

Comparison of the National Senior Certificate Examinations Administered by the Independent Examinations Board: 2013 – 2015

Accounting, Business Studies, Economics,
Geography, History, Life Sciences, Mathematics,
Mathematical Literacy and Physical Sciences

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1.1.1 Accounting

1.1.1 Compliance in terms of format and structure

The IEB Accounting papers that were analysed are presented in Table 1 below.

Table 1 - Format and structure of Accounting Examination Papers

Exam paper	Focus area for paper	Duration (hrs) For each paper	Mark allocation for each paper
IEB 2013 P1 IEB 2014 P1 IEB 2015 P1	Application of Skills	2	200
IEB 2013 P2 IEB 2014 P2 IEB 2015 P2	Problem Solving and Analysis	2	100

The IEB papers comply with the examination requirements as set out by the IEB Assessment Guidelines with regard to the format and structure. All the IEB Accounting examination consists of 2 papers. Paper 1 focuses on application of knowledge and theory totalling 200 marks and the duration is 2 hours. Paper 2 focuses on the analysis, evaluation and interpretation of the knowledge at totalling 100 marks and the duration is 2 hours. The mark allocation (300 marks) and duration (4 hours) of the examination papers combined complies with the suggestions in the IEB Assessment Guidelines.

The IEB papers comply with the requirements as specified in the IEB Assessment Guidelines as they cover the scope of the grade 12 curriculum: Financial Accounting, Managerial Accounting and Managing resources.

The Assessment Guidelines does not stipulate the number of questions per paper and the mark allocation per question. Like previous years examination papers, the IEB 2015 paper consisted of 4 questions in paper 1 and 3 questions in paper 2. All

questions are compulsory and were to be answered in a specially prepared answer book.

Each exam paper consisted of the answer-book and the information booklet. There is no separate question paper as questions are only printed in the answer book.

It is stipulated in the Assessment Guidelines that all topics require integration of ethical issues and internal control. As a result of this stipulation ethical issues were only found to be integrated in Question 3 of paper 1 (totalled 2 marks), and in Question 3 of paper 2 (totalled 1 mark). While internal control was integrated in questions 1, 2 and 3 of paper 1 (totalled 7 marks) and question 3 of paper 2 (totalled 6 marks).

The team noted that the IEB 2015 paper includes the new content as specified in the Assessment Guidelines. Creditors Reconciliation was examined in Paper 2, question 1. Repurchase (buy-back) of shares was examined in Paper 1, questions 2 and 3.

In the Assessment Guidelines it is stipulated that examinations should address problem-solving questions where learners are required to use critical and creative thinking and this is evident in paper 1, question 4 and paper 2, in all three questions were problem solving.

According to the IEB Assessment Guidelines there is no target for content coverage according to the fields of Financial Accounting; Managerial Accounting and Managing Resources. However, the team did analyse the IEB 2013, 2014 and 2015 papers according to topics examined.

Table 2- Topics examined in the IEB 2013, 2014 and 2015 papers (P1 and P2)

Topic area	Marks 2013		Marks 2014		Marks 2015	
	P1	P2	P1	P2	P1	P2
Companies	71	0	61	0	66	8
Statement of Cash Flows	37	0	40	0	25	0

Analysis and interpretation of financial statements	8	0	22	0	5	0
Analysis and interpretation of published financial statements	0	42	0	37	0	48
Interpret reconciliations - bank, debtors, creditors, age-analysis	0	15	0	23	0	16
Production cost statement & notes	31	0	31	0	17	0
Unit costs & break-even	11	0	6	0	3	0
VAT	10	0	12	0	10	0
Validate & calculation inventories - FIFO, Weighted average, Specific Identification.	3	0	15	0	0	9
Cash budget - sold trader/company - analyse & interpret	0	25	0	23	65	16
Perpetual & periodic inventory systems	0	0	0	0	0	7
Professional bodies & code of conduct	0	4	0	7	0	6
Movement of fixed assets	15	0	0	0	0	0
Internal control & internal audit processes	6	14	6	0	7	6
Ethical behaviour & legislation - companies	8	0	7	10	2	0
Total	200	100	200	100	200	100

What is evident from table 2 above is that while the papers allow the assessment of all topics presented in the IEB SAGs for Accounting (breadth of assessment), papers also provide ample opportunity to explore the use of higher cognitive responses (depth of assessment) in Paper 2. This is evident in Paper 1 which focuses on application of knowledge and theory at 200 marks and Paper 2 which focuses on the analysis, evaluation and interpretation of the knowledge at 100 marks.

Although main topics covered in Grade 12 syllabus were examined there were topics that were left out such as Company selected ledger accounts, Company Final accounts, Company Income Statement, Manufacturing concepts, short form manufacturing income statement, projected income statement, movement of fixed assets.

1.1.2 Coverage of examinable curriculum

Of the 24 examinable topics in the grade 12 syllabus, below is the number of topics which were examined and the essential knowledge not examined in each paper analysed.

Table 3 - Coverage of examinable curriculum for IEB 2013, 2014 & 2015.

IEB exam papers	2013	2014	2015
No. of Topics examined	17	15	17
Percentage examined	71%	63%	71%
Essential knowledge not examined	7	9	7
-Selected ledger accounts – companies	X	X	X
-Concepts - GAAP & IFRS	X		
-Concepts - companies	X		
-Accounting equation – companies	X		X
-Final accounts – companies		X	X
-Financial statements - IS – companies	X	X	X
-Interpretation and report on movements of fixed assets.		X	X
-Manufacturing concepts	X	X	X
-Perpetual & Periodic inventory	X	X	
-Short-form – manufacturing Income Statement & notes		X	X
-Projected Income Statement		X	
-Validate & calculate inventories - FIFO, Weighted average, Specific identification		X	

From table 3 above, all papers (IEB 2013, 2014 and 2015), when combined, reflected a good spread of questions across the topics in the curriculum. As the duration of the IEB Accounting papers in total is 4 hours and 300 marks (Paper 1 was 2 hours 200 marks and Paper 2 was 2 hours 100 marks), it is impossible for the examiners to examine most topics in the curriculum. The papers cannot accommodate all topics in the time allocated for this. The examiners are therefore selective because the curriculum is too broad.

As the range of skills progresses from understanding concepts, recording information to analysis, interpretation and evaluation of the information, the main topics that are always assessed integrate knowledge and skills from other topics within the grade. E.g. Company ledger accounts are normally assessed internally at school level in either formative and/or summative assessments. It is not included in the examination paper because the assumption is that learners need knowledge and skills from ledger accounts to complete the financial statements and notes. Ethical behavior is examined usually by asking learners to assess a particular internal control issue.

