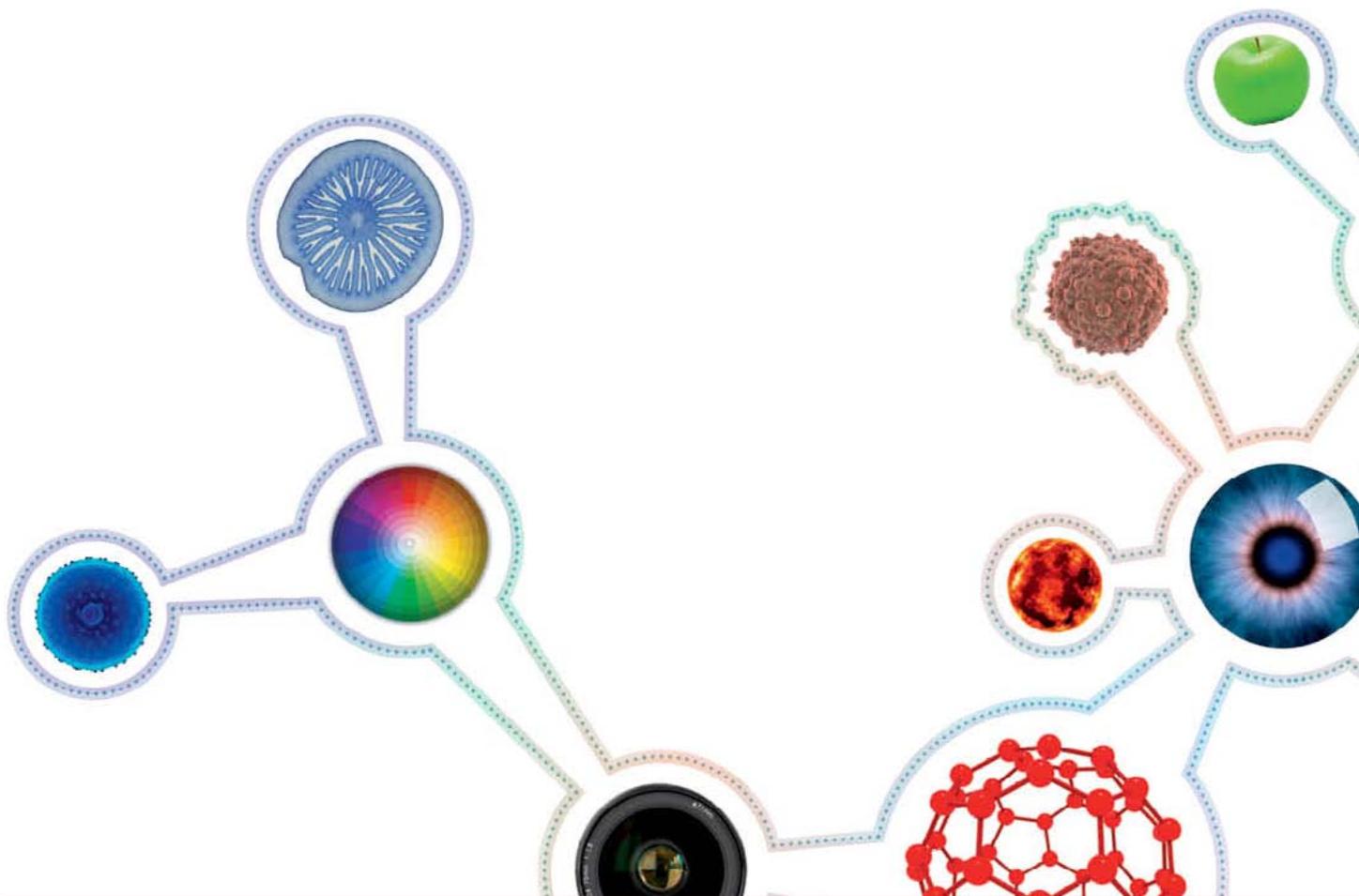


ENTRY LEVEL CERTIFICATE  
IN SCIENCE  
**SUPPORT BOOKLET**

VERSION 1 AUGUST 2011

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**SECTION A****COURSE OUTLINE****OVERVIEW**

This course has been designed to meet the needs of Key Stage Four students who are either not ready to, or cannot, cope effectively with the demands of GCSE. These students will have some knowledge and understanding of science but need to build on this foundation to develop greater confidence in the subject.

A range of centres currently follow the course and include mainstream schools, special schools, secure units, EBD centres, residential units and FE colleges. The course was first certificated in 1998 and since then many thousands of students have benefited from the experience of a hands-on science course that is relevant to their needs.

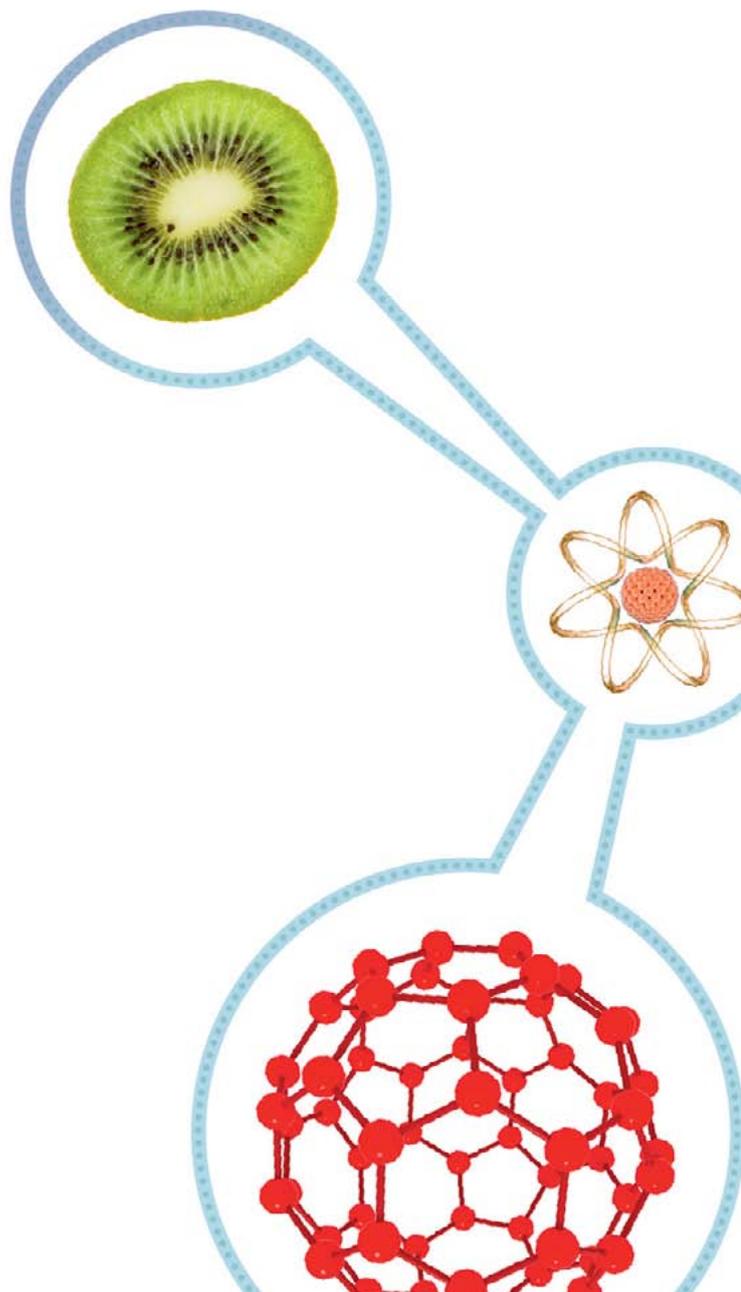
An important feature of Entry Level Science is that it is co-teachable with GCSE, not only for practical reasons in terms of the management of groups of students, but also to facilitate GCSE entry for some students towards the end of the course.

The course is very flexible: the content can be covered in any order and the practical activities can be selected by the teacher to best meet the needs of the students. The course can be started before Year 10, can be extended over more than 2 years and, if necessary, only part of the course needs to be taught.

The course content has been divided into 39 separate sections called items. There are equal numbers of Biology, Chemistry and Physics items. Each item can be covered in a short time period. This has advantages in terms of the limited attention span of many of the students. It also permits a range of topics to be covered and allows topics to be revisited. There is an end-of-item test for each of the 39 items. Teachers can choose the most suitable time for students to take a particular test and then provide feedback to students on their performance. For each of the 39 items there are plenty of possible practical activities and, again, there is flexibility for teachers to choose which of these are most suitable for their students.

**ENGAGING THE STUDENT**

A key feature of the course is the regular assessment of a student's knowledge, understanding and practical ability using short written tests and classroom practical activities. This assessment is carried out by the teacher at regular intervals, allowing frequent and rapid student feedback. Experience shows that this approach allows plenty of opportunities for teachers to recognise their students' achievements and this in turn encourages student interest and develops students' confidence in the subject. In this way, Entry Level Science can act as a springboard for students, allowing them the possibility of progressing from Entry Level to GCSE Science.



## ASSESSMENT SUMMARY

There are three aspects that are assessed and can gain points during the course.

1. A maximum of **70 points** can be achieved from the written end-of-item tests, taken when the student has completed each of the items.
2. A maximum of **10 points** can be achieved from the can-do tasks, which are practical activities integrated with the normal teaching and learning of the course.
3. A maximum of **20 points** can be achieved from a practical task chosen by the teacher and closely linked to the teacher's Scheme of Work. Part of the task is completed under supervision and then assessed using defined performance descriptors.

The points obtained during the course are added together to give a final total points score.

## MARKS TO POINTS CONVERSION

The frequent assessments mean that students will gain many marks throughout the course. To make the handling of a large number of marks easier, both for students and for teachers, these marks are converted into points. Each point represents 1% of the overall course.

The awarding of points acknowledges a student's progress in each of the three areas of the assessed work during the course. The number of points achieved determines the level of the certificate that can be awarded.

To keep track of a student's marks a paper-based Candidate Record Card can be downloaded from Interchange, and an interactive version is also available. Centre-devised record keeping systems are also acceptable, providing that the level of detail in the record is equivalent to that shown on the paper-based Candidate Record Card (see Appendix 1).

## END-OF-ITEM TESTS (70 POINTS)

Each of the 39 items has an associated end-of-item test and students can use the results they obtain from a **maximum** of 35 of these tests. There is an expectation that students will follow a balanced course, with approximately equal numbers of the tests selected from Biology, Chemistry and Physics items.

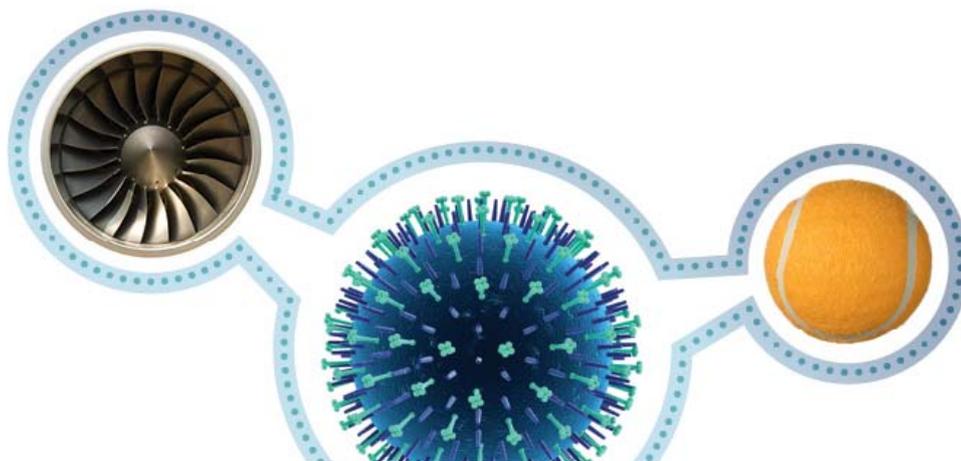
Each test has a total of 15 marks and the question paper is four A4 pages. These can be copied onto A3 paper so that folded booklets can be produced. Most students will complete a test in about ten minutes. It is not necessary for all students to take a particular test at the same time, but a student is only allowed to take a particular test on one occasion.

**The tests must be taken under the direct supervision of the teacher and examination conditions are necessary. Each test can be taken only once.**

Teachers are allowed to decide when each test is taken. Tests need to be kept under secure conditions both **before** and **after** the students have taken them.

Teachers may view the end-of-item tests before the teaching of the item starts. It may be important to let the Examinations Officer know this.

Examples of end-of-item tests are provided in Section B.



## UPDATING END-OF-ITEM TESTS

Each year a new set of 39 end-of-item tests will be published on Interchange and the tests will have the year of publication in the header. For example, the tests published in 2011 state that they are to be used 'From 2011'. Students starting the course in September 2011 should sit the 'From 2011' tests throughout their course up to the point of Final Certification, which may be several years after they started.

All tests are required to be stored securely, both **before** and **after** students have taken them.

Unwanted tests should be treated as confidential waste and disposed of accordingly.

The Entry Level Science course can be started at any time of year, but if it is started early in the year the next set of end-of-item tests may not be available on Interchange. For example, if the course is started in March 2012 then the 'From 2012' end-of-item tests would not be available. In these circumstances, the 'From 2011' tests should be used for these students for the entirety of the course.

There is a rolling programme for refreshing the end-of-item tests so that each year 13 of the 39 tests are replaced.

## CAN-DO TASKS (10 POINTS)

A practical hands-on approach is fundamental to this Entry Level course and there will be many opportunities for students to demonstrate their skill at various simple practical tasks. Successful completion of these simple can-do tasks is a positive experience for students, helping to build their confidence. There are tasks associated with each item, although they can be assessed in the context of any other suitable item.

The can-do tasks are grouped into three levels of performance that correspond to: Entry 1 (**1 mark** tasks), Entry 2 (**2 mark** tasks) and Entry 3 (**3 mark** tasks). Students should be provided with opportunities throughout the course to take can-do tasks at an appropriate level. As students' abilities develop they will be able to progress to more difficult tasks of a higher level.

Teachers can choose to assess as many of these tasks as are appropriate to the likely attainment level of their students.

For Final Certification, the **best 10 tasks** completed by each student are counted.

The total mark (out of a maximum of 30 marks) is divided by three to give a points total for the can-do tasks (maximum 10 points).

A listing of the can-do tasks is printed on the Candidate Record Card (see Appendix 1).

