OCR
RECOGNISING ACHIEVEMENT

ELC

Science

Entry Level Certificate **ELC R482**

Report on the Components

June 2007

R482/R/07

Oxford Cambridge and RSA Examinations

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by Examiners. It does not indicate the details of the discussions which took place at an Examiners' meeting before marking commenced.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

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Science (R482)

REPORT ON THE COMPONENTS

Introduction

Please note that there is a deadline of 9th March for centres to send material to their moderator. The work should include examples of the Study of a Science Topic and a Data Analysis Task in order for the moderator to return an interim report form and then the centre can amend marks accordingly before the final sumission of total points by the 15th May.

It was surprising how many centres opted to take the new R482 specification after only one year. This must be due to the success of the course and the training events that have taken place around the country.

Accreditation meetings take place every year and there is no charge for attendance. There will be a repeat of the R482 meetings and details are available on line from the OCR website www.ocr.org.uk. Click on Training and then Science.

The training events for 2007 are proposed as follows:

Date			
Tuesday	18th	September	BRISTOL
Thursday	20th	September	LONDON
Thursday	27th	September	PLYMOUTH
Monday	1st	October	BIRMINGHAM
Wednesday	3rd	October	NOTTINGHAM
Friday	5th	October	DURHAM
Tuesday	9th	October	LEEDS
Friday	12th	October	MANCHESTER

The popularity of the course is indicated by the entry numbers and this year 880 Candidates were entered from 76 Centres. Next year, numbers are expected to vastly increase as the old 3970 Specification is no longer available.

Moderation procedure.

Internal moderation should take place in Centres before submission to the Board's moderator.

One disadvantage with this early moderation and the production of an Interim Report is that entries for Final Certification will not all have been processed by OCR and moderators will be working with the Provisional entries submitted by Centres.

However there is one major advantage and that is that errors can be corrected before the final submission of marks.

Administration

The major problem this year appeared to be the omission of the Centre Authentication Form (CAF). This form must accompany any coursework from a Centre to a moderator. A problem that still arises is the late entry from Centres. Many Centres made provisional entries and then did not make final entries. This increased the workload for moderators in chasing up non-existent work.
Moderators continued to send out letters to Centres early in the moderation process pointing out where administration, particularly arithmetic, was not correct (form L3). Sometimes this was from Centres in which the marking of tests and Study of Science Topics and Data Analysis Tasks was otherwise exemplary.

Part of internal moderation within a Centre should be checking that marks have been correctly added and transferred. Centres should use the Candidate Record Cards as working documents throughout the course. Filling these in at the last minute can lead to errors.

Many of these errors and omissions remain similar to those noted over previous years.

- Delayed submission of the sample of work, even after being contacted by the moderator.
- Not enclosing a covering letter with the sample giving the name of the contact teacher or not saying in the covering letter how internal standardisation was carried out (if the course is taught by one teacher than the letter should simply say this).
- Not putting Candidate names on tests or assessed work which causes serious problems over identification of work.
- Submitting tests for moderation that had not been entered on a Candidate's Record Card, or had not been marked.
- Incorrect totalling of points for End-of-Item tests on page 4 of the record card.
- Rounding the Final Total of End-of-Item test marks and/or Final Total of Can-do tasks to whole numbers rather than to one decimal place
- Not enclosing cover sheets with Skills Assessment to say which marks had been used and hence which Skills the Centre wished the moderator to check for a particular descriptor. A highlighter could have been used to good effect to show which skill marks had been chosen.
- Not submitting Study of Science Topics and Data Analysis Tasks for the chosen candidates.
- Not rounding down the final mark.
- Sending the moderator copies of the MS1 in May. It is not necessary to send this to the moderator, just OCR.

Course for certification in 2008	
Content	**Weighting : 60%**
13 Items - Biology* 13 Items - Chemistry* 13 Items - Physics*	Students are assessed on a maximum of 30 Items. Each End-of-Item Test is marked out of 15 marks and yields up to two points. Total = 60 points.
*Much of the content of the current Items has been retained although some have been updated.	

Can-Do Tasks	**Weighting : 12%**
Simple practical tasks each of which is worth either 1mark, or 2 marks or 3 marks. *	Students are assessed on tasks and the best **8** are assessed. The total (max =24) is divided by 2 to give a total of 12 points.
*Many of the current tasks are retained.	

Data Analysis Task	**Weighting** :12%
Students have to analyse and evaluate some data which they collect or are given. Similar to previous Skill Areas A and E.	Performance Descriptors are provided. Students report the results of 1 task. The maximum is 12 points.
Science Topic	**Weighting : 16%**
Students have to write a short report on a science topic. The Report should take about 10 hours to research and produce.	Performance Descriptors are provided. Four aspects of the report are assessed, each assessed out of 4 marks. The total is 16 points.

In 2008 the Centre must send

- Centre Authenitcation Form (CAF)
- A headed piece of paper with the name of the teacher responsible and preferably including an email address as well as the telephone number and Centre address
- A letter stating how standardisation was carried out in the Centre
- A photocopy of the Candidate Record Card (CRC)
- Marked examples of the Study of a Science Topic
- Marked examples of Data Analysis
- ALL marked End-of-Item tests for the six chosen candidates

End of Item Tests

The 'colour' of End-of-Item tests that Candidates take depends on the year in which they start the course, they should not normally use a mix of colours. As expected, moderators received mostly blue tests this year corresponding to Candidates starting the course in September 2006.