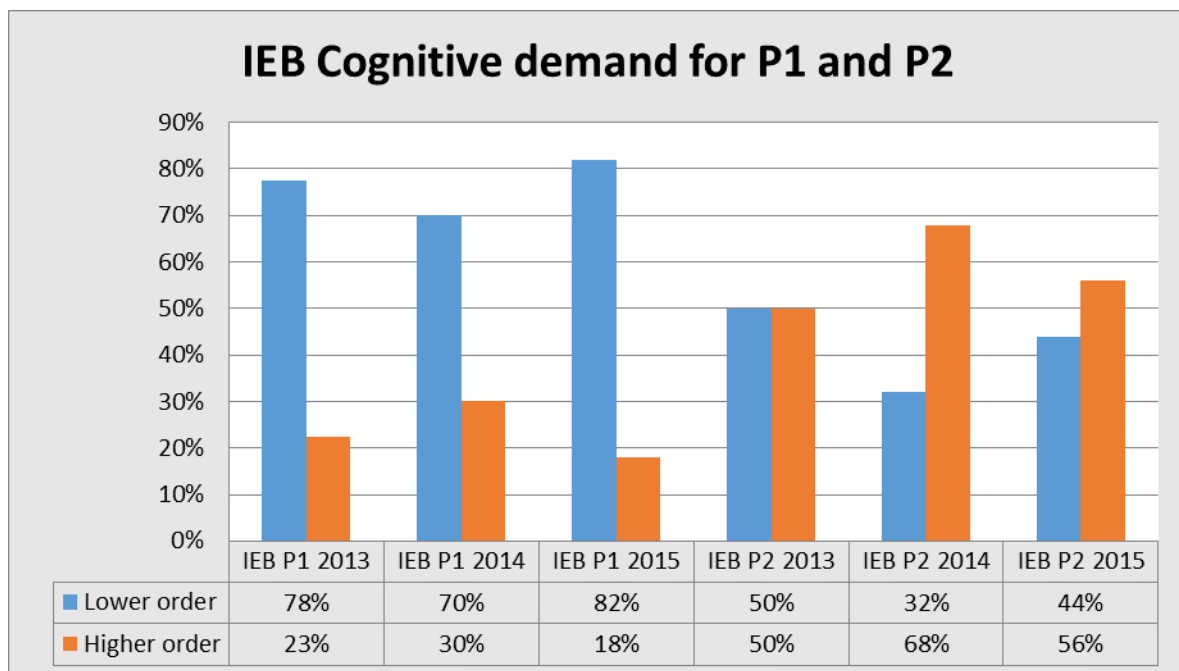
The following topics are usually not examined in the papers as stand-alone questions: Company ledger accounts, GAAP concepts, Company Final accounts, Short form-manufacturing Income Statement & notes.

To avoid double testing the Projected Income Statement is not usually examined together with a Cash Budget neither are Final Accounts examined with an Income Statement as the income statement is simply a logical format of these ledger accounts. Furthermore, if the Balance Sheet (Statement of Financial Position) is examined it is not usual for the Income Statement (Statement of Comprehensive income) to be examined. However, in the teams' findings, the IEB 2015 paper 1 does have double testing as in Question 4 the projected income statement is asked, as well as the cash budget, at the expense of other topics that could have been asked instead.

1.1.3 Distribution of cognitive demand in the papers

With regard to addressing of cognitive levels, the IEB Assessment Guidelines stipulates a two-way split between Lower and Higher-order cognitive levels in a 60 – 40% split for combined papers, 65 to 70% and 30 to 35% for Paper 1 and 40 to 50% and 50 to 60% for Paper 2.

Figure 1.1.1a: Comparison of cognitive demand weightings in the IEB 2013, 2014 and 2015 papers (P1 and P2)

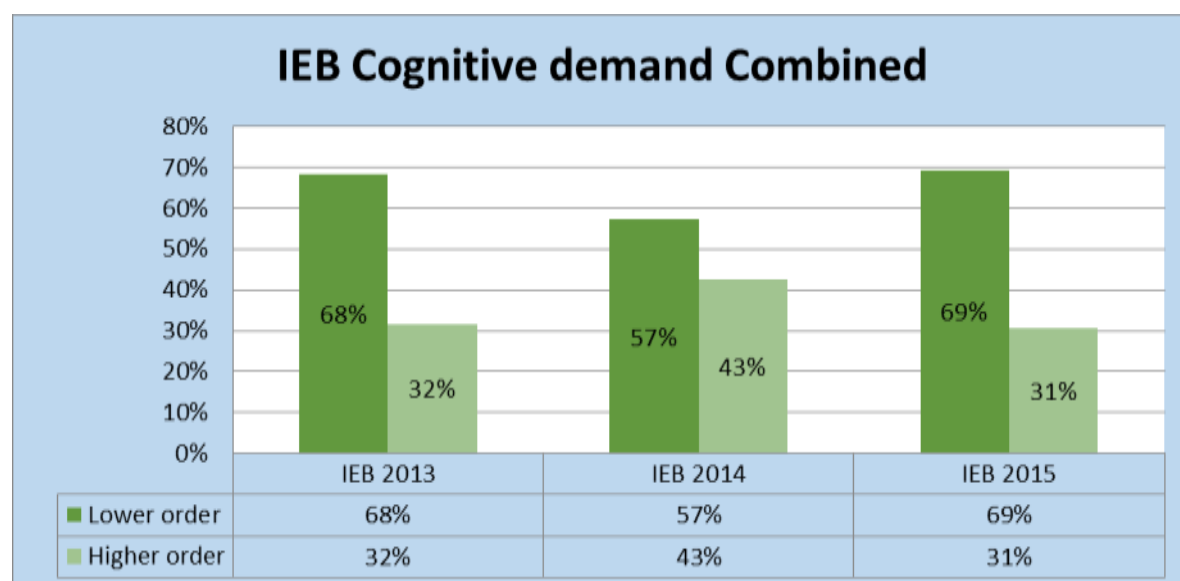


What is evident from the graph above is that the IEB 2015 & 2013 Paper 1 do not meet the requirement of between 65 - 70% for lower-order level as both are above at 82% and 78% respectively. This has adversely affected the higher-order level questions which are both way below the requirement of between 30-35% with 18% and 22% respectively.

The IEB 2014 Paper 1 meets the target with 70% lower order and 30% higher order. Both the IEB 2015 & 2013 paper 2 meet the target with 44% and 50% respectively for lower-order level and 56% and 50% for higher-order level. The IEB 2014 Paper 2 does not meet the target requirements as the lower-order cognitive level is below the 40 to 50% target at 32% and the higher-order cognitive level is higher than the 50 to 60% target at 68%.

In general, for IEB paper 1, the percentage of marks allocated to lower-order level is significantly higher while higher-order level questions are under-represented than what is stipulated in the IEB Assessment Guidelines. In general, for IEB paper 2, the percentage of marks allocated to lower-order level and higher-order level are within the range stipulated in the IEB Assessment Guidelines.