## PRACTICAL TASK (20 POINTS)

Students are given a question linked to the topic they have studied and have to plan a procedure to enable them to answer the question.

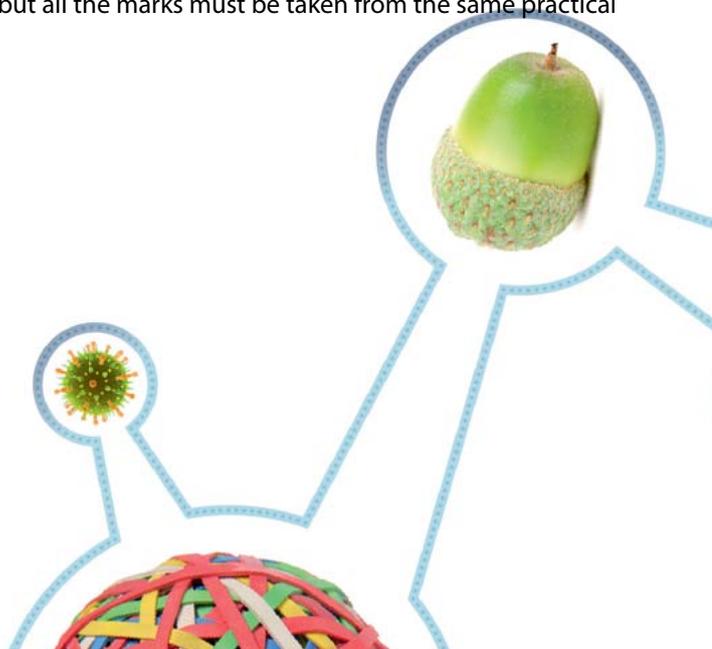
After the student plans have been checked, the students collect data.

Students then work **individually, under supervision**, to process, display and interpret their data in order to answer the question given.

Finally, they comment on aspects of the procedure that have been used to collect the data.

The students' reports are assessed using five defined performance descriptors, each with a maximum mark of four. The total mark out of 20 is converted directly into points.

Students can attempt as many of these practical tasks as they want, but all the marks must be taken from the same practical task.



## CERTIFICATION

During the course students will be assessed on their progress and will start to accumulate marks. These marks will be converted to a **points** score. Attainment during the course is recognised by the award of Interim Certificates when a specific number of points has been gained. The Interim Certificates, which are awarded by the teacher, can be presented formally or informally to each student in a manner left to the discretion of the centre. For some students the receipt of an Interim Certificate may be the only occasion during Key Stage Four when they can receive public recognition of their achievement.

The points obtained by each student during the course are recorded so that they can be used for Final Certification. When students have been entered for Final Certification, following OCR entry procedures, each student's points total will need to be submitted to OCR so that a Final Certificate at **Entry 1, Entry 2 or Entry 3** can be awarded. This will follow moderation of the centre's marks.

## INTERIM CERTIFICATES

Students achieving a total of 40, 60 or 80 of the available 100 points are eligible for **Bronze, Silver** and **Gold** Interim Certificates respectively.

A student achieving 40 points can be awarded a **Bronze Certificate** and then go on to get a **Silver Certificate** by accumulating another 20 points to add to their 40 points, making a total of 60 points. Accumulating a further 20 points would lead to a total of 80 points and the award of a **Gold Certificate**.

Many teachers actively encourage students to monitor their own progress as a fundamental part of the recognition of achievement. A student who is aware, for example, that 56 points have already been achieved is likely to make the additional extra effort in order to obtain a **Silver Certificate** in the shortest possible time.

## INTERIM AWARDS

### Interim Bronze Award

Students gain an Interim Bronze Award when they have accumulated a total of 40 points. This total can be obtained in a variety of ways.

This total could be obtained from a student who gained about half marks in 20 end-of-item tests, had demonstrated

success in some of the can-do tasks, and might have completed with some success a suitable practical task.

This level of attainment could represent the performance of a low-attaining student over the whole of the course. Alternatively, it could represent the performance of an under-achieving GCSE student during the autumn term in Year 10.

### Interim Silver Award

This level of award demands a sustained effort on the part of a student.

This total could be achieved by obtaining an average of half marks on a wide range of end-of-item tests and by the successful demonstration of a range of can-do tasks selected from both the Level 1 and Level 2 lists.

In the practical task the student might be able to plan to collect some useful data, be able to collect and process it, and then to make realistic comments on the suitability of the procedure used to collect it.

However, since the level of attainment is determined solely by the accumulation of points, a wide variety of competence in the separate components is possible.

For some Entry Level students, the gaining of this level of award represents a challenging target.

### Interim Gold Award

This level of award represents a considerable amount of achievement gained by a consistent effort over a significant length of time.

A student might have obtained high marks (12 – 15 marks) for more than 25 end-of-item tests, demonstrated success in the majority of the Level 1, Level 2 and Level 3 can-do tasks selected by the centre, and fully demonstrated their capability in a practical task.

Again, since the credit is based on the simple aggregation of points from a variety of activities, there are many possible ways for students to achieve the Gold Award.

Students achieving Interim Gold Awards are likely to benefit from entry to the Foundation Tier of an OCR GCSE course. Either Specification A (21st Century Science) or Specification B (Gateway Science) are appropriate courses for teachers to consider.

## SECTION B

## END-OF-ITEM TESTS

## END-OF-ITEM TESTS AND MARK SCHEMES

The end-of-item tests account for a maximum of 70 points which students can gain during their progress through the course. It is essential that all teachers mark the tests consistently and accurately.

All marking must be done in red ink/ biro and acceptable answers need to be indicated using a tick (✓). All answers that are wrong or are too vague should have a cross (X) against them. Omissions should be indicated by the use of the (^) sign. All responses given by the student should show clearly that the teacher has considered the answer given.

It is not necessary to total the mark for each question, as required for GCSE marking.

In rare cases the students may give an answer that is not provided on the mark scheme. If the teacher considers that the answer is worth the mark, then it should be awarded. In such cases the test paper should be annotated so that an external moderator can understand why the mark has been awarded if the work is part of the moderation sample.

A consistent approach is used for any rubric infringements which occur when students are answering multiple response questions. In general, a student is rewarded for the number of correct answers required in the question. Each additional incorrect attempt results in the loss of one mark (minimum mark = 0).

## END-OF-ITEM TEST MARKING

Converting the marks to points for each test means that any minor differences in judgments, occurring when teachers interpret the defined mark scheme in the light of what their own students have written, can be smoothed out.

The tests are designed to be accessible to students and even the lowest-attaining student can gain some of the marks. Evidence has shown that candidates welcome (and even enjoy) taking their tests at regular intervals during the course.

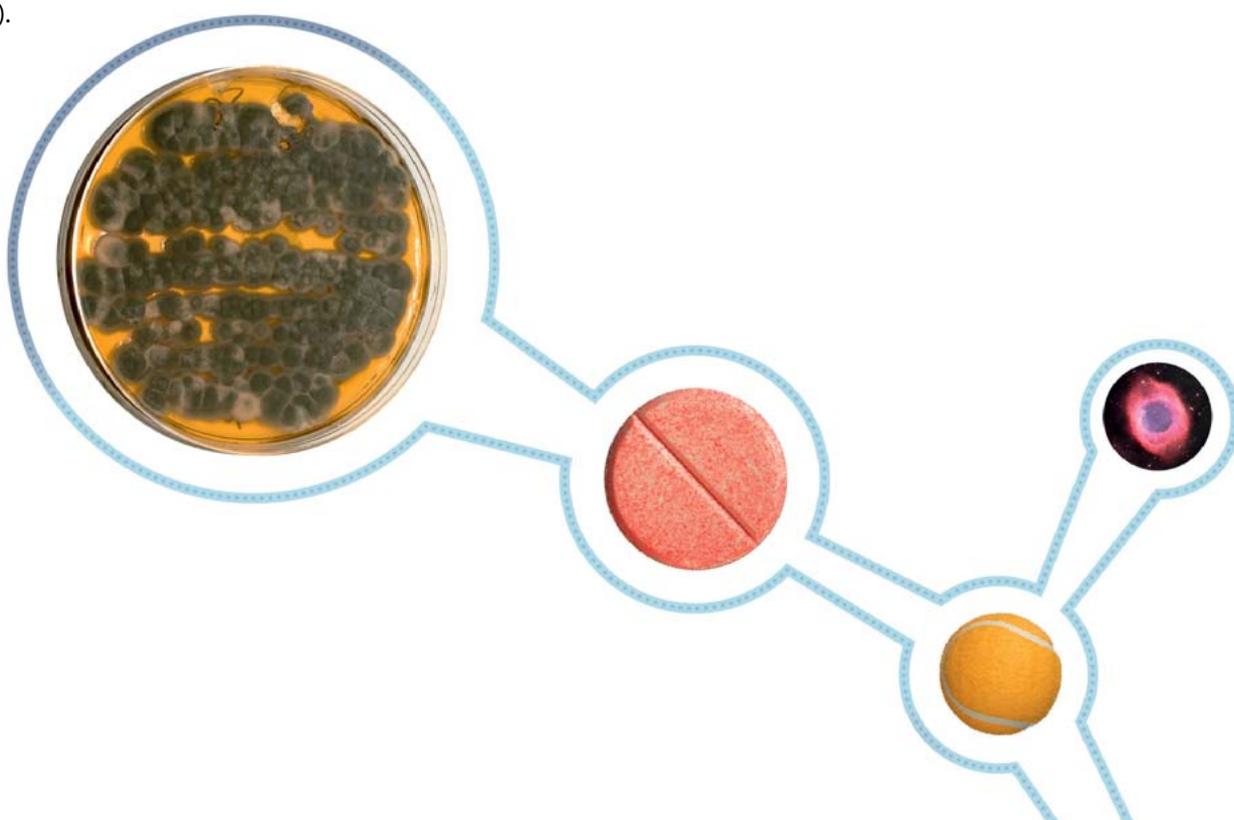
The overwhelming majority of students expect immediate feedback on their performance in the tests and teachers are strongly advised to make arrangements to provide this, since this tends to enhance both student motivation and attainment.

## EXAMPLE END-OF-ITEM TESTS

Three marked specimen tests are included, and each test is accompanied by the corresponding mark scheme. The tests have been annotated at appropriate places to illustrate particular points of the student's response.

**Please note:**

**If an amanuensis is used (or any special help is given), this needs to be indicated on the front of the end-of-item test to which it applies.**



**ENTRY LEVEL CERTIFICATE**  
**SCIENCE**

**R591 B1**

Test B1 Dead or Alive

Candidates answer on the question paper

**OCR Supplied Materials:**  
None

**Duration:** 10 minutes

**Other Materials Required:**  
• None

Candidate Forename	Russell	Candidate Surname	SPROUTE
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Centre Number	2	0	6	7	8	Candidate Number	1	8	0	5
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**INSTRUCTIONS TO CANDIDATES**

- Write your name, Centre Number and Candidate Number in the boxes above. Please write clearly and in capital letters.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Answer **all** the questions.

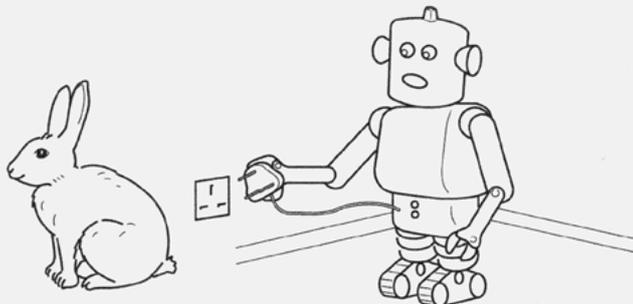
**INFORMATION FOR CANDIDATES**

- The number of marks for each question is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is **15**.
- This document consists of **4** pages. Any blank pages are indicated.

For Teacher's Use	
Raw Mark/ 15	<b>13</b>
Points/ 2	<b>2</b>

Answer all the questions.

1 Tom and Geri are comparing a rabbit and a robot.



They want to know why the rabbit is alive but the robot is not.

They fill in a table to show what each one can do.

(a) Finish the table by writing **yes** or **no** in the five shaded boxes.

what it can do	rabbit	robot
it can breathe	yes	no ✓✓
it can digest food	yes ✓✓	no
it can grow	yes	no ✓✓
it can move	yes	yes ✓✓
it can reproduce	yes ✓✓	no
it can sense things	yes	yes

[5]

(b) Living things need oxygen to release energy from glucose.

What name is used to describe the process that releases energy in living things?

Put a ring around the correct answer.

excretion

reproduction

respiration ✓✓

[1]

2 Roy's kidneys do not work very well.

A dialysis machine keeps him alive.

He is waiting for a transplant.

(a) Finish the sentences. Choose words from this list.

~~accepted~~

~~blood~~

donor

host

~~rejected~~

Dialysis removes waste from Roy's blood ✓✓

He hopes to have a new kidney from a ~~rejected~~ X

He hopes the new kidney will not be ~~accepted~~ X

[3]

The candidate's intention is clear, even though the word is not ringed. The mark can be awarded.

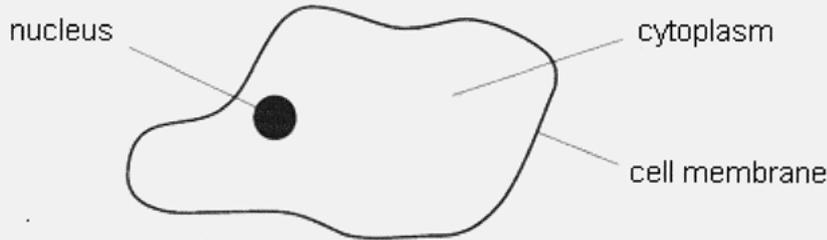
3

(b) Roy prefers a transplant to dialysis.

Suggest a reason why.

he dont need to keep going to the  
 kidney unit evry week ✓✓ [1]

3 The diagram shows an animal cell.



Finish these sentences. Choose labels from the diagram.

Everything that happens in the cell is controlled by the nucleus ✓✓

The cell is held together by the membrane ✓✓ [2]

4 Simon is investigating how exercise affects his pulse rate.

He measures his pulse rate while sitting down.

He then runs as fast as he can for one minute.

He then sits down and measures his pulse rate again.

Simons repeats this for different activities.