Moderators take and remark a sample of 6 tests per Candidate selected from the whole range of tests attempted by the Centre so that a balanced overview of the Centre's marking is obtained. Most Centres had marked the tests closely following the published mark scheme and had marked in accordance with the instructions on the front cover of the schemes. Centres are to be thanked for the care that they put in to this part of the assessment.

Errors that did occur with the assessment of tests included

- Marking the tests in colours other than red - especially green which the moderator uses.
- Marking 'list' type questions incorrectly
- Circling totals at the end of each question (Use the one tick - one mark method)
- Incorrect transfer of points to record cards
- Failing to record the test on the record card
- Recording a mark for a test not sent as part of the portfolio

On rare occasions teachers may consider that an answer that a student has given is correct but is not covered by the mark scheme. It is acceptable to mark such an answer correct but there should be annotation on the script to explain why the mark has been given. (even if only bod – benefit of doubt).

Can-do Tasks

Some Centres had students completing several practical activities but ticked very few Can-do tasks; this was even though the Skills Assessment work carried out must have involved the Candidate demonstrating some tasks successfully

Only the best 8 tasks can be chosen so the maximum is 8 three point tasks = 24 which is then halved to give a total out of 12 points. Low level tasks are useful for training and allowing candidates to show their progress, but opportunites need to be given to allow candidates to perform some of the higher level tasks.

Skills Assessment

In attempting to take the course in one year, some centres did not provide the candidates with the opportunity of gaining points for the two Skills Assessments prior to moderation taking place. Some centres had completed no Studies of a Science Topic and others had not completed a Data Analysis task whilst a few had done neither.

Study of a Science Topic

The commonest Study of a Science Topic was "Is chocolate good for you?". This may be coupled with the fact that this topic had been mentioned at training events. However the commonest faulst were to omit the references or not find any scientific evidence for and against so as to allow a conclusion to be reached. Topics with titles that do not ask ask questions, such as '*Pandas*' make it difficult to find science patterns in data, and this makes it difficult to reach a suitable conclusion based on the evidence collected.

Best practice is to allow candidates a limited free choice, and then allow some research time to see if they can find any information 'for and against'. Research can be from science books, library books, newspapers, or the internet. Candidates need to be encourgaed to find suitable visual material, such as scientific diagrams, charts or data along with factual information. Once the research part has been done, candidates need to write their report. This could done using IT (word-processed, *Powerpoint*, or printing out to making posters, or handwritten.
Where material has just been 'cut and pasted' from internet sites, teachers should annotate these sections as such. It is expected that marking will show where awards have been made, and this is best done using the codes, such as C=2 if a conclusion has been reached, but without using the data found.

Some suitable titles are

Should smoking be banned in public places?
Is junk food linked to obesity?
Is it okay to diet?
Is sunbathing good ar bad?
Is drinking alcohol harmful?
Should we put endangered animals into zoos?
Should mobile phones be banned for under 8's?
Is the climate changing?
Is Pluto a planet?

Data Analysis

Many Centres used the whole class to collect data – craters and electromagnets proved popular, but few surveys were seen.

Best practice is to use a class activity where candidates can collect data, and then share it – making an individual decision about how much, and what to use. This would allow full access to the Aspect A marking crieria of selecting results, plotting charts, and for Aspect B of stating a trend. Tasks which involve science and use equipment are preferable, so that a trends can be be explained using scientific ideas, and comments on the reliability of the data can be made. Many of the Practical Activities carried out for 3970 are suitable for Data Analysis and an extract of the list provided for 3970 may be useful:

- Investigate the effect of exercise on pulse rate. (Beware of over-marking because of the simplistic nature.)
- Which foods contain most energy? Which foods contain most water?
- Investigating the effect of exercise on breathing.(Again beware of the simplistic nature of the experiment leading to over-marking)
- Investigation of flow of gravy with temperature or algal thickening.
- Investigate the effect of temperature or pH on enzyme activity.

- Investigation into the stretchiness of fibres.
  Investigating the strength of fibres.
- Investigating the strength of 'concrete' beams.
- Investigate the strength of paper bridges.

- Investigating the effect of length or thickness of wire on a current.
- Investigating the size of a current needed to burn out a wire.
- Investigating how to make an electromagnet stronger.
- Relating stretching force to extension and thickness of elastic bands.

- Investigating the effect on the shadow of changing the relative positions of a screen, a puppet and a shadow.
- Investigating the effect of speed and ‘weight’ on the size of craters made by falling objects.
- Investigating the effect of using packaging materials of different types to keep a small beaker of water warm.
- Investigating the insulation of various materials and keeping something cool.
- Investigating the effect of friction on stopping distance.

Entry Level Certificate

June 2007 Series

Component Threshold Marks

Component	Max Mark	3	2	1	U
1	100	75	50	25	0

Option/Overall

	3	2	1	U
Percentage in Grade	12.8	33.2	42.7	11.3
Cumulative Percentage in Grade	12.8	46.0	88.7	100

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