Figure 1.1.1 b: Comparison of cognitive demand weightings in the IEB 2013, 2014 and 2015 papers - combined



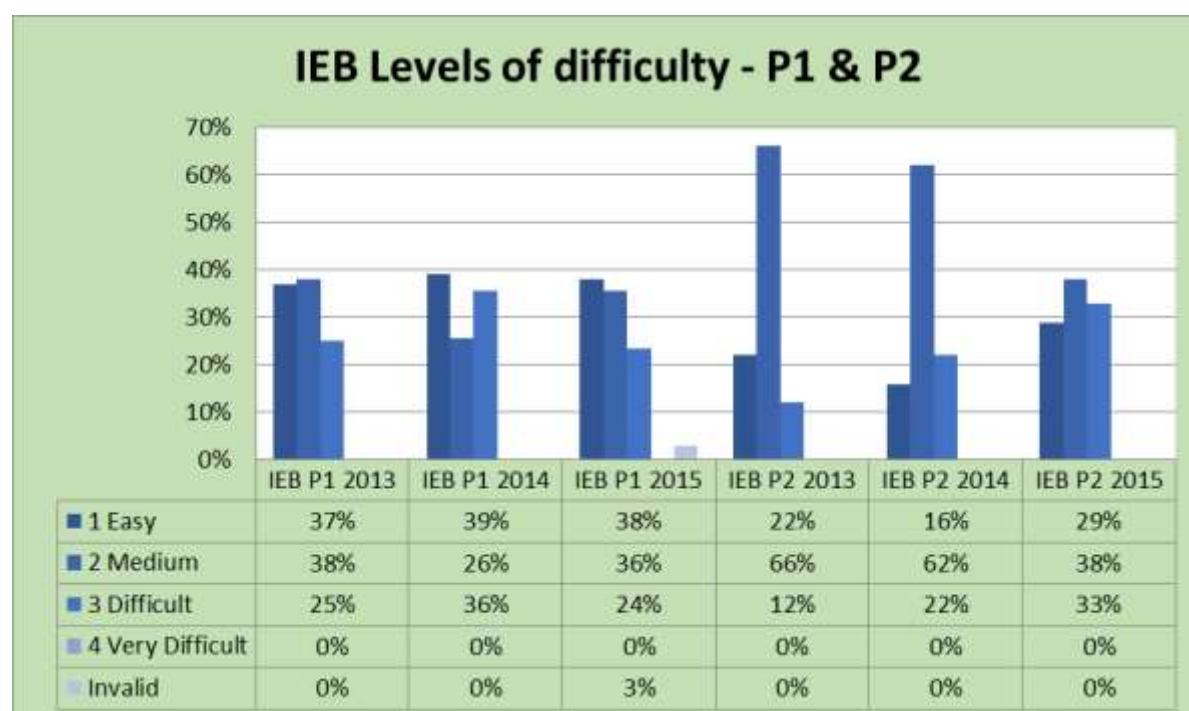
Analysis of these papers (combined) indicated that IEB 2015 and 2013 combined papers exceed the target of 60/40 because of the high emphasis on lower-order level questions in paper 1. The IEB 2014 combined paper is the closest to the target with 57% lower-order and 43% higher-order questions.

In the IEB 2013 and 2015 papers, 62% of the marks were allocated to the application level type of questions. Although application level is heavily weighted, 46% (2015) and 49% (2013 paper) of this level requires learners to perform advanced accounting procedures. In the IEB 2014 papers, fewer marks were allocated to the application level type of questions at 49%. Hence the paper reflects less lower-order questions.

1.1.4 Distribution of levels of difficulty in the papers

The IEB Assessment Guidelines stipulate that all examinations in Accounting, must reflect sub-questions of differing degrees of challenge, i.e. Easy, Moderate and Difficult to ensure that question papers cater for the full range of abilities of learners.

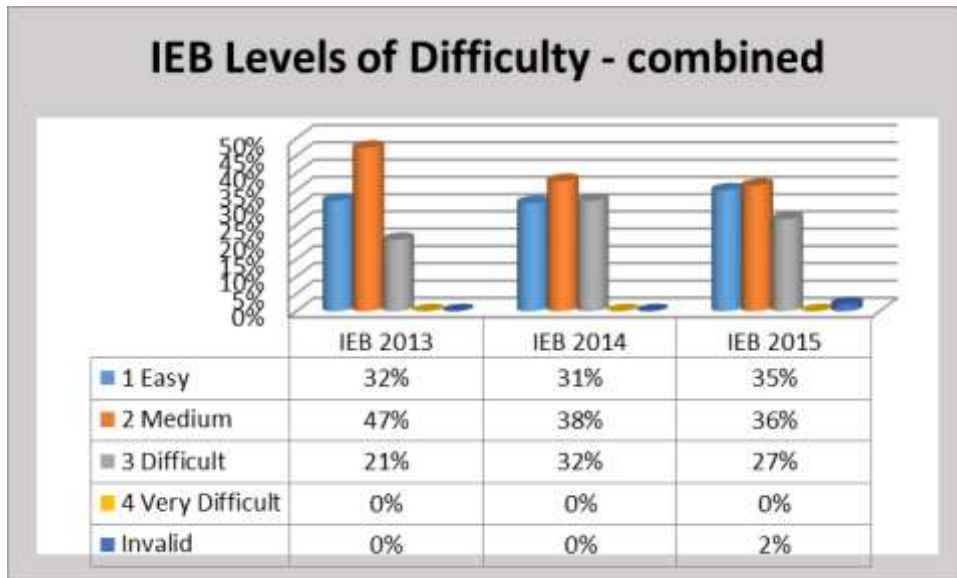
Figure 1.1.2a: Comparison of difficulty level weightings in the IEB 2013, 2014 and 2015 papers (P1 and P2)



All IEB paper 2 reflect more percentage of easy question. The 2014 paper 1 reflects more difficult questions and easy questions at the expense of moderate questions. This is aggravated by the fact that in 2014 Paper 1 Question 1 learners had to work backwards to find the amounts in the financial statements. The IEB 2013 and 2015 paper 1 are less challenging than 2014 paper 1.

Although the emphasis in paper 2 is on analysis, evaluation and interpretation of knowledge, the 2013 paper 2 reflects a very low percentage of difficult questions with 12%. Both 2013 and 2014 reflect more moderate questions at the expense of easy and difficult questions. 2015 paper reflects more easy and difficult and less moderate questions compared to other papers.

Figure 1.1.2b: Comparison of difficulty level weightings in the IEB 2013, 2014 and 2015 papers (combined)



When combined, the IEB 2013 paper appeared to be the lenient paper compared to 2014 and 2015 papers with more moderate questions. The 2014 paper reflects more difficult questions and less easy questions at 32% and 31%. The fact that learners had to work backwards in Questions 1 and 2 of 2014 paper 1, with few marks awarded to these complex calculations, contributed to the level of difficulty of the paper combined. The 2015 paper is slightly less challenging than 2014 with less difficult and more easy questions.

1.1.5 Invalid sources of question difficulty or ease

There were no questions that were assessed as having invalid sources of difficulty or of ease in the IEB 2013 and 2014 examination papers analysed.

However in the IEB 2015 paper 1, Question 2 has 4 marks as invalid due to the fact that there is not enough information given to calculate the opening balance of Retained Income in note 8 and the Trade Creditors in Note 9.

1.1.6 Difficulty of stimulus/source material

In Accounting stimulus is related to scenarios and background financial information that is provided for learners to be able to analyse and evaluate to answer questions. This stimulus requires the learners to understand subject specific terminology which contain financial information that is tailored to an expected response.

For the IEB papers, learners are provided with a separate source material booklet for additional information.

Source material in all six (P1 and P2) IEB papers is consistent with expected levels for Grade 12. What the team found is that questions contain no irrelevant or distracting information. In most cases learners know where in the text to look for relevant information.

The team identified stimulus that learners might consider difficult. In all six papers there were instances where learners had difficulty in responding because of the following reasons:

- Difficulty to interpret and understand information given
- Reverse calculations & a lot of reading
- Unpack a large amount of information for their response
- Select relevant and appropriate information from dense contextual information

In the IEB 2014 Paper 2 stimulus was provided regarding Clover Dairy. The team felt that it would be difficult for rural students to relate to this.