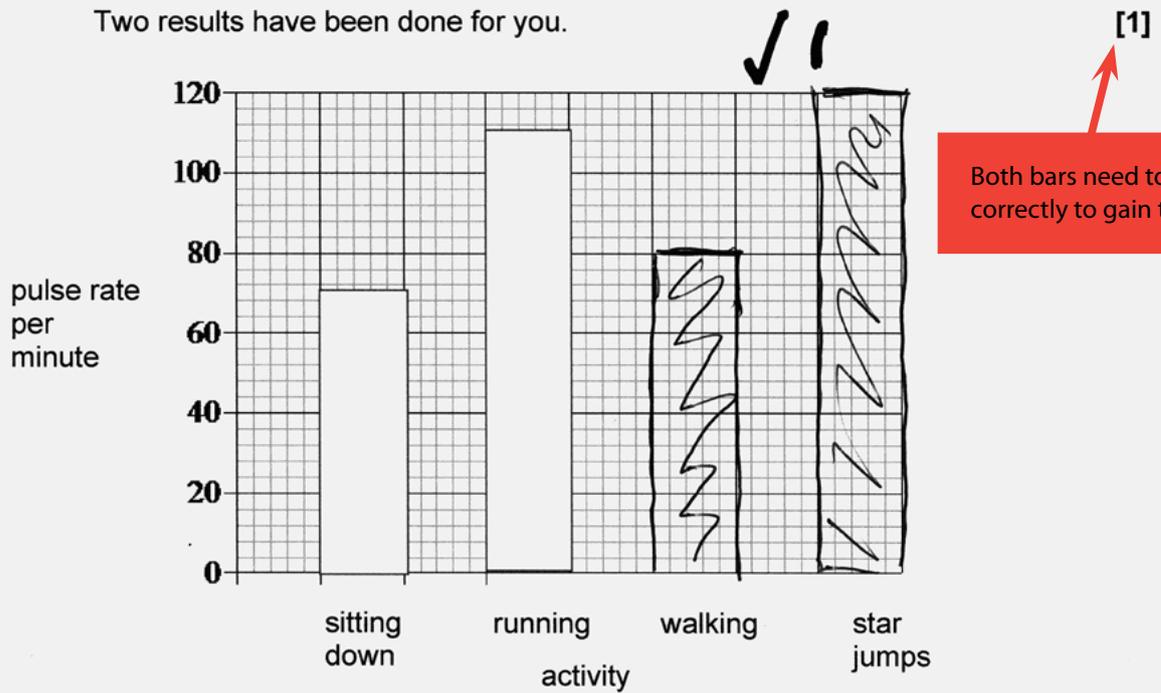
The table shows his results.

activity	pulse rate per minute
sitting down	70
running	110
walking	80
star jumps	120

Mark can be awarded despite the spelling error.

(a) Finish the bar chart of Simon's results.

Two results have been done for you.



(b) Which activity makes Simon's body work the hardest?

the star-jumps = 120 [1]

Explain your answer.

as the biggest [1]



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## Test B1 Dead or Alive

## Mark Scheme

## SPECIMEN

Question		Expected answers	Marks
1	(a)	no yes no yes yes	[5]
1	(b)	respiration	[1]
<b>Total</b>			<b>[6]</b>

Question		Expected answers	Marks
2	(a)	blood donor rejected	[3]
2	(b)	any sensible suggestion eg does not have to keep visiting hospital	[1]
<b>Total</b>			<b>[4]</b>

Question		Expected answers	Marks
3		nucleus (cell) membrane	[2]
<b>Total</b>			<b>[2]</b>

Question		Expected answers	Marks
4	(a)	bar at 80 bar at 120	[1]
4	(b)	when Simon is doing star jumps pulse rate is the highest/biggest bar on graph	[1] [1]
<b>Total</b>			<b>[3]</b>



SPECIMEN

**ENTRY LEVEL CERTIFICATE**

**SCIENCE**

Test C11 CSI Plus

**R591 C11**

Candidates answer on the question paper

**OCR Supplied Materials:**

None

**Other Materials Required:**

- None

**Duration:** 10 minutes

Candidate Forename	Harry	Candidate Surname	COBBEEN
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Centre Number	2	0	6	7	8	Candidate Number	0	0	9	7
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**INSTRUCTIONS TO CANDIDATES**

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For Teacher's Use	
Raw Mark/ 15	12
Points/ 2	2

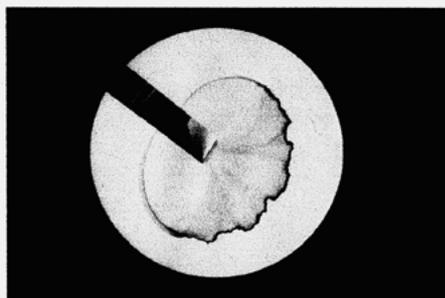
Answer all questions.

1 Bank cheques can be altered by criminals.

Martyn F. Chillmaid / SPL



Numbers and words can be added to make it worth more



This method shows the colours in the ink used to write the cheque.

(a) What is this method for testing inks called?

Put a tick (✓) in the correct box.

chromatography	<input type="checkbox"/>
crystallisation	<input type="checkbox"/>
evaporation	<input type="checkbox"/>
filtration	<input type="checkbox"/>

No attempt by Harry. Omission signs used to indicate that the teacher has considered the lack of response

[1]

(b) Finish these sentences to describe how this method works.

Choose the best **two** words from this list.

- dissolve    evaporate    further    harder  
 less    melt    solidify

Coloured dyes in the ink move because they dissolve

More soluble dyes move quickly

[2]

Not chosen from the list. Mark not awarded.

(c) How would this method show if a cheque had been altered?

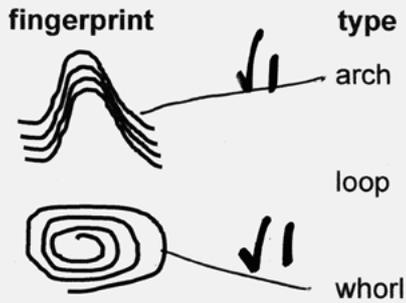
see if colours is different

[1]

2 Fingerprints are often left at a crime scene.

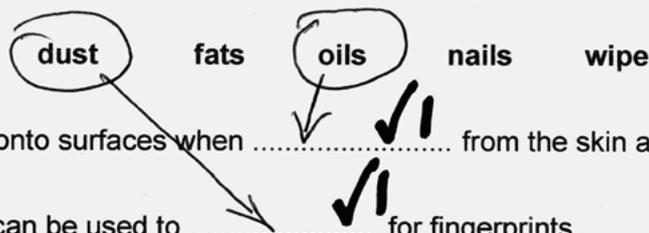
(a) Fingerprints can be sorted into three types.

Draw a straight line from each **fingerprint** to its correct **type**.



[2]

(b) Finish the sentences by choosing the best words from this list.



Fingerprints get onto surfaces when ..... from the skin are left.

Special powder can be used to ..... for fingerprints.

[2]

(c) What two things must you do to make a record of your fingerprints?

Put ticks (✓) in the boxes next to the **two** correct statements.

- dip your finger into salt crystals
- push your finger onto an ink pad  ✓ ✓/1
- roll your finger onto white paper  ✓ ✓/1
- wrap filter paper around your finger

[2]

(d) At a crime scene, the police take fingerprints from innocent people.

Suggest why.

..... show there not guilty ..... <sup>bad</sup> ✓/1

An acceptable answer and the mark is awarded.

- 3 Amy is a crime scene investigator.  
She is collecting soil from a shoe.

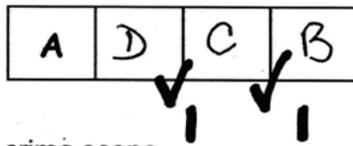


Louise Murray / SPL

The stages are shown below. They are in the wrong order.

- ✓ A Amy puts on her gloves.
- B Amy puts the sample in a bag and labels it.
- C Amy scrapes the soil of the shoe.
- ✓ D Amy puts a clear sheet on a table.

Fill in the boxes to show the correct order. One has been done for you (✓).



[2]

- 4 The police find some blood at a crime scene.



They test the blood and find it is blood group A.  
They also get a DNA test done on the blood.

Why is having DNA evidence better than just knowing the blood group?

DNA is difrent for everyone so its  
unigk ✓✓

A [2]

Harry makes no reference to blood group.  
Only one mark awarded.  
"unigk" = 'unique'



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Question		Expected answers	Marks
1	(a)	chromatography	[1]
	(b)	dissolve further	[2]
	(c)	idea of comparing the colours (in different samples) needed	[1]
<b>Total</b>			<b>[4]</b>

Question		Expected answers	Marks
2	(a)	 line drawn to arch  line drawn to whorl	[2]
	(b)	oils dust	[2]
	(c)	tick in box 2 – push your finger onto an ink pad tick in box 3 – roll your finger onto white paper	[2]
	(d)	to eliminate them from enquiries (owtte)	[1]
<b>Total</b>			<b>[7]</b>

Question		Expected answers	Marks
3		D before C C before B (correct order A,D,C,B)	[2]
<b>Total</b>			<b>[2]</b>

Question		Expected answers	Marks
4		lots of people have the same blood group DNA is unique / everyone's DNA is different	[2]
<b>Total</b>			<b>[2]</b>



SPECIMEN

## ENTRY LEVEL CERTIFICATE

## SCIENCE

Test P9 Driving Along

R591 P9

Candidates answer on the question paper

## OCR Supplied Materials:

None

Duration: 10 minutes

## Other Materials Required:

- None

Candidate Forename	Sala	Candidate Surname	DUNNION
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Centre Number	2	0	6	7	8	Candidate Number	1	1	2	4
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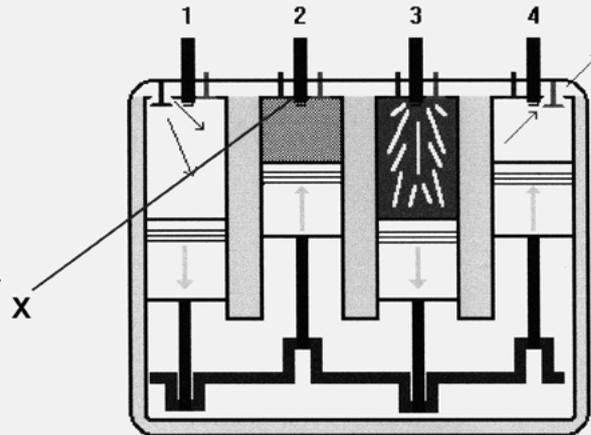
Answer all questions.

1 Most cars use petrol as the fuel.

(a) Write down the name of one other fuel used in cars.

..... 1 ✓ diesel ..... [1]

(b) The picture shows the four strokes of a petrol engine.



(i) The part labelled X provides the source of ignition.

What is this part called? Put a ring around the correct answer.

exhaust valve

inlet valve

piston ring

spark plug ✓✓

[1]

(ii) Look at the diagram.

Finish the table by writing in the number next to the name of the stroke.

One has been done for you.

stroke name	stroke number
compression	2
exhaust	• 4
ignition or power	• 3
induction	• 1

Only two marks are available. The teacher has used dots to indicate the three correct responses.

✓✓✓

[2]

2 Motor cars use different machines to make them work.

(a) Finish the sentence by choosing the best words from this list.

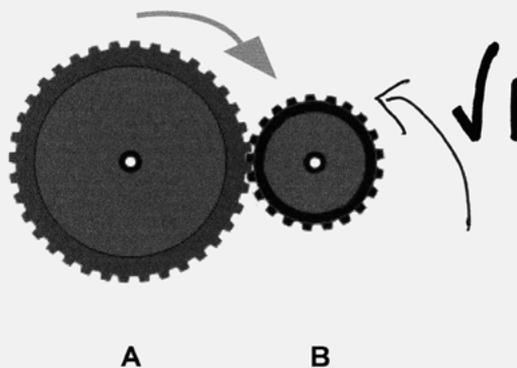
- brake pedal
- gear lever
- headlamp bulb
- steering wheel

The wheel and axle is a machine used by the ..... brake pedal ..... [1]

(b) The diagram shows two gear wheels.

Wheel A is turning in the direction shown by the arrow.

Wheel A is turning wheel B.



(i) Wheel A has 75 teeth and wheel B has 25 teeth.

Calculate the gear ratio for the gear system.

gear ratio = ..... 75 ~~X~~ ~~X~~ ..... [2]

(ii) Draw an arrow on the diagram to show which way wheel B turns. [1]

3 John drives 150km in 3 hours.

What is his average speed?

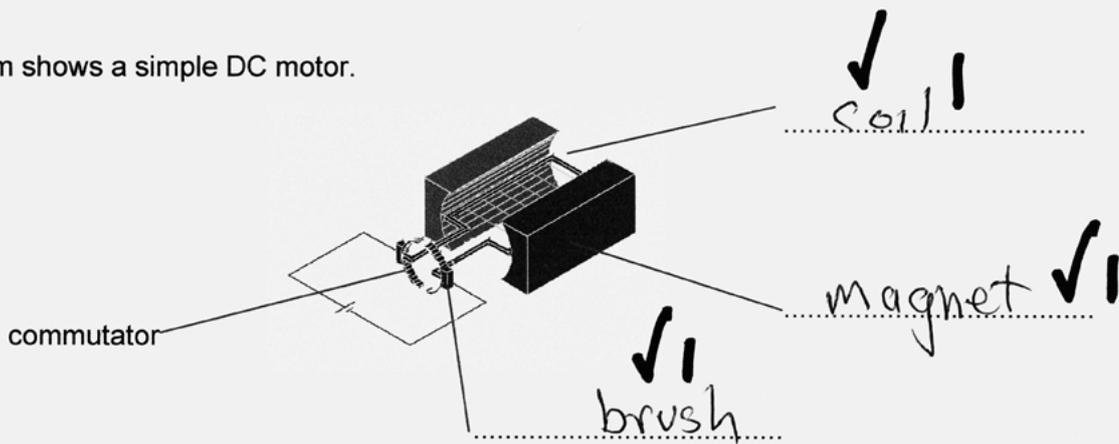
Put a ring around the correct answer.

- 50km/h     147km/h     153km/h     450km/h

[1]

4

4 The diagram shows a simple DC motor.



(a) Finish labelling the diagram. Choose **three** words from this list.

~~brush~~

coil

~~magnet~~

rotator

[3]

(b) Write down **one** use for a motor in a car.