Table 4 - Examples of questions with difficult stimulus

EXAM PAPER	QUESTION	JUSTIFICATION FOR DIFFICULT STIMULUS
IEB 2013 P2	1.8.2	Extract the relevant response from stimulus
	3.4	Extract the relevant response from stimulus
IEB 2014 P1	1.2	Due to impact of bank overdraft
	3.2.3	Impact of consequential marks
	3.2.4	Impact of consequential marks
IEB 2014 P2	2.5	Not enough information provided to comment properly
	2.4	Stimulus was confusing
IEB 2015 P1	1.2	Working backwards to calculate Factory Overheads, which was awarded accuracy marks
	3.4	Apply knowledge to unknown scenario
IEB 2015 P2	1.4.2	Not enough information provided to separate the 60 and 30 days.
	2.3	Apply knowledge to unknown scenario
	2.4	Apply knowledge to unknown scenario
	2.5	Apply knowledge to unknown scenario
	2.7	Difficult to comment using the correct amounts from the information given
	Part B	Apply knowledge to unknown scenario
	3.5.1	Stimulus was confusing

1.1.7 Comparability of 2013 – 2015 examination papers

The following discussion regarding the comparison of examination standards is based on the information provided above and the data gathered in the spreadsheet.

Table 5 – Comparing the different levels of difficulty and the cognitive demand weighting in the IEB Combined papers.

	LEVELS OF DIFFICULTY				COGNITIVE DEMAND	
	1 E	2 M	3 D	ID	L-O	H-O
IEB 2013 Combined	32%	47%	21%	0%	68%	32%
IEB 2014 Combined	31%	37%	32%	0%	57%	43%
IEB 2015 Combined	35%	36%	27%	2%	69%	31%

Based on the information above, in the IEB 2014 paper 1 there was a balance between the marks allocated to easy and difficult questions. The paper was also the most difficult when compared to 2015 and 2013 Paper 1. The IEB 2015 Paper 1 appears to be the least challenging with 24% difficult questions while the 2013 Paper 1 is the second less difficult at 25%.

Both 2013 and 2014 paper 2 reflect more moderate questions at the expense of easy and difficult questions. This is aggravated by the fact that in 2014 Paper 1 Question 1 learners had to work backwards to find the amounts in the financial statements. 2015 paper reflects more easy and difficult and less moderate questions compared to other papers. In terms of Paper 2 the IEB 2015 paper was the most difficult with most easy questions too.

When combined the IEB 2014 appears to be significantly more difficult than the IEB 2015 and 2013 papers. This suggests that learners will experienced the 2015 paper as significantly less challenging than the 2014 and more challenging and 2013 paper. Hence the team believes that the overall performance in 2015 will be better when compared to the IEB 2014 results.

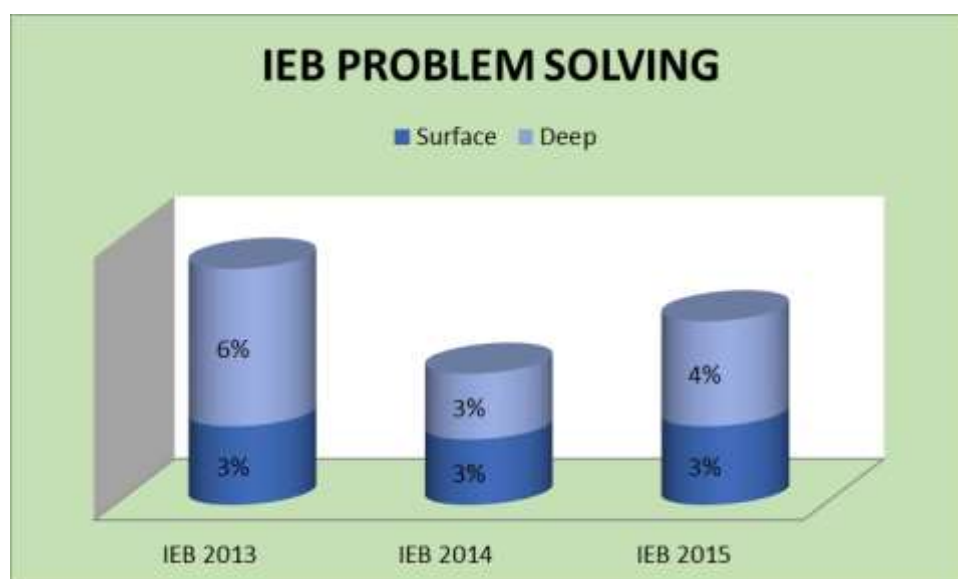
More learners at the bottom end of the scale will pass the 2015 paper compared to the previous papers while more A symbols will be achieved in 2015 due to the decrease in difficulty. In 2015 the average learner will attain more marks than in 2014 due to increase in easy type questions and less difficult questions than in the 2014 paper.

1.1.8 Other points regarding the standard of the examination

Problem solving

According to the IEB Assessment Guidelines Paper 2 assesses theory, analysis, interpretation and problem solving. There is no stipulation in this guideline regarding how many marks are assigned to problem solving. Based on the analysis of the team, there were questions that address problem-solving of a deep and surface nature using critical and creative thinking.

Figure 1.1.3 Comparison of problem solving questions for IEB 2013, 2014 and 2015 papers



The IEB 2015 paper reflected 3% surface problem solving and 4% deep problem solving across the papers, giving the team 7% in total. In paper 1 the problem solving is found in Questions 1.6 and 4.4.5, while in paper 2 there is a spread throughout all 3 questions.

The IEB 2014 paper reflected equivalent spread of marks for deep and surface problem solving 2, 5%. In the IEB 2014 paper 1 these questions came from 3.2.5 and 4.5 and from Question 2.6, 3.9 and 3.11 in Paper 2. Although Paper 2 was extremely challenging at 68%, there were no questions which require in-depth interaction with

information in a question where the learners had to solve a real problem faced by the business

The IEB 2013 papers included problem solving questions at 9% and these were predominantly of a deep nature. These questions came from Questions 2, 3 and 6 in Paper 2.

1.1.9 Concluding discussion

1.1.9.1 Inconsistency in mark allocations for IEB 2015:

Question 1.1 - a mark should have been awarded for the amount and a separate mark for the word payable.

Question 1.4 - learners were penalised twice for amounts calculated in Question 1.3 as there were no method marks allocated.

1.1.9.2 In the team's opinion, the length of the paper was too long for the time allocated, mainly because of the many instances of having to work backwards to calculate figures as this takes more time.

Learners will be disadvantaged in Question 4.3 where the Projected Income Statement and Cash Budget are assessed.

1.1.10 Recommendations for improving the quality and standard of Accounting examinations

- The curriculum needs to be updated on a more regular basis to reflect current practice: Terminology relating to financial statements e.g. **Balance Sheet** now called **Statement of Financial Position**.
- In some cases there was a large amount of background information and/or scenarios that had to be read before answering the questions that followed. This hinders how fast learners can work, especially if English is not their home language. The team recommends that the number of readings that need to be done by the learners should be reduced.

- The stimulus (background and information) provided should be accurate and not confusing.
- The adequacy and accuracy of **marking memorandum** should be checked. Award method marks for calculation done and not just accuracy marks. Learners are unfairly penalised all the way through their answer when only accuracy marks are awarded and no consequential marks were given.
- More **thorough moderation** needs to be done to pick up on the errors in the memorandum, as well as poorly worded and invalid questions due to insufficient information provided.
- Extensive scaffolding provided in the answer book, especially in Paper 1. This is probably in an attempt to save the learners' time in an exam paper that was too long.

1.2 Business Studies

1.2.1 Compliance with CAPS and/or relevant assessment body

The format and structure of the IEB National Senior Certificate Examination paper meet the terms as indicated in the IEB Manual of School Based Assessment (SBA) Handbook Implementation: Grade 12, 2014. The requirements in the Business Studies Examination Guidelines for Grade 12, proposing a **Paper 1: Application of Business Knowledge** which is a 2 hour paper of 200 marks. This paper 1 is divided into **Section A**: has different types of questions, e.g. multiple choice, true or false, matching columns and terminology; in this section different questions count different marks, e.g. a true answer may only count 1 mark but a false answer with a reason/correction of the statement may count 2 or 3 marks. Total marks allocated for this section is 50.

Section B: is made up of three questions of 50 marks each. This section is comprised of shorter type questions, e.g. list, explain and discuss. There are case studies or source based questions contained within and learners are expected to use these to validate that cognitive skills across the spectrum have been mastered. This section is allotted 150 marks.

Paper 2: Problem Solving and Analysis – 2 hours – 100 marks. The focus is on the use of scenarios which led themselves to higher cognitive questions, even though permitting for lower order thinking to be examined. The answers required are longer in nature and rubrics, together with marking guidelines are used to assess these responses.

1.2.2 Coverage of Examinable curriculum

Examination papers sufficiently covers all the important examinable components of the curriculum. There are questions fitting together with all FOUR (4) Main Topics in Section A, B and C of the question paper (i.e. Business Environments, Business Ventures, Business Roles and Business Operations). All IEB examination papers (i.e. 2013 – 2015) were able to cover the broad continuum of the examinable scope for

Business Studies Grade 12 in all four main topics. Critical knowledge were covered in all these papers and were covered through different types of questions in all cognitive levels. The weighting is 25% for each topic.

The following table it shows the percentages of how the four main topics were covered:

TABLE 1.1 Coverage of examinable curriculum

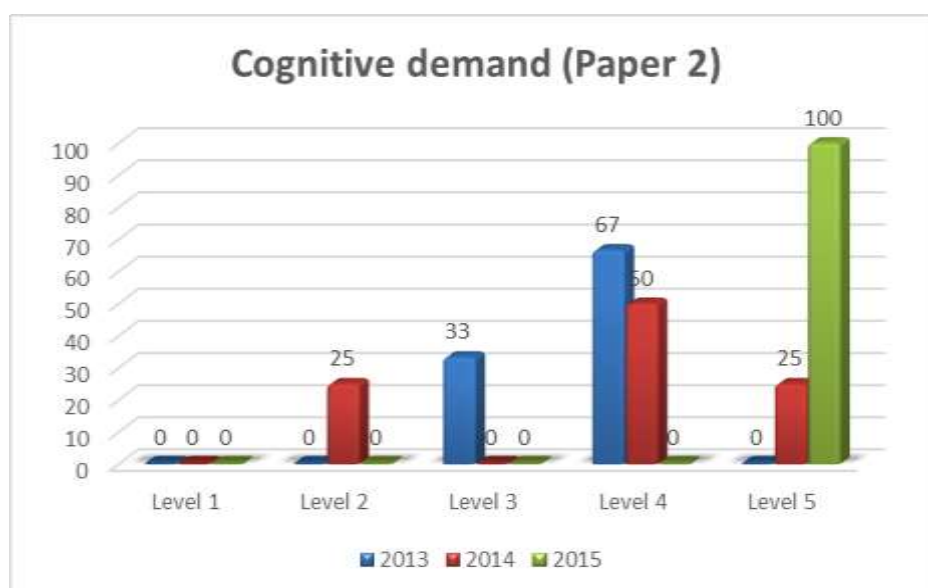
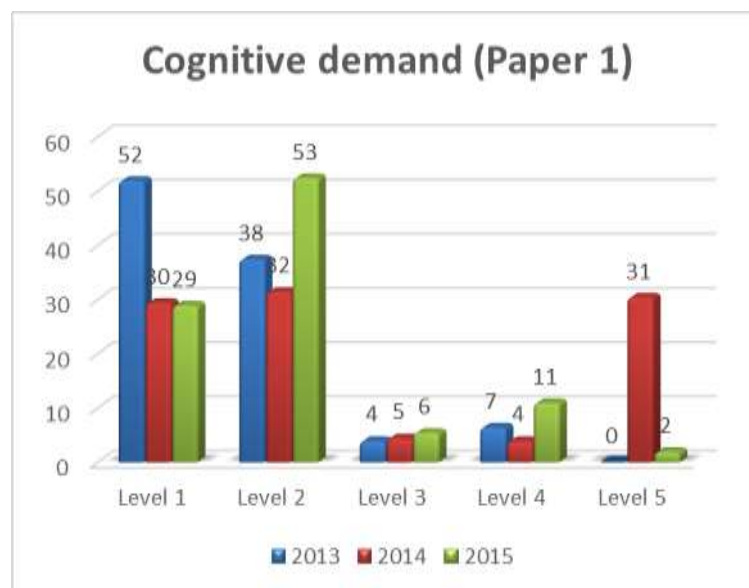
Main Topics	TOPIC 1 Business Environments	TOPIC 2 Business Ventures	TOPIC 3 Business Roles	TOPIC 4 Business Operations	RATING
IEB	25%	25%	25%	25%	100%
2013 Paper 1 & 2	25%	24%	24%	27%	100%
2014 Paper 1 & 2	31%	17%	12%	40%	100%
2015 Paper 1 & 2	29%	18%	20%	33%	100%