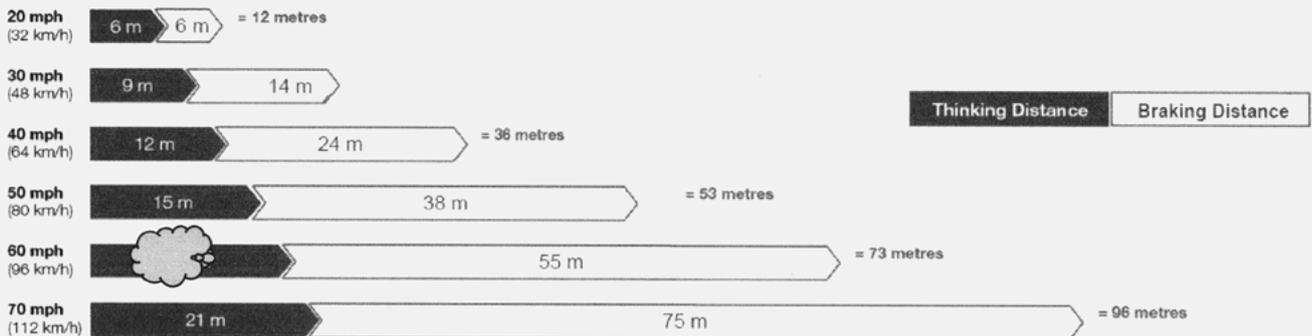
wipers ✓

[1]

5 Sally is looking at a table of stopping distances from the Highway Code.

There is an ink blob on the page hiding one of the distances.

**Typical Stopping Distances**



(a) How does Sally know that the stopping distance at 30mph is 23m?

becos  $9 + 14 = 23$  ✓

[1]

(b) What is the thinking distance when a car is travelling at 60mph?

Choose from

16m

17m

18m

19m

20m

thinking distance = 18 m [1]



**Copyright Information:**

Q5 image of stopping distances adapted © Crown Copyright

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## Test P9 Driving Along

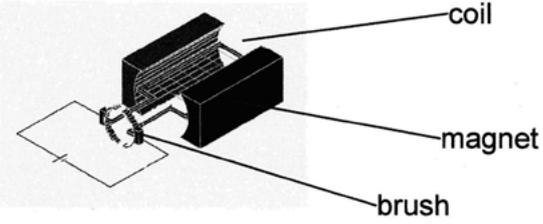
## Mark Scheme

## SPECIMEN

Question			Expected answers	Marks
1	(a)		diesel/biofuel/ethanol/alcohol/waste oil/LPG	[1]
1	(b)	(i)	spark plug	[1]
1	(b)	(ii)	exhaust – 4 ignition – 3 induction – 1  all correct = 2 1 or 2 correct = 1	[2]
<b>Total</b>				<b>[4]</b>

Question			Expected answers	Marks
2	(a)		steering wheel	[1]
2	(b)	(i)	3 but if answer incorrect 75/25 scores 1	[2]
2	(b)	(ii)	anticlockwise arrow	[1]
<b>Total</b>				<b>[4]</b>

Question			Expected answers	Marks
3			50km/h	[1]
<b>Total</b>				<b>[1]</b>

Question			Expected answers	Marks
4	(a)		 <p>The diagram shows a cross-section of an electric motor. A rectangular coil is positioned between the North and South poles of a permanent magnet. A split-ring commutator is attached to the coil, and two brushes are in contact with it. Labels with leader lines point to the 'coil', 'magnet', and 'brush'.</p>	[3]
4	(b)		windscreen wiper / starter / electric windows / screen washer / wing mirrors / heater	[1]
<b>Total</b>				<b>[4]</b>

Question			Expected answers	Marks
5	(a)		adds 9 and 14 together (owtte)	[1]
5	(b)		18	[1]
<b>Total</b>				<b>[2]</b>

## SECTION C

## CAN-DO TASKS

## CAN-DO TASKS (10 POINTS)

Can-do tasks form an integral part of the course and can be directly linked to activities within each of the items studied. They are designed to develop students' manipulative skills and many involve the practical activities undertaken by students as a normal part of their learning. However, and more importantly, they support the underlying 'I-can-do-it' philosophy of the course and supply, at frequent intervals, the necessary positive reminders of students' attainment.

Teachers are free to incorporate as many of these tasks as are relevant to their students' needs into their Scheme of Work, but for assessment purposes only the best 10 tasks can be counted towards a student's overall attainment. It is important for teachers to appreciate that each of these tasks should not be regarded as a 'one-off' opportunity for a student to demonstrate success; students can attempt each task more than once during the course.

Each task must be completed in its entirety before a student can be credited with success. The partial completion of a particular task is not permitted.

Teachers may wish to print out their selection of tasks and provide each student with a copy so that they can monitor their own progress.

The tasks will not be reviewed by OCR during the moderation process, but the records and the totalling will be carefully checked.

The best 10 can-do tasks should be added together to give an overall mark. If the student achieves 10 x Level 3 can-do tasks the maximum mark of 30 will be achieved. The overall mark achieved should be divided by 3 to give the points total. The maximum possible total is 10 points.

## PROGRESSION AND CAN-DO TASKS

The tasks are set at three levels of attainment and this differential tariff allows for the development of each student's skills during the course. In selecting tasks it is important to be aware of the likely attainment level of each student. The 1 mark tasks normally involve a single skill or technique, and in some cases there will be some residual evidence of attainment that can be used for assessment. In other cases it will be necessary to observe the student carrying out the task. The 2 mark and 3 mark tasks involve more complicated skills or techniques with more than a single stage.

The inter-linking of the can-do tasks provides teachers with a method of ensuring progression in the development of both the students' understanding of scientific procedures and their manipulative skills. Suitable tasks should be selected from the 36 that are listed on the Candidate Record Card (Appendix 1) to ensure that progression can be achieved.

The selection will require a consideration of:

- the resources available within the centre
- the likely attainment level of the candidates
- the size of the teaching group
- any perceived Health and Safety issues.

Can-do tasks can be assessed as part of a practical task. For example, in the planning phase of a practical task a student may suggest the need for 'fair testing' by using a standard volume of a liquid. If the student, in carrying out this plan to collect some data, is seen to measure out volumes of liquid, then access to Task 5 (*I can use a measuring cylinder to measure volumes.*) is possible.

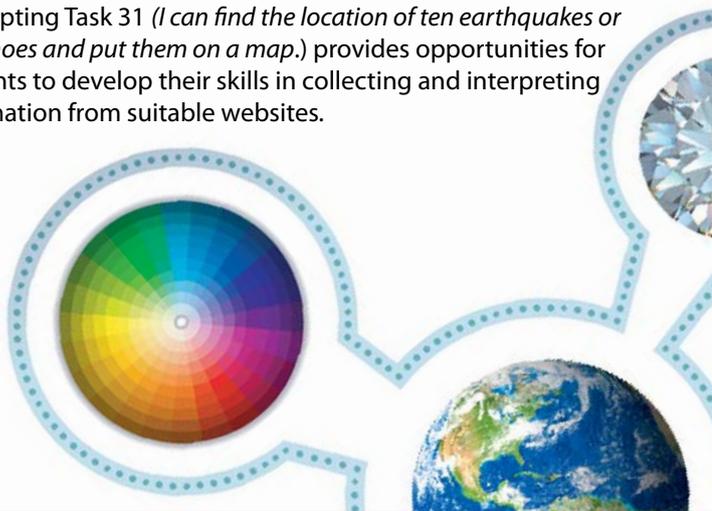
In the teaching of Item C5 Fibres and Fabrics, students may carry out a practical task involving different synthetic fibres. This activity allows access to a

- Level 1 can-do task, e.g. Task 7 (*I can add results to a bar chart.*)
- Level 2 can-do task, e.g. Task 20 (*I can make measurements to test a property of a fibre or a fabric.*)
- Level 3 can-do task, e.g. Task 28 (*I can measure length / distance accurately.*)

## LINKING TO ICT SKILLS

Task 12 (*I can produce a poster on the safe use of mobile phones.*), Task 16 (*I can make a leaflet to warn old people of the dangers of hypothermia.*) and Task 25 (*I can record my daily protein intake.*) all provide opportunities for students to enhance their word-processing and desktop publishing skills.

Attempting Task 31 (*I can find the location of ten earthquakes or volcanoes and put them on a map.*) provides opportunities for students to develop their skills in collecting and interpreting information from suitable websites.



## SECTION D

## PRACTICAL TASK

## SKILLS AUDIT

Students need to be equipped with the appropriate skills before there is any attempt to undertake and assess a practical task. Without such consideration, there is unlikely to be a realistic match between the quality of students' reports and their expected attainment levels.

It is advisable to carry out a skills audit for each of the five Aspects of the practical test. It may be that the necessary skills have already been sufficiently developed in earlier Key Stages so that further preparation is unnecessary. Some of the skills may have been developed in other curriculum areas, but it is recommended that checks are made. For example, it may be appropriate for some students to gather information from a library or the Internet in their planning. If these students do not understand how to make good use of a library or the Internet to do their research then they are unlikely to fulfil their potential.

Appendix 3 provides a suitable checklist for a skills audit.

Students are provided with some suitable stimulus material linked to the teaching and learning of the specification content. The stimulus material needs to be in the format of a question or an issue to which the candidate can develop an answer.

Each candidate is required to:

- devise a strategy which will enable some suitable, appropriate and relevant data to be collected safely
- underpin this strategy by research into the associated scientific knowledge and understanding of the question or issue
- collect first-hand data and record it in a suitable format
- process the data and identify patterns in it
- link the conclusions to the scientific knowledge and understanding underpinning the task
- comment about the procedure used and the quality of the data collected.

## THE STAGES OF A PRACTICAL TASK

The practical task is divided into three separate stages.

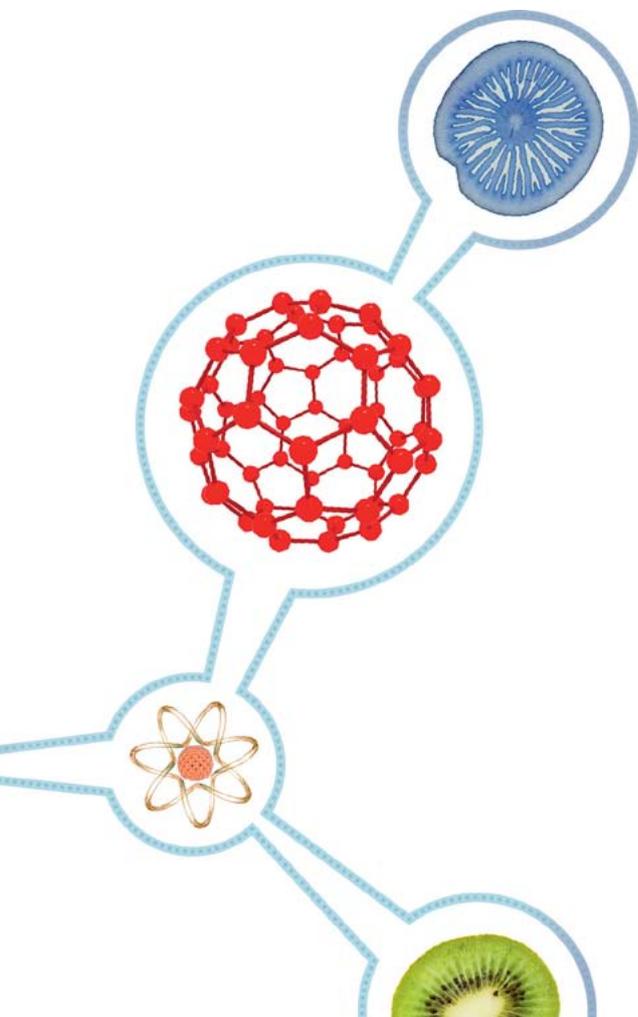
**Stage 1** - Teachers set students a practical task question and provide an introductory briefing so that students understand what is required of them. The students then work out their plan to collect data to answer the question. The students do not necessarily need to be directly supervised for this stage. They can work with others or at home to develop their plan and they may use the Internet for research. It is important, however, that each student writes about the planned procedure in their own words.

**Stage 2** - After the students' plans have been checked by the teacher for feasibility and for safety considerations, students collect data. This stage is supervised by the teacher but students can work in collaboration when collecting the data. Each student must, however, record the data individually in a suitable format.

The teacher retains the data for use in the next stage.

**Stage 3** - Students work individually, under the direct supervision of the teacher, to process and analyse their data and comment on the suitability of the procedure they used.

The recommended total time for the three stages is four hours, but it is recognised that some students may require more time.



## CHOICE OF PRACTICAL TASK

Some tasks are provided by OCR for centres to use.

Teachers are, however, free to develop their own tasks for use with their students. If teachers do develop their own tasks, it is important to ensure that:

- the advice and guidance given in this section are used when the tasks are being developed
- the background details underpinning the setting of the task and the overall rationale are sent to the moderator with the moderation sample. Without this background, the moderators will be unable to monitor, with any degree of certainty, the decisions made by the teacher about each candidate's work.

## THE TASK

Any practical task that is chosen needs to be directly linked to the teaching of the relevant parts of the Specification and be suitable for the needs of the students at the centre. Students will need to have the necessary background knowledge and understanding in order to tackle a practical task.

More complex tasks may involve additional resource requirements in terms of apparatus, space, time and supervision. A suitable simple task can still gain the highest marks in each of the Aspects being assessed.

The conceptual demands of the task chosen will need to be appropriate to the likely attainment levels of the students at the centre. Tasks involving difficult concepts are likely to be counterproductive for some of the candidates and may decrease their motivation.

It is vital that students are set a task where the question asked is both relevant and realistic and within the capabilities of the students.

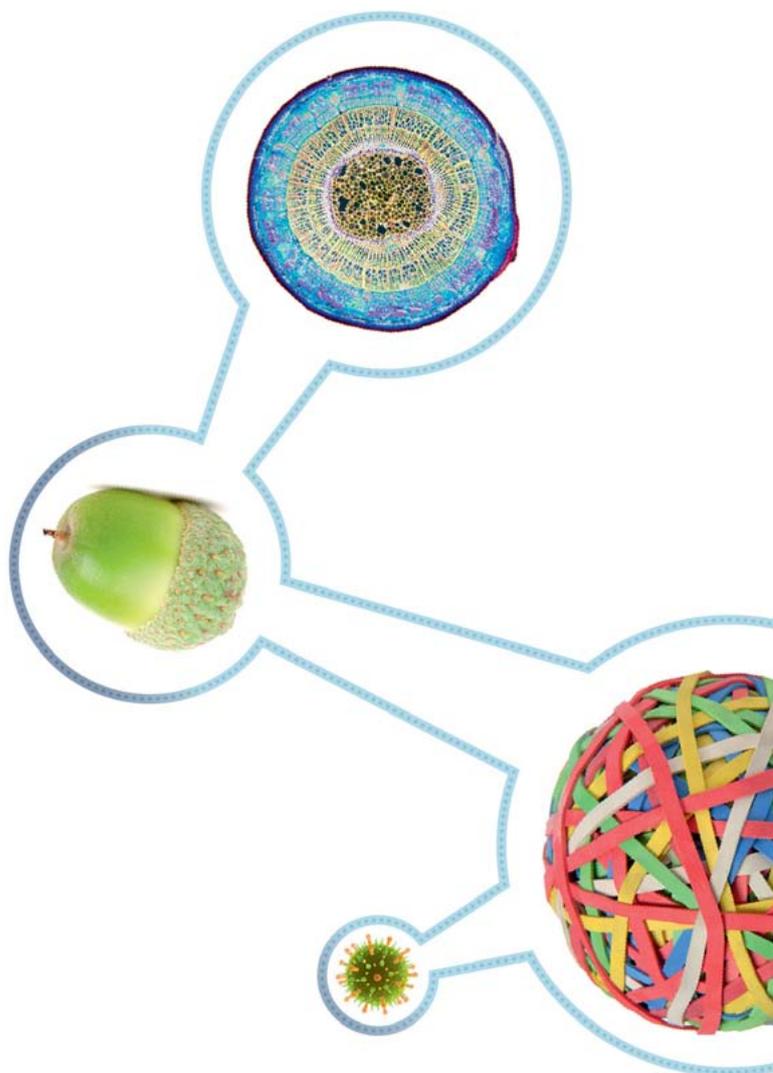
## EXAMPLE PRACTICAL TASKS

Two examples of tasks are printed in this section of the Teacher Support Booklet and these demonstrate a suitable style and format for use, along with actual examples of students' responses to these two tasks.

Other examples will be provided at Training Sessions organised by OCR.

Commercially available publishers' support materials are another useful source of suitable tasks.

The OCR Science Community website provides a suitable forum for teachers to exchange ideas about practical tasks. Joining the Science Community is very straightforward. The website address is <http://social.ocr.org.uk>



## EXAMPLE 1: PRACTICAL TASK ON CRATERS

The next 6 pages show all three stages of a practical task attempted by a student.

The first page shows the background sheet provided as stimulus material to the student. The stimulus material is designed to be visually attractive, well-presented and well-written so that the 'language' is accessible to students of differing abilities.

A useful strategy for saving resources is to number and laminate these stimulus sheets so that they can be collected in at the end of the practical task and then re-issued to another group of students.

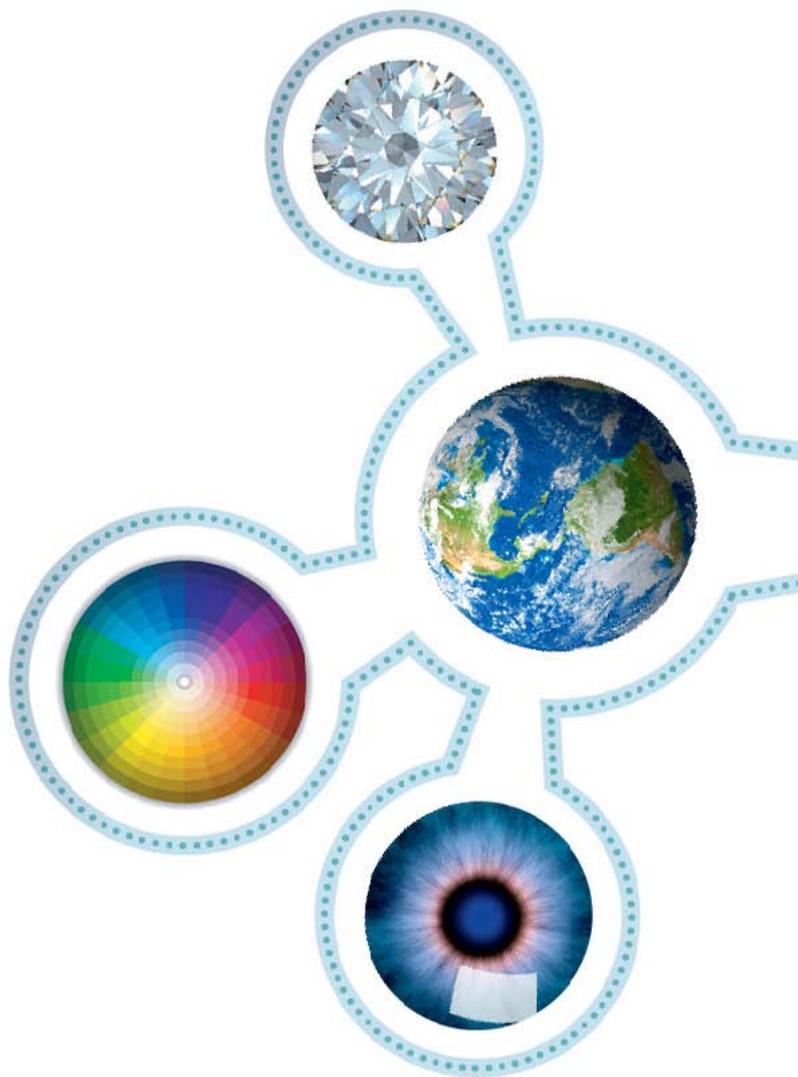
The second page is a sheet that the student completed whilst developing the plan. The student's words have been word processed, both for ease of reading and to preserve the anonymity of the student.

The third page shows the table of results that the student produced during stage 2 of the task.

The last three pages of the task are what the student wrote, individually, under examination conditions, during stage 3 of the task. The student had access to the work done during stages 1 and 2.

The performance descriptors used for the assessment are printed in Appendix 2.

Following the practical task there is a detailed commentary on the marks that have been awarded for the task. The original annotation by the teacher on the student's work, to provide additional support for the decisions that were made, has not been added.



## ENTRY LEVEL SCIENCE PRACTICAL TASK

INFORMATION FOR CANDIDATES

YOUR QUESTION

### CRATERS

Sam gets a small telescope as a birthday present. Sam uses the telescope to look at the full moon.

This is what Sam sees:



a close-up view

Sam sees that the craters are different sizes and knows that they are **impact** craters formed when **meteorites** hit the surface.

Sam thinks

.....the different sized craters might be made by different sized meteorites.

Sam wants to use a bucket of **sand** and some **modelling clay** to test this idea.

Write down a plan of what Sam needs to do to test this idea.

You need to think about:

- how much data to collect
- how to make it a 'fair test'
- what other apparatus is needed
- how to work safely.

Try and explain why Sam thinks this.

Write down your plan on the sheet of paper your teacher gives you.

Your teacher will check your plan and then you can try out your ideas.



## ENTRY LEVEL SCIENCE PRACTICAL TASK

INFORMATION FOR CANDIDATES

YOUR PLANNING

My name is *Russell Sproute*

Use this sheet of paper to write down your plan.

Make sure that you write down all the steps so that other people can understand your plan.

*I'll use a tray of sand on the bench and a ruler fixed straight up and down.*

*I'll make different size meteorss from modelling clay and mesur the size of them.*

*I'll drop them from the same hight into the sand.*

*I'll smooove the sand before I start and then mesur the widh of the crater. I'll hav to smooove it agane after each drop.*

*I'll do it more than once to be mor certen of the result.*

*I'll put results in a table.*

*I'll draw a bar chart to show what I found out.*

*I think that big ones are bound to make bigger holes becos they've got more weight and forse to them. Anyway if theyre big them more of them hits the ground.*



## ENTRY LEVEL SCIENCE PRACTICAL TASK

INFORMATION FOR CANDIDATES

COLLECTING YOUR DATA

My name is *Russell Sproute*

Use this sheet of paper to write down your results.

It is useful to use a table of results. Use a ruler to help you.

If you need help with drawing a table, ask your teacher.

*Here are the results we got*

*We dropped the meteors from exerly 100 cm using the up and down ruler*

<i>Size in cm</i>	<i>Size across the hole</i>		<i>avrage</i>
	<i>1st go</i>	<i>2nd go</i>	
<i>1</i>	<i>1</i>	<i>1</i>	<i>1</i>
<i>1.5</i>	<i>1</i>	<i>1</i>	<i>1</i>
<i>2</i>	<i>1.5</i>	<i>1.5</i>	<i>1.5</i>
<i>2.5</i>	<i>2</i>	<i>3</i>	<i>2.5</i>
<i>3</i>	<i>5</i>	<i>4</i>	<i>4.5</i>

*using dry sand was hard so we dampit it down. This made it easier.*



## ENTRY LEVEL SCIENCE PRACTICAL TASK

INFORMATION FOR CANDIDATES

MY ANSWER TO THE QUESTION

My name is *Russell Sproute*

**You must work by yourself for this part.**

Do the the following. Use this page and the graph paper.

1. Show your results in a different way.

*See my bar chart on the graph paper*

2. Write about a trend or pattern in your results.

*We were rite.*

*The bigger the meteor the bigger the size hole.*

*But it don't go up equal each time.*

3. Link your results and pattern to the question your teacher gave you.

*This was what I thorte it would be bigger = bigger.*

4. Write about any difficulty you had getting your results.

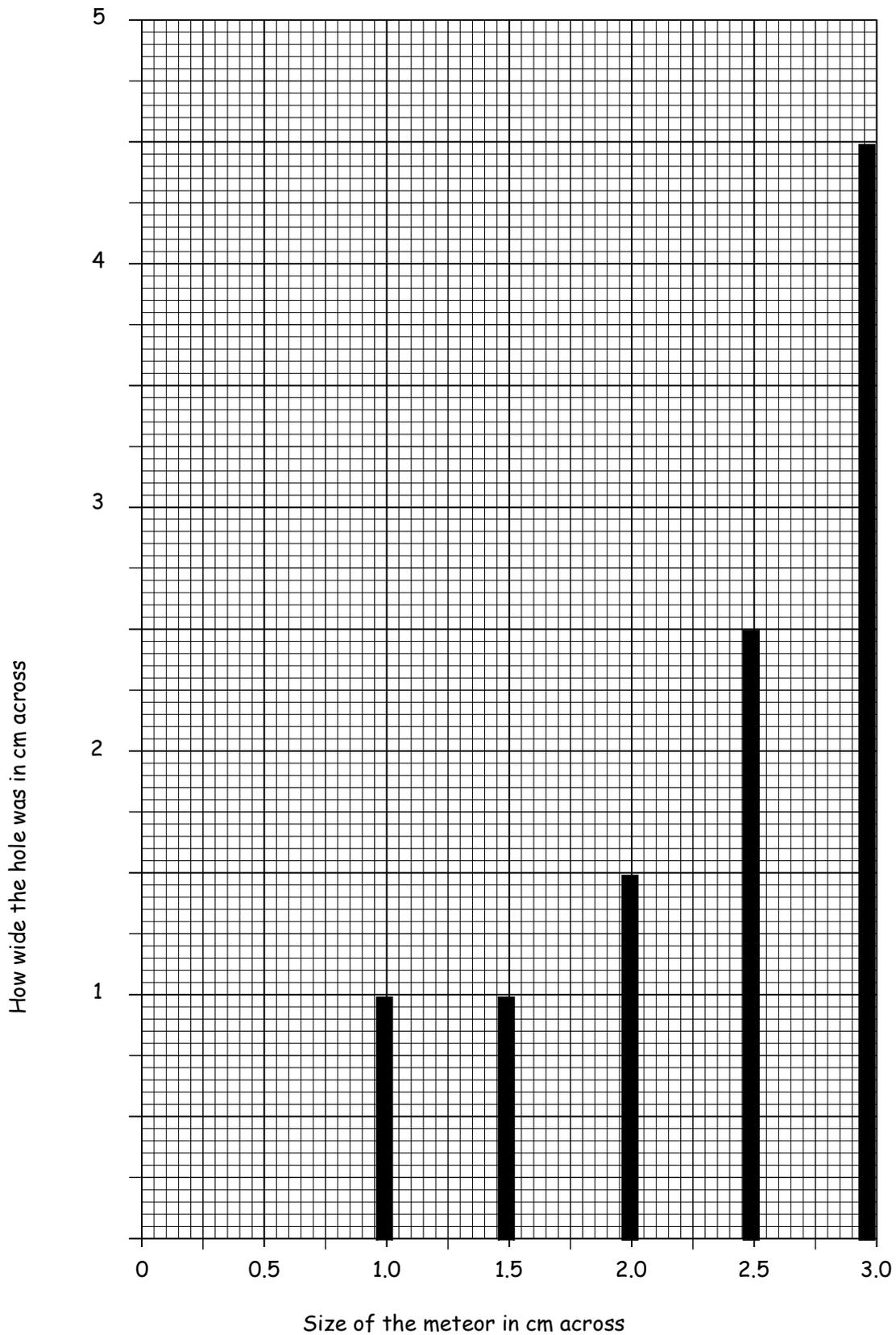
*We mite have made mistakes when we measured the size it was hard  
even when it was damp*

My name is *Russell Sproute*

Have I labelled my axes correctly?

Have I put a title on the graph?

Have I plotted my points correctly?