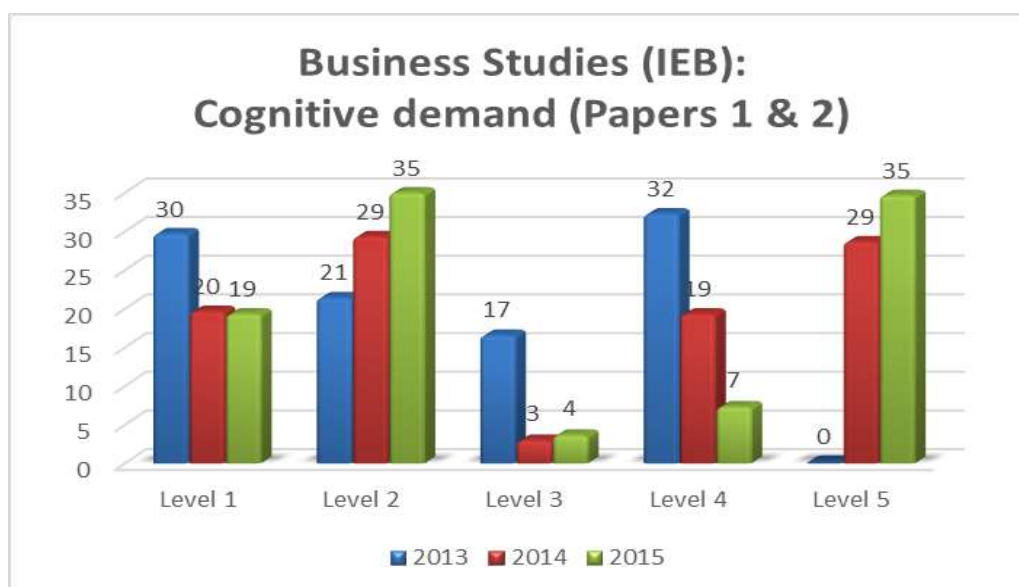
According to the Business Studies IEB National Senior Certificate Handbook: Grade 12, 2014. All Four (4) Main topics should cover **25%** of each topic. Nonetheless, the analysis shows that Business Roles across years is insignificantly covered to meet the maximum coverage of 25%. For the 2014 Papers 1 & 2 the bulk of weighting is towards the Business Operations (i.e. 27 – 40% coverage), followed by Business Environments and Business Ventures. According to the analysis team there is a significant deviation in 2014 Papers weightings across the main topics. The conclusions of the analysis team are for both paper 1 & 2 the coverage of main topics were almost squarely distributed, however, for all main topics the distribution was slightly off the norm of 25%. As shown above most topics were within Business Operations with 33% and Business Environments with 29%.

1.2.3 Distribution of cognitive demand in the papers

The Business Studies Independent Examination Board National Senior Certificate Handbook: Grade 12, 2014, stipulates mark allocation per cognitive level which comprises of: Knowledge **30%**, Understanding **15%**, Application **15%**, Analysis **10%**, Synthesis **10%** and Evaluation and Problem solving **20%**.

For the purpose of this analysis cognitive levels were combined as follows: Knowledge and Understanding (**level 1 and 2**), Application and Analysis (**level 3 and 4**) and Synthesis and Evaluation and Problem Solving (**level 5 and 6**).





According to the team's analysis the both Paper 1 & 2 for IEB November 2014 indicates cognitive demand levels as indicated above which are categorised as knowledge and comprehension 49%; application and analysis 22%; synthesis and evaluation 29%. Both papers (i.e. P1 & P2) move away from the required weighting in this regard the paper cognitive demand weightings for knowledge and comprehension: (i.e. L1 & L2) has increased by 4%, for application and analysis (i.e. L3 & L4) has decreased by 3%, and for synthesis and evaluation (i.e. L5 & L6) has decreased by 1%.

Analysis of November 2015 IEB Paper 1 & 2, the knowledge and comprehension (i.e. L1 & L2) there is an increase of 9 %; for application and analysis (L3 & L4) there is a decrease of 14% and for synthesis and evaluation (i.e. L5 & L6) there is an increase of 5%.

1.2.4 Distribution of levels of difficulty in the papers

According to the analysis the difficulty level for **IEB Paper 1 2013**: 40% for easy, 42% moderate, 12% difficult and 6% very difficult. Paper 1 tends towards a moderate level. **Paper 2**: 70% of questions were difficult and 30% of them very difficult. For that reason paper seems to be at a difficult level. The combined or joined analysis of both **Paper 1 & 2** (Easy = 27%, Moderate = 28%, Difficult = 31%, Very difficult = 14% and Invalid source = 0%) this point to a high difficult level (31%) attributed an

increase of (58% difficult and 24% very difficult) questions in paper 2. The **IEB 2014 Paper 1** analysis of difficulty levels: 35% of easy, 37% for moderate and 29% for difficult, this tends towards a moderate paper. **IEB 2014 Paper 2** analysis demonstrates 75% of difficult questions and 25% very difficult, as a result this paper could be labelled as a difficult paper. The **IEB 2015 Paper 1**: 39% easy questions, 34% moderate questions and 28% of questions were difficult, therefore there is signal a higher frequency of 4% of easy questions in 2015 making Paper 1 not too challenging for both the 30% average learners and 80% learners. **IEB 2015 Paper 2**: it is 100% difficult gives an indication of a 25% higher frequency of difficult level of questions and 0% very difficult questions. Nonetheless, the **2015 Paper 2** is pitched at a less challenging level as equated to the 2014 Paper 2. The collective analysis of both **IEB 2014 Paper 1 & 2**: 23% = Easy, 24% = Moderate, 44% = Difficult and 8% = Very Difficult. **IEB 2015 Paper 1 & 2**: 26% = Easy, 22% = Moderate and 52% = Difficult. This shows an increase of 3% of easy, 8% difficult questions. Thus the average learner combined performance of paper 1 and 2 should be satisfactory.

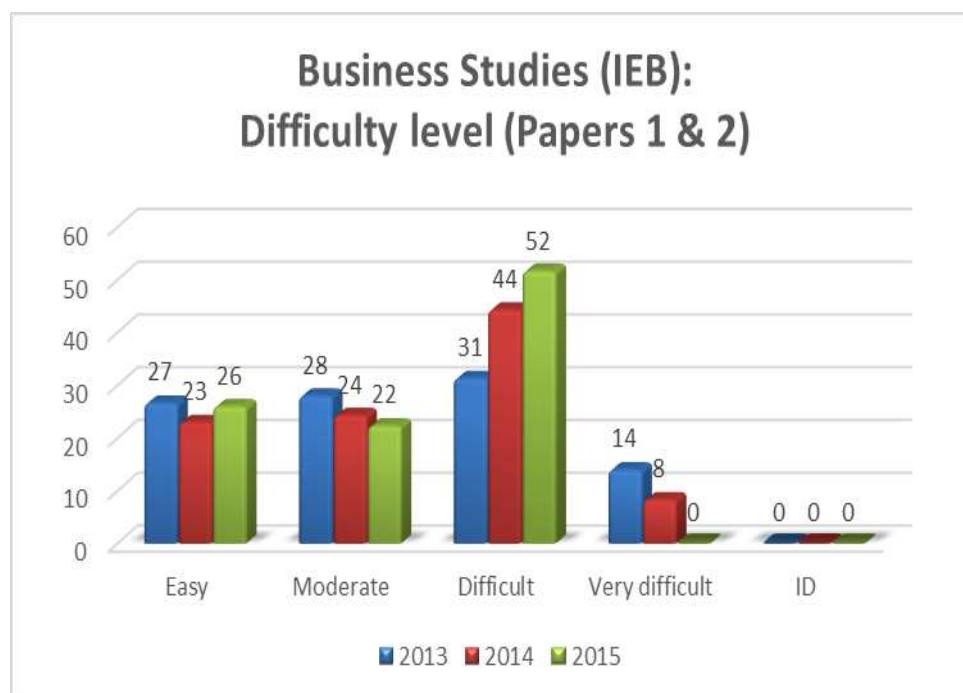


Figure 1.2.2 Comparison of difficulty level weightings in the paper

1.2.5 Invalid sources of question difficulty or ease

Number of questions assessed as having invalid sources of difficulty/ of ease:

Paper 1 & 2	Difficulty	Ease
IEB: Nov 2013 (P1 & P2)	7	
IEB: Nov 2014 (P1 & P2)	18	
IEB: Nov 2015 (P1 & P2)	7	3