## COMMENTARY FOR RUSSELL SPROUTE'S PRACTICAL TASK

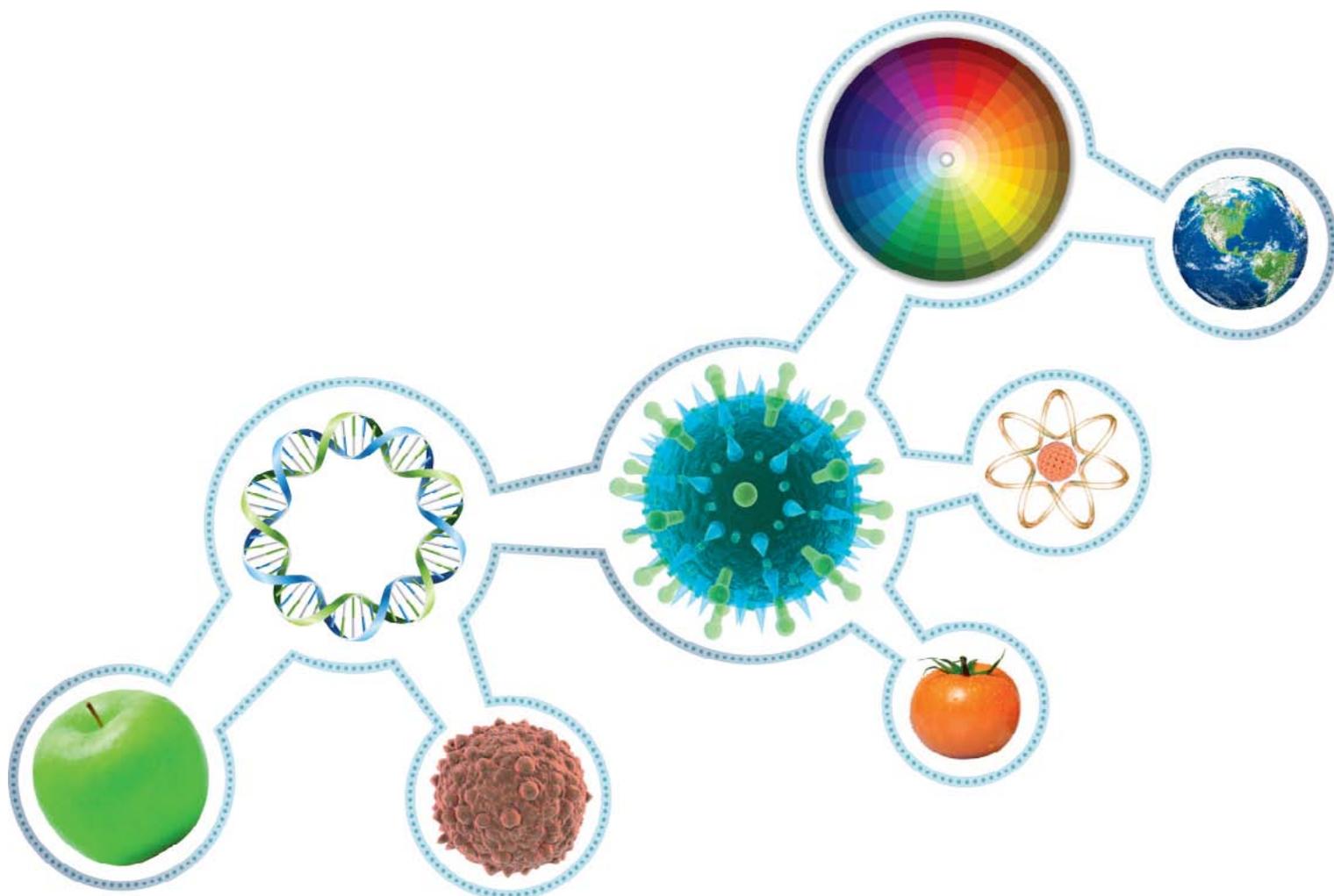
	Aspect	Mark	Comments
A	<b>Planning</b> to collect data	3	A suitable plan has been produced, and the student is aware of the need for 'fair testing'. There is no mention of a method of working safely and this does not enable a mark of four to be awarded.
B	<b>Processing</b> the data	4	The data has been displayed correctly as a bar chart on the graph grid. The scales are suitable. The axes are correct and all that is missing is the title. Four marks can be awarded.
C	<b>Patterns</b> in the data	4	A simple comparative statement has been made. A statement which correctly reflects the pattern in the data allows the award of the maximum mark.
D	<b>Interpreting</b> the data	2	The link to the 'science' is basic and reflects aspects of 'commonsense'. Only an award of two marks is appropriate here.
E	<b>Reviewing</b> the method	3	The comments the student has made do appear to be ' <i>...better than two...</i> ' and a match to three marks appears suitable.
	Total	<b>16</b>	This is a good piece of work from an Entry Level Science student. OCR always recommends that teachers annotate the assessed work of their candidates to provide justification for the mark which has been awarded. As a minimum, the use of, for example, 'C=4' is helpful, but in many cases additional comments may be needed. However, for this piece of work, despite the difficulties in the written English, the intentions of the candidate are clear and the absence of any annotation has not potentially disadvantaged the candidate.



## EXAMPLE 2: PRACTICAL TASK ON DISSOLVING INDIGESTION TABLETS

This practical task on dissolving indigestion tablets is set out in a similar format to the craters task.

Some explanatory annotation made by the teacher is shown on the student's work and a detailed commentary is provided at the end of the task.



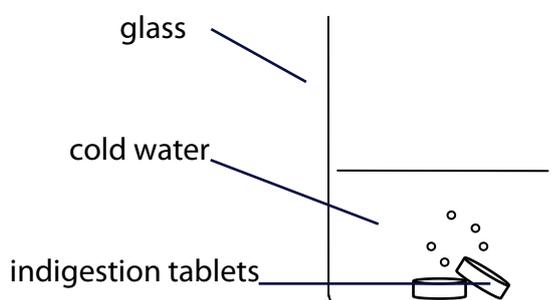
INFORMATION FOR CANDIDATES

YOUR QUESTION

## FUNNY TUMMY!

Bobby has a sore tummy and is given two indigestion tablets.

Bobby can only take the tablets after they dissolve in water.



The tablets fizz **very** slowly.

It takes a long time for the tablets to dissolve, and Bobby gets very impatient.

Bobby thinks that they will dissolve faster if the water is warmer.

Write down a plan to show how Bobby could test this idea.

When you write your plan you will need to think about:

- what apparatus you need to use
- how to work safely
- how to make it a 'fair test'
- how many readings to take

to make sure that you can find an answer to Bobby's idea.

Try to find out why the tablets fizz in water.

You can use books or the Internet to help you.



## ENTRY LEVEL SCIENCE PRACTICAL TASK

INFORMATION FOR CANDIDATES

YOUR PLANNING

My name is *Harry Cobbeen*

Use this sheet of paper to write down your plan.

Make sure that you write down all the steps so that other people can understand your plan.

*Put some water in a glass.*

*Find out how hot it is.*

*Drop the tablet in and time it*

*From start to disappearing*

*Do it with warmer and warmer water.*

*No boiling because that's dangerous for burns and don't spill any of the water if it's hot.*

*Measure the time each time we do it*

*Put the results in a table.*

# ENTRY LEVEL SCIENCE PRACTICAL TASK

## INFORMATION FOR CANDIDATES

## COLLECTING YOUR DATA

My name is *Harry Cobbeen*

Use this sheet of paper to write down your results.

It is useful to use a table of results. Use a ruler to help you.

If you need help with drawing a table, ask your teacher.

The two students did use a measuring cylinder to ensure that the volume was the same each time.  
Fair testing ✓

<i>Expt</i>	<i>Temp in degrees centi</i>	<i>Time it took in s</i>
<i>1</i>	<i>15</i>	<i>148</i>
<i>2</i>	<i>21</i>	<i>70</i>
<i>3</i>	<i>26</i>	<i>50</i>
<i>4</i>	<i>32</i>	<i>28</i>
<i>5</i>	<i>40</i>	<i>28</i>
<i>6</i>	<i>45</i>	<i>23</i>



## ENTRY LEVEL SCIENCE PRACTICAL TASK

INFORMATION FOR CANDIDATES

MY ANSWER TO THE QUESTION

My name is *Harry Cobbeen*

**You must work by yourself for this part.**

Do the following. Use this page and the graph paper.

1. Show your results in a different way.

*I've done it in a graph.*

2. Write about a trend or pattern in your results.

*It dos get quicker as it gets hotter.*

*So Bobby wudnt have to wait to long to take the tablets using hoter warter.*

3. Link your results and pattern to the question your teacher gave you.

*It fizzes much faster with hoter warter in the glass becos its hoter and this always happens with reactions. This is why sugar melts quick in hot drinks but slow when its cold.*

4. Write about any difficulty in getting your results.

*We must have made a mistake getting the results becose one of them is odd.*

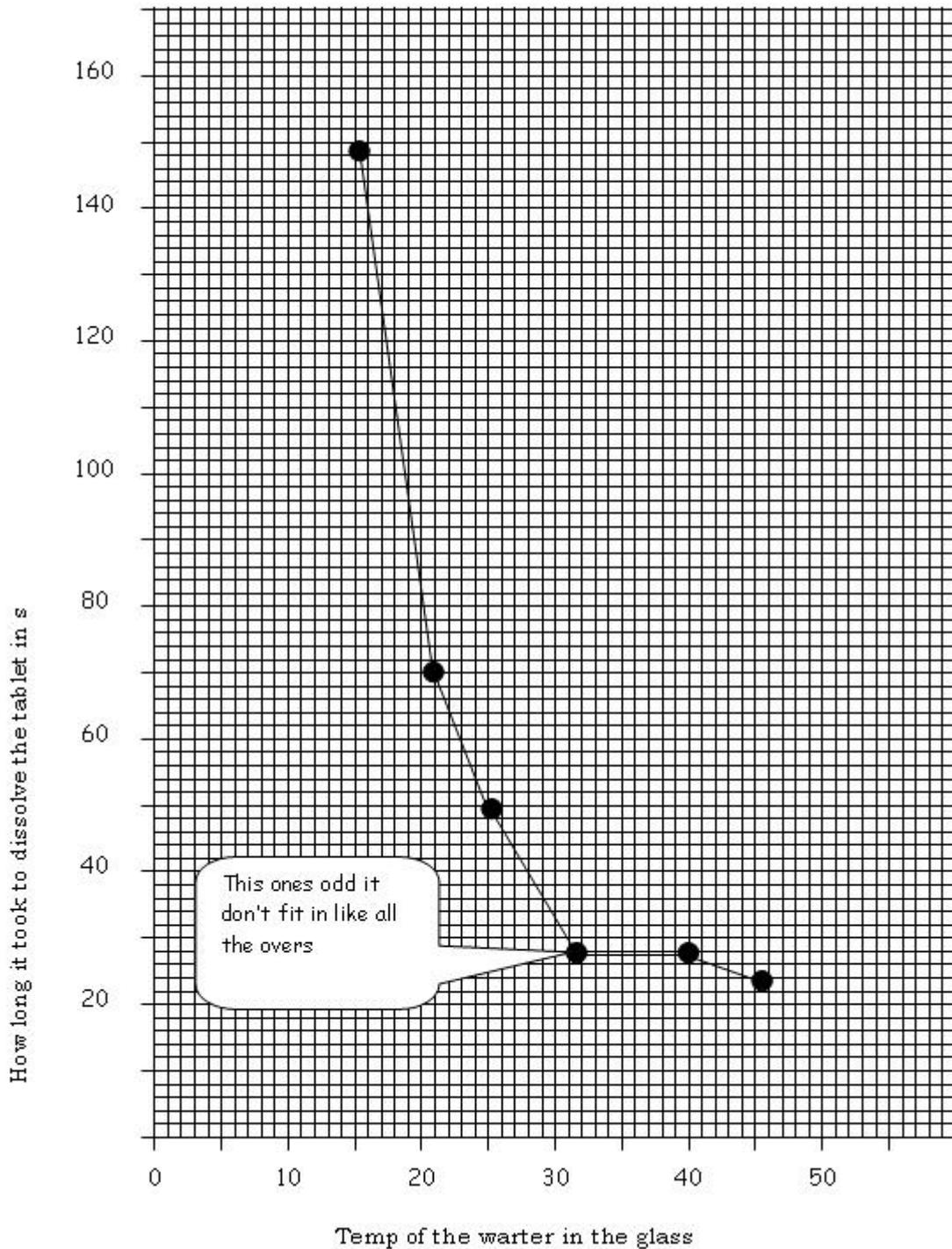
My name is *Harry Cobbeen*

Have I labelled my axes correctly?

Have I put a title on the graph?

Have I plotted my points correctly?

How long it takes for the tabet to dissolve in the warter



## COMMENTARY FOR HARRY COBBEEN'S PRACTICAL TASK

	Aspect	Mark	Comments
A	<b>Planning</b> to collect data	4	The plan is workable and suitable apparatus must have been used because the results the students obtained involved timing and temperature. The annotation by the teacher to show that the students were using the same volume of water each time indicates that they were aware of the requirements for 'fair testing'. There is a reference to the safety aspects involved with hot water. A match to four marks can be supported.
B	<b>Processing</b> the data	4	The graph is fine in all respects, and the student has noticed that the time at 32°C is possibly incorrect. Four marks can be awarded.
C	<b>Patterns</b> in the data	4	The trend is mentioned and there is a statement which indicates that the correct pattern has been identified. A match to four marks is 'secure'.
D	<b>Interpreting</b> the data	2	The link to the underlying science is not developed and the student's interpretation is more related to commonsense and everyday knowledge than scientific ideas. The student does seem to be confused over melting and dissolving. Two marks can be awarded.
E	<b>Reviewing</b> the method	1	The recognition of the anomalous point on the graph and the comment about an apparent mistake allow the award of one mark.
	Total	<b>15</b>	The student has developed a plan to find the answer to the question posed by the task. Data has been collected and effectively processed and this does represent a good achievement for an Entry Level Science candidate. Some additional annotation by the teacher would have been helpful in confirming the approach taken by the student. For example, did the student measure the temperature carefully, how did the student actually measure the time needed, what was the 'end-point' and was the mixture in the beaker stirred as it dissolved?

## SECTION E

## ADMINISTRATION OF THE COURSE

## KEY DATES

**Estimated entries – deadline 10 October**

Estimated entries are your centre's best projection of the number of candidates that will be entered for a unit or option in a particular series. Estimated entries are free and do not commit your centre in any way.

Estimated entries are automatically rolled over from one series to the next equivalent series (e.g. your final entries for June 2010 will become your estimated entries for June 2011). For this reason, it is vital that you update them regularly – especially if you plan to make entries for a new qualification.

**If you do not make estimated entries, you will not receive dispatches of early examination materials (e.g. instructions for practical examinations and pre-release materials) when you require them.**

Estimated entries can only be submitted through [OCR Interchange](#). Just log on to Interchange, hover over 'Entries' in the left-hand menu and click on 'Submit estimated entries'.

At this stage, OCR does not need full details of the candidates; these will be required when you make final entries.

**Final entries – deadline 21 February**

There are two methods of submitting final entries:

- **OCR Interchange** – OCR's secure extranet
- **EDI (Electronic Data Interchange)** – an electronic method of transmitting entry and results data to and from OCR using a third party carrier.

It is important to make entries by the deadline. Any late entries will be subject to additional fees as a result of the additional work required to process them.