Explanation of invalid sources of difficulty according to the analysis of the team:

IEB: 2014 Paper 1:

- Question 3.2.1: The question assess advanced content which tests candidates contents of theoretical issues and they have to apply to a particular context
- Question 3.2.2: The question assess advanced content which tests candidates contents of theoretical issues and they have to apply to a particular context
- Question 3.2.3: The question assess advanced content which tests candidates contents of theoretical issues and they have to apply to a particular context
- Question 3.2.4: The question assess advanced content which tests candidates contents of theoretical issues and they have to apply to a particular context
- Question 3.5.2: The question assess advanced content which tests candidates contents of theoretical issues and they have to apply to a particular context
- Question 3.5.3: The question assess advanced content which tests candidates contents of theoretical issues and they have to apply to a particular context
- Question 4.2: The question is set in a very rich context which can increase question difficulty
- Question 5.2: The question assesses two knowledge operations

- Question 5.6: The question assess advanced content which tests candidates contents of theoretical issues and they have to apply to a particular context

IEB: 2014 Paper 2:

- Question 1: The question has to unpack a large amount of information in the memorandum. Memorandum spells out expectation to a slightly different question, not the actual question
- Question 1: The question is varied by the change in the number of knowledge elements assessed. Candidates have to use and select their own internal resources. Level of detailed required in an answer is unclear
- Question 2: The question tests candidates understanding of theoretical issues or topics rather than their knowledge of contextualised topics or issues
- Question 2: The question tests candidates understanding of theoretical issues or topics rather than their knowledge of contextualised topics or issues

For **IEB: 2015** Paper 1:

- Question 4.3: The question tests two operations are assessed which is identifying and discussing. This is task difficulty.
- Question 5.1: This is also a task difficulty question which, tests two operations are assessed which is explain and list
- Question 5.4.1: This is content difficulty, the question assesses advanced content which tests candidates contents of theoretical issues which they to apply to a particular context
- Question 5.4.2: This is also a content difficulty, the question assesses advanced content which tests candidates contents of theoretical issues which they to apply to a particular context
- Question 5.5.5: This is a task difficulty, the question The evaluate against the backdrop of risk and return

- Question 5.5.6: This is another task difficulty, because in this question two elements are assessed. Impact of short term and long term investment
- Question 6.1.6: This is a task difficulty question, candidates have to apply their knowledge of SWOT and motivate

For **IEB: 2015** Paper 2:

- Question 1: This is a stimulus difficulty question, the question requires candidates to unpack a large amount of information for their response. The presentation of the stimulus sources is in a dense form where too many points are packed in the question. Candidates have to look at five sources of stimulus to respond to the question. There are multiple elements of operation.
- Question 2: This is a task difficulty question, two operations are assessed. Candidates have to explain and make recommendations.

1.2.6 Difficulty of stimulus/source material analysed

Paper	Easy	Moderately Challenging	Difficult
IEB: Nov 2013 (P1 & P2)	2	4	
IEB: Nov 2014 (P1 & P2)	2	5	1
IEB: Nov 2015 (P1 & P2)	8	8	1

For 2013 and 2014 there are abundant sources material drawn from case studies used in IEB Paper 1 & 2. The linguistic style used is reasonable and comprehensible for a 30 % average learner and the 80% learner the length of stimulus sources is reasonable and not too condense with information. Both papers use one theme in this case they used Pick n Pay as the central theme for all stimulus sources. Sources used in Paper 2 could be challenging for learner because they are expected to do calculation of profits and candidates are expected to write a business report to the

Board of Directors of Pick n Pay in which you assess the factors to be considered when analysing the quality of performance of the different business functions and external environment of Pick n Pay. Also make recommendations on how to improve the overall performance of the business. The **2015** Nov IEB there are seventeen (17) in total the number of stimulus sources used for both paper 1 & 2. Both the linguistic style used is reasonable and comprehensible for both the 30% average learner and 80 % learner.

1.2.7 Comparability of 2013 – 2015 examination papers

Comparability of quality

PAPER	RATINGS
IEB 2013 paper 1 & 2	Good
IEB 2014 paper 1 & 2	Good
IEB 2014 paper 1 & 2	Good

The analysis team has rated all papers from 2013 – 2015 as good papers in entirety in terms of standard and quality. Nonetheless, we pointed-out some of the invalid sources of difficulty and its appropriateness to the questions. We also make precarious considerations for the precise and explicit marking guideline in terms of allocation of scores.

1.2.8 Other points regarding the standard of the examination

Papers 1 & 2 of IEB November 2013 – 2015, questions were fairly distributed in terms of level of difficulty, meaning the papers try to include each level of difficulty. However, the weighting between moderate questions and difficult questions is significant at 19%. The analysis team can therefore conclude that both Paper 1 & 2 of 2014 November were difficult for an average learner. Both the 2014 examination question paper 1 & 2 complies with the Business Studies IEB National Senior Certificate Handbook: Grade 12, 2014. The language is rational, comprehensible and of satisfactory standard. Both the IEB papers (i.e. Paper 1 & 2) was fairly distributed in terms of level of difficulty weightings. Paper 1 was more prone towards an easy to

moderate paper, however paper 2 was 100% difficult that sensibly adjusted the difficulty weightings of both papers.

The standard of the papers is good in term of range of options given to candidates, for example paper 1 a greater extent is given to the assessment of theoretical knowledge which underpins the understanding and application thereof. Although, paper 2 involves the analysis and interpretation of case studies, the writing of reports and the solving of problems that requires critical and creative thinking.

1.2.9 Recommendations for improving the quality and standard of the examination

- The rubric in question 1 of paper 2 has criteria of an “open/general” nature. Much is left up to the discretion of the marker when awarding marks. The marker can either advantage or disadvantage a candidate.
- There is no sub max marks in paper 2 in the different parts of the questions.
- It is assumed the facts are marked until the max of 35 has been reached as indicated in question1. This could advantage a candidate in that he/she may know of one sub topic and will score marks for facts even though the question has not been answered in full.
- Higher order thinking – 40% of the marks. Lower order thinking – 60% of the marks for each question. It is not stated on the memorandum which questions belong to the above.
- In both papers there is no NOTES TO MARKERS. They do indicate a standardisation meeting will be held. This memorandum becomes difficult for teachers to use in the future if they did not attend the meeting.
- There needs to be consistency in the memorandum in terms of how questions are marked. Question 4.6 “List three....” In the memorandum there is no instruction to say mark first three only.

Question 5.1 List". The instruction to the marker is to mark the first five only.

1.2.10 Good model for future examinations (use)

- Most questions in the IBE November 2015 papers can be used in future and all FOUR main topics are covered in all sections and in both papers
- The format and structure of the IBE November 2015 papers is a perfect example for future use especially Paper 1. Section A: which consists of different types of questions, e.g. multiple choice, true or false, matching columns and terminology and Section B: which consist of questions of shorter types questions, (e.g. list, explain and discuss). Average learners have a good chance to pass the examination.

1.3 Economics

1.3.1 Compliance with the CAPS and/or relevant assessment body.

The following table indicates the examination papers that were analysed and compared.