**Final total points scores – deadline 15 May**

The final total points score for each candidate should be submitted by the 15 May deadline. Moderators will then request a sample of candidates' work for checking.

## ENTRY FOR GCSE

Any candidate may be entered for both Entry Level Science and any other GCSE subject.

Entering a candidate for Entry Level Science and either:

- GCSE in Science (either OCR 21st Century Science or OCR Gateway Science), or
- GCSE in Applied Science

is therefore an attractive proposition for some candidates who may start Year 10 as possible under-achievers.

In recent years, this double entry has been increasingly popular and centres have taught the requirements of both Entry Level and their chosen GCSE either:

- in parallel, by incorporating the requirements of both into their Schemes of Work, or
- in series, by teaching Entry Level in Year 10 with the additional GCSE requirements in Year 11.

## INTERCHANGE

Interchange is a secure website designed solely for use by teachers, and it is not accessible by students or members of the public.

Interchange allows teachers to download confidential materials if they have the correct access rights.

Copies of the end-of-item tests are now only available on Interchange. These end-of-item tests can be downloaded by anyone who has been allocated the Interchange Science Coordinator role on Interchange. It is likely that in a centre the Examinations Officer will be the Interchange Administrator; they may choose to act as the Interchange Science Coordinator or they may nominate someone in the science team to take on this role. Any teacher needing to use these tests should discuss with the centre's Interchange Administrator how they can be accessed.



**SECTION F****MODERATION****MODERATION**

The validation of teachers' judgements takes place when candidates have been entered for Final Certification.

This moderation is required to ensure that the judgements made for all the candidates at the centre are aligned to a common standard.

Where significant differences emerge between the decisions made by the teachers at a centre and those required, adjustments are made to the centre's marks.

The moderation of the new Entry Level Science R591, which starts in 2013, will be different from that used for the previous specification R482. In previous years, Entry Level Science moderation started in March in order to provide some formative feedback to teachers before the final marks were submitted in May. From 2013 onwards, moderation will only start once the final marks have been submitted.

**WHAT HAPPENS AT MODERATION**

Teachers are required to submit the final total points score for each of the candidates requiring Final Certification by 15 May.

OCR will then request a sample of candidates' work from the centre and this work will need to be sent to an OCR moderator either by post or to the OCR Repository.

For each candidate in the sample, the moderator will need to be sent:

- the completed Candidate Record Card
- all the marked end-of-item tests (arranged in order)
- the assessed practical task with a completed cover sheet.

The centre will also need to enclose with the sample:

- a Centre Authentication Form to show that the assessment has been carried out according to the required procedures
- contact details (preferably the e-mail address of the teacher responsible for the assessment) in case any issues emerge during the moderation.

**WHAT THE MODERATOR DOES**

The moderator is informed by OCR of the candidates whose work is required for moderation and checks that this is the work that has been sent.

An initial check is made to ensure that the centre has not made any arithmetical or transfer errors in determining the total credit for each of the candidates in the sample.

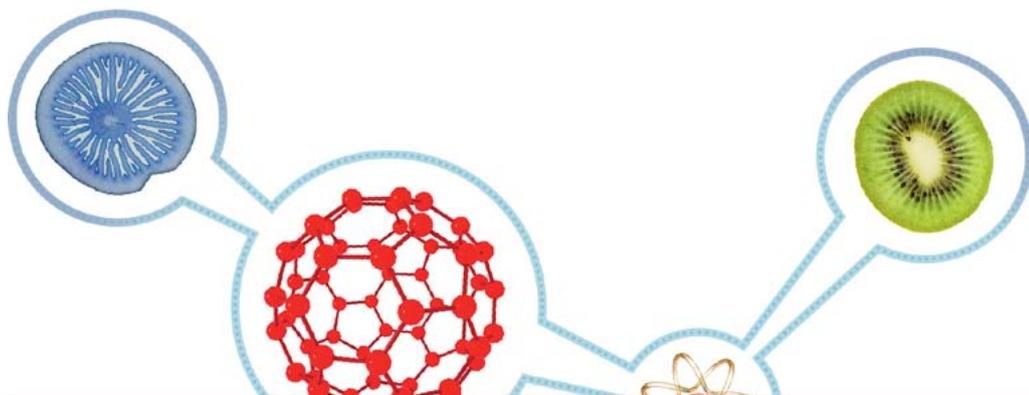
The moderator then remarks a selection of the completed end-of-item tests to ensure that the marking has been carried out in accordance with the published mark schemes.

The moderator then reviews the practical task, including the background details provided about the task, and the decisions made by the teacher for the performance descriptors in each of the five Aspects.

A marking tolerance is applied by the moderator to allow for minor errors in the marking of the end-of-item tests and for elements of professional judgement in the application of the performance descriptors for the practical task. The moderator attempts to confirm the original marks awarded by the teachers at the centre.

If the decisions made by the teacher are significantly aberrant then the moderator recommends adjustments to the original marks. These recommendations are reviewed by more senior moderators.

Finally, the moderator produces a report for the centre which is sent to the centre at the time the results are released. This report provides information about the sample supplied and any areas in which the teachers' interpretation of the requirements needs to be re-considered.



**SECTION G****TEACHER SUPPORT****CONTACT OCR**

The Specification, the Teacher Support Book and the OCR website are available to provide detailed information about the way in which the Entry Level Science course can be successfully developed.

If teachers have queries which are not easily resolved by the written information supplied, then there are a number of ways in which OCR can be contacted to obtain specialist advice.

Phone: 01223 553998  
Email: [science@ocr.org.uk](mailto:science@ocr.org.uk)  
Online: <http://answers.ocr.org.uk>  
Fax: 01223 552627  
Post: Customer Contact Centre  
OCR  
Westwood Business Park  
Coventry  
CV4 8JQ

**SUPPORT FROM OCR**

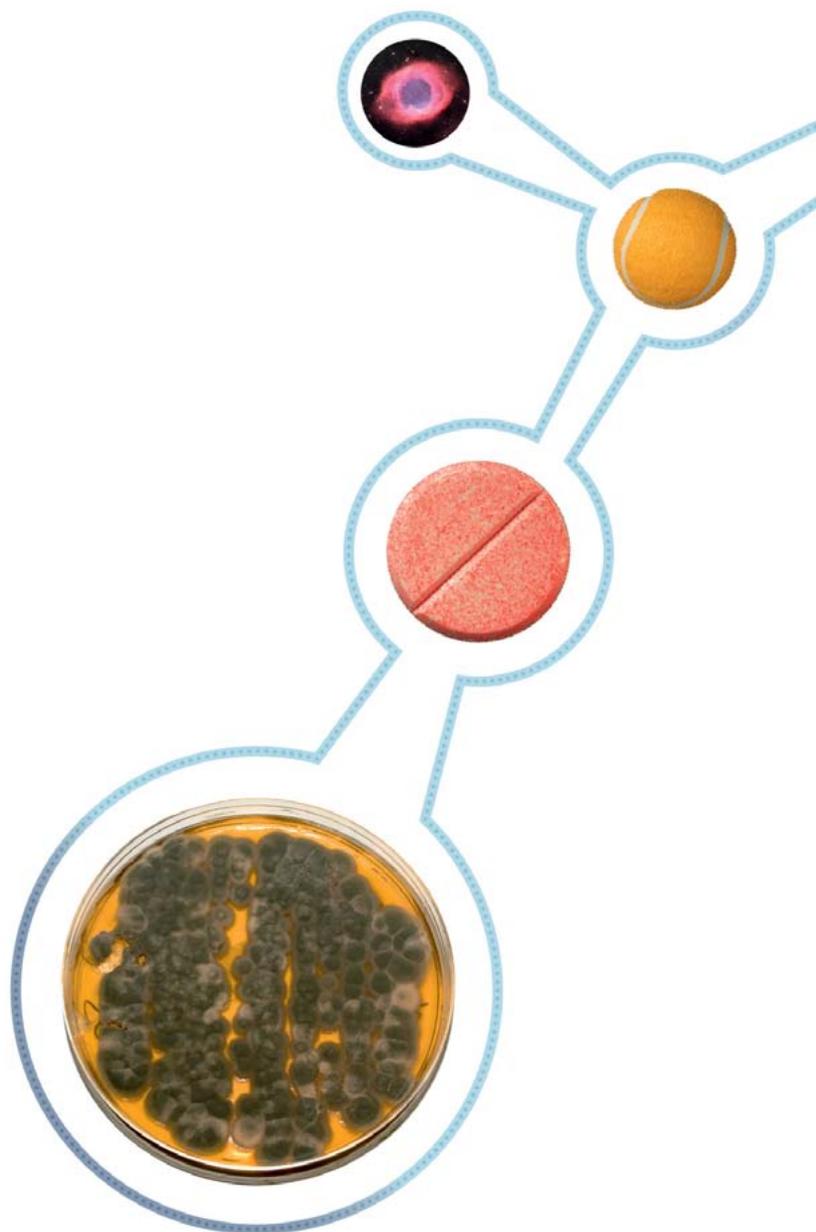
Information about training events and how to contact OCR to arrange a bespoke course can be found at:

[www.ocr.org.uk/training](http://www.ocr.org.uk/training)

There is also a science community:

[www.social.ocr.org.uk](http://www.social.ocr.org.uk)

This community is a place where teachers can ask questions, join in discussions and share useful teaching resources.



## SECTION H

## APPENDICES

## APPENDIX 1: CANDIDATE RECORD CARD

This is a four-sided document consisting of a folded sheet of A3 paper.

**Page 1** has spaces to indicate the total points accumulated at the time the course is completed.

**Pages 2, 3 and 4** deal with can-do tasks, the practical task and end-of-item test results.

The spaces provided for the dates that tasks and tests are taken are for use by the centre and are not required by OCR.

Teachers will need to monitor the performance of their students at frequent intervals during the course, and as they approach the three key points for the Interim Awards of Bronze, Silver and Gold, the students will need to be aware of how close they are to the achieving their award.

The Candidate Record Card for Russell Sproute is partially completed.

The student has:

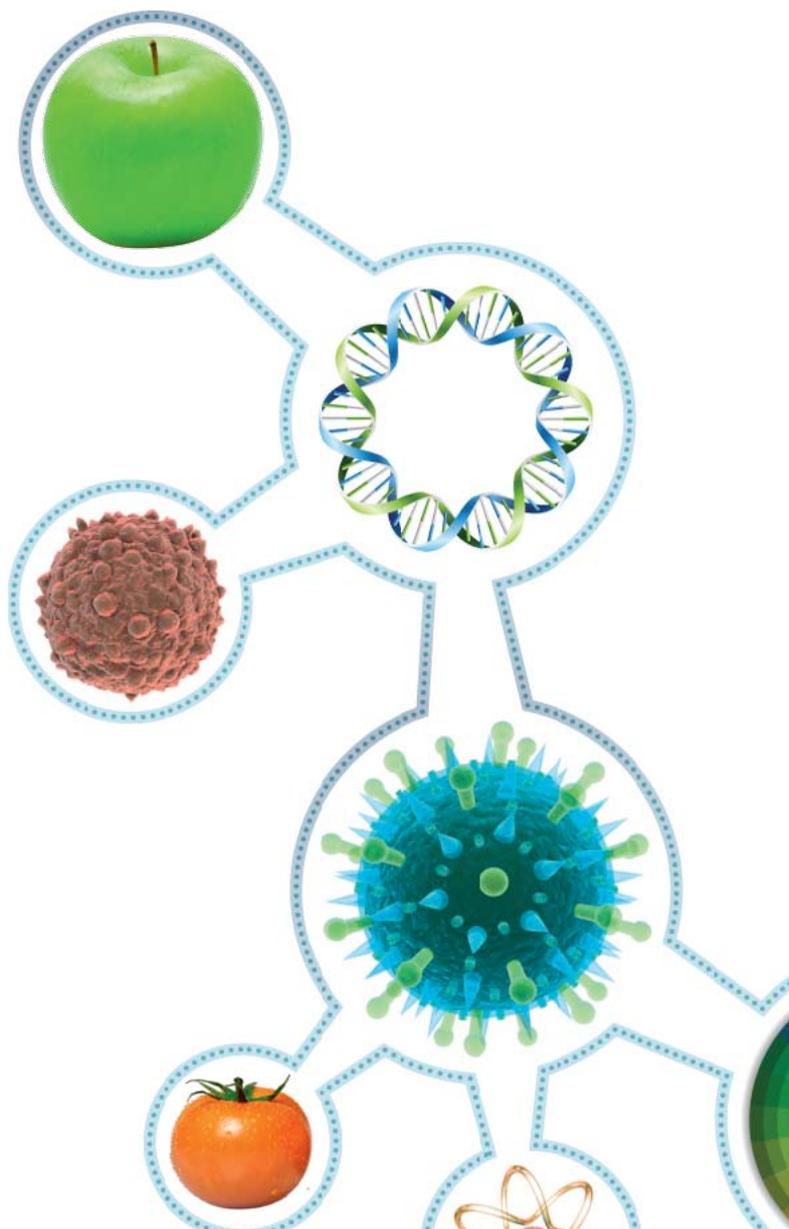
- attempted 16 can-do tasks and has been credited with five Level 3 tasks, four Level 2 tasks and one Level 1 task. The student may successfully complete additional Level 2 or Level 3 tasks and the total credit will increase by re-aggregating the marks awarded for the best ten tasks.
- been assessed on a practical task. The student may be assessed on another practical task and if the total mark is greater than the original task mark, this new task will replace the original task as part of the assessment total.
- attempted a total of 17 end-of-item tests. The student may attempt additional tests during the course and the marks/points obtained from a maximum of 35 tests may be used in assessment.

The Candidate Record Card also forms a useful 'wrap-round' cover for the portfolio of work assessed.

If requested as part of the moderation process for students requiring Final Certification, the moderator will need to be sent this Candidate Record Card showing the total attainment of the student as well as:

- all the marked end-of-item tests (arranged in order)
- the practical task report with the cover completed and with the background details of the way in which the task was presented to the student.

Centres are recommended to keep a copy of any Candidate Record Cards which are requested.





Name of candidate : *Russell Sproute***COMPONENT 1: CAN-DO TASKS**

	Ref	Level 1 Tasks	Date	Marks
1	B1	I can measure a person's breathing rate or pulse		1
2	B3 B8	Given information I can match an animal to where it lives or when it lived.		
3	B9 B11	I can measure the effect of caffeine on heart rate.		1
4	B10	I can safely carry out a food test for starch		
5	C1 C9	I can use a measuring cylinder to measure volume		1
6	C7	I can identify some common metals: iron (using a magnet), copper, aluminium and lead (by sight and touch)		1
7	C9	I can add results to a bar chart.		1
8	C9 P9	I can measure reaction time.		
9	C10	I can separate a simple mixture (e.g. iron filings/aluminium, salt/sand).		1
10	C11	I can take a set of fingerprints.		1√
11	P5	I can write a message in mirror writing.		
12	P12	I can produce a poster on the safe use of mobile phones.		

	Ref	Level 1 Tasks	Date	Marks
13	B2	I can read data from a graph		
14	B3	I can collect (scientific) information about an endangered or extinct species.		
15	B5	I can safely carry out a food test for glucose.		
16	B6	I can make a leaflet to warn old people of the dangers of hypothermia.		2√
17	B7 C1 C6	I can carry out a test to show the presence of carbon dioxide.		
18	B10 C1	I can use Universal Indicator solution to find pH		2√
19	C3	I can make a paint sample and prove that it works.		
20	C5	I can make measurements to test a property of a fibre or fabric.		2√
21	C10 C11	I can make a chromatogram.		
22	C12	I can make a poster to warn about the dangers of CO poisoning.		
23	P2	I can read a domestic electricity meter.		2√
24	P4	I can use a newtonmeter to measure force.		

	Ref	Level 1 Tasks	Date	Marks
25	B5	I can record my daily protein intake.		
26	B6 P10	I can use a thermometer to measure temperature accurately.		3√
27	B8	I can carry out a simple survey of a habitat.		
28	B12 P8	I can measure length / distance accurately.		3√
29	C4	I can extract a sample of copper from its ore.		
30	C7	I can make and then test a sample of concrete for its strength.		
31	C8	I can find the location of ten earthquakes or volcanoes and put them on a map.		
32	C9 P4	I can measure time accurately (e.g. to time a chemical reaction).		3√
33	C13	I can do a test to compare the quantity of Vitamin C in fruit juices.		
34	P3	I can use a plotting compass to map a magnetic field.		
35	P4	I can measure the speed of a moving object.		3√
36	P10	I can plot a line graph.		3√

<p align="center"><b>Can-Do Tasks</b> successfully completed Each Level 1 = 1 mark, Level 2 = 2 marks, Level 3 = 3 marks <b>(Maximum of 10 tasks to 'count')</b></p>	<b>No. of Tasks</b>	<b>Marks</b>	<b>Points Total Marks ÷ 3 to 1 decimal place</b>
	10 <sub>/10</sub>	(24) <sub>/30</sub>	(8) <sub>/10</sub>

**COMPONENT 2: PRACTICAL TASK**

Title						Mark	Total
<i>Craters</i>							
<b>Aspect A</b>	(0)	1	2	3	4	3	<b>(16)</b>
<b>Aspect B</b>	(0)	1	2	3	4	4	
<b>Aspect C</b>	(0)	1	2	3	4	4	
<b>Aspect D</b>	(0)	1	2	3	4	2	
<b>Aspect E</b>	(0)	1	2	3	4	3	

**COMPONENT 3: END-OF-ITEM TESTS**

	<b>Title</b>	<b>Date</b>	<b>Test mark /15</b>	<b>Points (see below)</b>
B1	Dead or Alive		<b>12</b>	<b>2</b>
B2	Babies			
B3	Extinction		<b>10</b>	<b>1.5</b>
B4	Casualty			
B5	Healthy Eating		<b>6</b>	<b>1</b>
B6	Control Systems			
B7	Casping for Breath		<b>8</b>	<b>1.5</b>
B8	Creepy Crawlies			
B9	Fooling your Senses			
B10	Food Factory		<b>9</b>	<b>1.5</b>
B11	Drugs in Society			
B12	My Genes			
B13	Body Wars			
C1	Acids and Alkalis		<b>14</b>	<b>2</b>
C2	Cooking and Cleaning			
C3	Colours and Smells		<b>12</b>	<b>2</b>
C4	Heavy Metal?			
C5	Fibres and Fabrics		<b>15</b>	<b>2</b>
C6	Clean Air?			
C7	Strong Stuff		<b>12</b>	<b>2</b>
C8	Restless Earth			
C9	How Fast? How Slow?		<b>15</b>	<b>2</b>
C10	Sorting OUt			
C11	CSI Plus		<b>8</b>	<b>1.5</b>
C12	Fuels			
C13	What's Added to our Food?			
P1	Getting the Message			
P2	Our Electricity Supply		<b>12</b>	<b>2</b>
P3	Attractive Forces			
P4	Pushes and Pulls			
P5	Let there be Light!		<b>11</b>	<b>1.5</b>
P6	Final Frontier			
P7	Alternative Energy		<b>6</b>	<b>1</b>
P8	Deep Impacts			
P9	Driving Along		<b>14</b>	<b>2</b>
P10	Hot Stuff!			
P11	Nuclear Power		<b>8</b>	<b>1.5</b>
P12	Full Spectrum			
P13	Medical Rays		<b>9</b>	<b>1.5</b>

<b>Converting marks to points</b>				
Test mark	2-4	5-7	8-11	12-15
Points	0.5	1	1.5	2

<b>Points Total for Final Certification</b>	Date	Points
(to one decimal place)		<b>(28.5) /70</b>

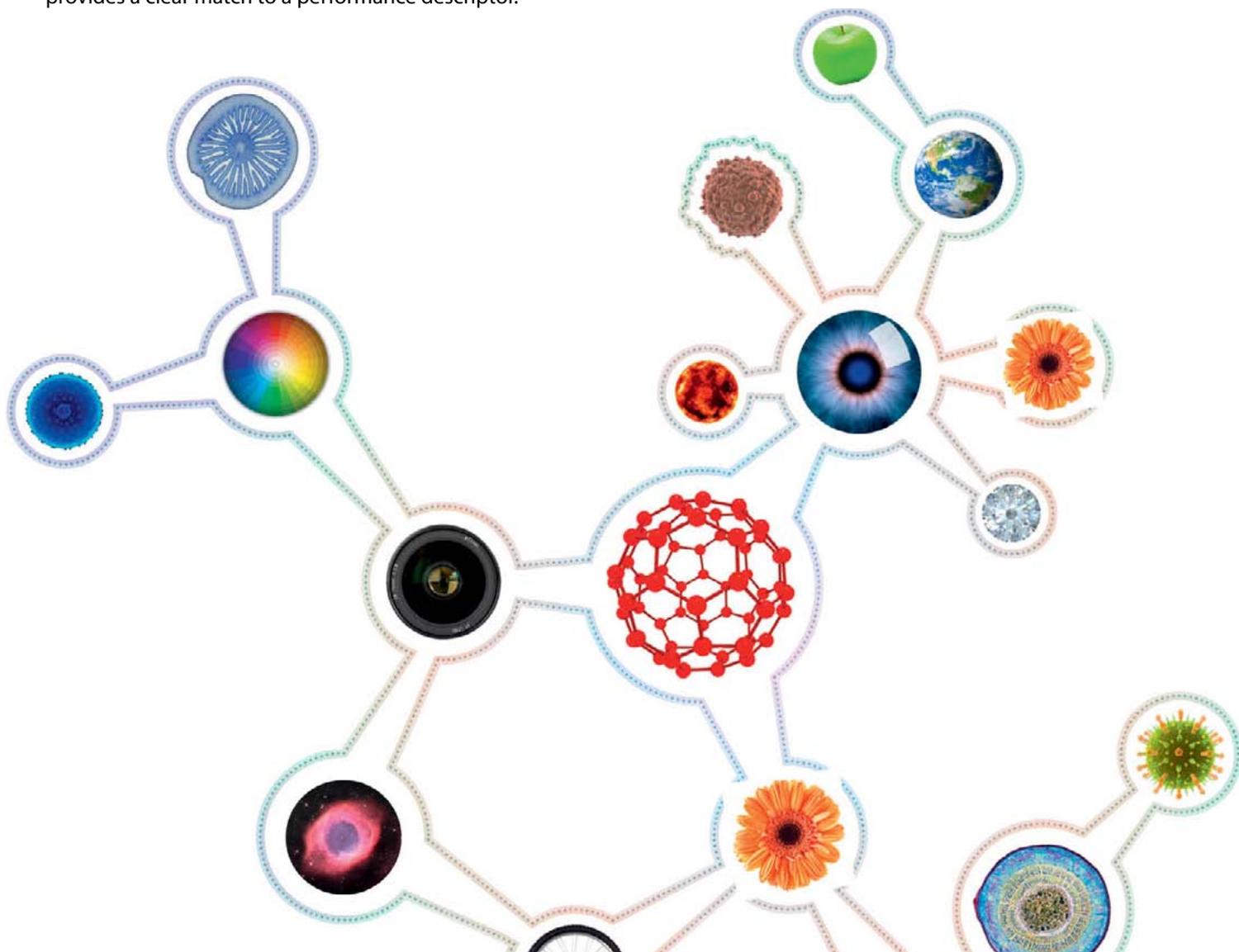
## APPENDIX 2: PRACTICAL TASK COVER SHEET

This cover sheet is designed to summarise the marks awarded for each of the five Aspects of the practical task which are used for assessment.

A completed copy should be stapled to the front of the assessed practical task for each student whose work is part of the sample sent to the moderator.

Teachers are advised to annotate each student's practical task to show at what point and for what reason it is felt that a particular performance descriptor has been matched.

Annotation of this type is particularly useful during the moderation process as it can help significantly in enabling a moderator to confirm a teacher's marking decisions when it is not immediately obvious that what a student has written provides a clear match to a performance descriptor.



# Entry Level Science (R591)

Submission year

# 20\_\_

## PRACTICAL TASK COVER SHEET

Centre Name: \_\_\_\_\_

Centre Number: \_\_\_\_\_

Candidate Name: \_\_\_\_\_

Candidate Number: \_\_\_\_\_

Task title: \_\_\_\_\_

		0	1-2 marks	3-4 marks
A	<b>Planning to collect data</b> 		outlines a simple plan which would enable a limited amount of data to be collected	describes the method and apparatus selected to collect data makes an appropriate comment about safe working
B	<b>Processing the data</b> 		displays a few results in charts or graphs, using given axes or scales	constructs simple charts or graphs to display data in an appropriate way, allowing some errors in scaling or plotting
C	<b>Patterns in the data</b> 		notes at least one difference between situations/cases, or compares individual results	identifies trend(s) or pattern(s) in the data
D	<b>Interpreting the data</b> 		makes a simple attempt to interpret the data	relates the trend(s) or pattern(s) to the relevant science
E	<b>Reviewing the method</b> 		makes a simple comment about the method used to collect data	comments on the method used and how it affects the quality of data collected



Total mark awarded /20

**APPENDIX 3: SKILLS AUDIT**

Students need to be equipped with the necessary underpinning skills before they undertake a practical task.

Teachers should be aware that without careful preparation of students there is unlikely to be a satisfactory match between their expected performance and their actual performance.

Some of the skills that are needed may have been covered to an adequate level in previous Key Stages but teachers are advised to undertake an audit, which may be across the whole of the curriculum, to determine what additional skills are needed.

The skills will need to be linked to the likely attainment level of the students.

<b>Aspect A (Planning to collect data)</b> A student ...	
	...is able to use the index of a book
	...is able to select appropriate equipment to collect data
	...understands the importance of working safely
	...knows about the Dewey Decimal Classification system
	...can use a search engine to obtain suitable evidence from the Internet
	...can select other relevant information from sources provided by the teacher
	...can indicate where the information has been gathered from

<b>Aspect B (Processing the data)</b> A student ...	
	...can present their data clearly
	...can construct a simple chart to display their data
	...can display their data using a grid with axes and scales provided for them
	...is able to plot their data on a graph grid
	...is able to work out averages from repeated readings they have taken
	...can manipulate, in simple terms, any quantitative evidence they have discovered

<b>Aspect C (Patterns in the data)</b> A student ...	
	...is able to compare individual results
	...is able to make simple comparisons between different pieces of data
	...can recognise simple trends and patterns in their data

<b>Aspect D (Interpreting the data)</b> A student ...	
	...can make simple conclusions about their data
	...is able to link an outcome to previous experience
	...is able to link a conclusion to a pattern in their data
	...can answer the question underpinning the task studied
	...can link their data and conclusions to the associated scientific principles
	...is able to communicate their findings appropriately using suitable language

<b>Aspect E (Reviewing the method)</b> A student ...	
	...is able to comment about the method(s) used to collect their data
	...is able to make comments about the quality of their data

**APPENDIX 4: SUGGESTIONS FOR PRACTICAL TASKS**

This list provides some basic suggestions that teachers could use to develop practical tasks for their students.

Outline suggestions for practical tasks	Item
<p><i>How does an elastic band stretch when weights are added to it?</i></p> <p>Equipment requirements: clamp and stand, small rulers, elastic bands, slotted weights, newton meters. The task also allows access to can-do tasks: 7, 13, 24, 28, 36.</p>	P4
<p><i>Does the number of turns on an electromagnet affect the number of paperclips it can pick up?</i></p> <p>Equipment requirements: low voltage power supply, large nails, insulated wires, paper clips. The task also allows access to can-do tasks: 7, 13, 36.</p>	P3
<p><i>How does exercise affect my pulse rate?</i></p> <p>Equipment requirements: pulse meters, stop watches, exercise space, step stools. The task also allows access to can-do tasks: 1, 7, 13, 32, 36.</p>	B1
<p><i>Does the amount of cement in a concrete bar affect the strength of it?</i></p> <p>Equipment requirements: sand, cement, measuring cylinders, mixing bowls, cardboard, slotted weights. The task also allows access to can-do tasks: 5, 7, 13, 20, 24, 30, 36.</p>	C7
<p><i>Is there a link between the drop height and the bounce height of a rubber ball?</i></p> <p>Equipment requirements: rubber ball, measuring tape/rulers. The task also allows access to can-do tasks: 7, 13, 28, 36.</p>	P4
<p><i>How does the length of a pendulum affect the time for it to swing?</i></p> <p>Equipment requirements: pendulum bob, string, clamp stand, stopwatch. The task also allows access to can-do tasks: 7, 13, 32, 36.</p>	P4

## **GENERAL QUALIFICATIONS**

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[science@ocr.org.uk](mailto:science@ocr.org.uk)

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