Table1: Examination papers under analysis

Paper	Marks	Duration
IEB 2015	300	3hrs
IEB 2014	300	3hrs

The IEB sets one composite paper which complies with the assessment guidelines of the IEB.

The format and structure are in order.

1.3.2 Cognitive demand and weightings

In table 2 below a comparison of the cognitive demand weightings of the 2015 paper and the specifications of the CAPs is presented.

Table 2: Comparison of cognitive demand weightings

Cognitive demand	CAPS %	IEB 2014	IEB 2015
L1 and L 2	30%	53%	76%
L3 and L4	40 %	38%	24%
L5 and L 6	30 %	9%	0%

From the above table it can be seen that the percentage distribution of questions across the cognitive levels is a marked deviation from the prescribed expectations of the CAPS and the IEB assessment guidelines. The IEB distribution is 76:24:0. There is a distinct loading at cognitive levels 1 and 2, at the expense of cognitive levels 5 and 6.

1.3.3 Topic or content and/or skills area weightings

In the table below, the topic weightings are provided. The economics curriculum is divided equally into 4 broad topic areas with each topic area allocated 25% of the total.

Table 3: Comparison of the topic or content and/or skill weightings specified with the weightings for the examination paper(s)

Topic/Content	CAPS %	2015 IEB
Macro Economics	25%	40%
Micro Economics	25 %	28%
Economic Pursuits	25 %	17%
Contemporary Economic Issues	25%	15%

Macro Economics appears to be heavily favoured as a content area for examination in the 2015 IEB paper. The IEB paper has allocated only 17% and 15% to "Economic Pursuits" and "Contemporary Issues" respectively, significantly lower than the prescribed 25% for each of these major content areas. This is likely to disadvantage learners who would be expecting an even distribution (25%) across all four major topic areas in the economics curriculum.

1.3.4 Coverage of examinable curriculum

Table 4 presents data on the coverage of examinable curriculum in each paper.

Examination papers	100% coverage	90-100%	80-89%	70-79%	Under 70%
IEB 2015			X		

The IEB paper covered between 80-89% of the curriculum. Key topic areas such as Tourism, Environment sustainability were not examined adequately in the IEB examination paper for 2015.

1.3.5 Invalid sources of question difficulty

Table 5: Invalid sources of difficulty

Paper	Number of Questions	Reason for Invalid sources
IEB 2015	2 = 3% of paper	2.3.3. Use of the word 'evaluate' but the memorandum does not offer high level evaluative commentary. 4.2.3. Use of the word 'evaluate' but the memorandum does not offer high level evaluative commentary.

The main 'invalid' source of difficulty can be found in the use of high-level cognitive verbs such as 'analyse' and 'evaluate' – creating a false impression that high level responses are expected.

1.3.6 Other points regarding the quality of the examination

In table 6 below, examples of good questions/models are presented.

Name of paper	Questions
IEB 2015	1.10-1.20 4.1.3. 4.2 4.2.3. 5.3. 5.4.3.

1.3.7 Rating the quality of the examination papers

Table 7 presents the team's ratings of the quality of the examination papers.

Paper	Rating of examination paper
IEB	Satisfactory

While the team is of the view that the quality of the examination paper is improving from year to year, there are still several areas that need to be considered as detailed above.

Levels of Difficulty

Table 8 below presents the levels of difficulty of the 2015 examination paper.

	LEVELS OF DIFFICULTY			
PAPER	L1	L2	L3	L4
IEB 2015	31%	54%	15%	0%

A disturbing result of the analysis of levels of difficulty in the IEB 2015 paper is that there were no questions at the highest difficulty level. The team is of the view that the very difficult category should be between 10% and 15% of the total paper. This is important to distinguish the high achievers. There is a loading of questions at the moderately difficult level (more than 50% of the paper). Level 1 questions are at an acceptable 30% of the paper.

Typical questions at different difficulty levels

Table 9 below presents examples of questions at the four difficulty levels:

Levels of difficulty	Questions
Easy	1.2. 2.1.1. 3.3.
Moderate	1.15 2.2. 4.4.
Difficulty	5.4.3. 6.3.
Very difficult	Nil

1.3.8 Difficulty of stimulus/source material

Table 9: Number of stimulus/source material analysed as easy, moderately challenging and difficult.

	Difficulty of stimulus material				
Name of paper	Easy	Moderately difficult	Difficult	Very difficult	Total
IEB	11	1			12

The IEB paper had a total of 12 stimulus materials; 11 were considered easy, 1 moderately difficult.

In Q3.5, Q6.1 the stimulus material (cartoon) does not connect strongly to the questions set.

1.3.9 Recommendations for improving the quality and standard of the examinations

Recommendations for improving the quality of the examinations:

Invalid sources of difficulty were present in the paper (2 cases) The specific explanation for each of these was tabled in section 2 above.

In cases where extended stimuli (reading material) are presented, one would expect that this would take up candidates' time which may be in vain if the questions are not directly related to the stimulus material.

Recommendations for improving the standard of the examination

The cognitive demand distribution of the paper reflects a heavy loading at cognitive levels 1 & 2 (76%) and a weak loading at levels 5 & 6 (0%). The testing of high level cognitive demand is clearly a neglected aspect in this paper, and as such does not provide a sufficient scope of questions that will distinguish high achieving students.

Note that although certain questions use the words 'Analysis' and 'Evaluate', a careful examination of the marking memorandum reflects that the expected answers do not demonstrate these high level competences.

The distribution across the levels of difficulty indicates that just over half the questions in the examinations were classified as moderately difficult (54%). While the

distribution of questions across Level 1 is acceptable (31%) questions in the 'very difficult' category are not catered for in this 2015 paper (0%).

The consequence of this is that the paper is not able to effectively distinguish high achieving learners. Examiners ought to pay attention to this crucial aspect of the papers.

While the team feel that the technical quality of the examination papers is improving each year, the standard of the 2015 paper has declined. The current paper is not a good model for future examinations for the reasons cited above.

Comparability of examination papers

Table 15: Comparability of overall quality of 2015 examinations relative to other exams

	Much worse	Worse than	Equivalent to	Better than	Much better
IEB 2012				X	
IEB 2013			X		
IEB 2014		X			

The 2015 paper was certainly of a lower standard than previous years.

Comparison of Cognitive Demand distribution across all papers under review

The table below provides comparative data for all papers.

Table 19: Comparison of cognitive demand across all examinations under review

PAPERS	LEVELS OF COGNITIVE DEMAND		
	CL1&CL2	CL3 & CL4	CL5 &CL6
IEB 2012	63%	13%	24%
IEB 2013	80%	13%	7%
IEB 2014	53%	38%	9%
IEB 2015	76%	24%	0%

The 2015 paper appears to be heavily loaded in favour of cognitive levels 1&2, an increase of 23% from 2014. Questions at Cognitive levels 5 and 6 are disappointingly absent from this 2015 paper. This paper is thus not comparable to the 2014 paper in terms of the cognitive levels tested.

Comparing levels of difficulty for each examination paper.

Table 16: Comparing levels of difficulty of all examination papers.

	LEVELS OF DIFFICULTY			
PAPER	L1	L2	L3	L4
IEB 2012	15%	50%	37%	8%
IEB 2013	14%	72%	14%	0%
IEB 2014	30%	33%	33%	4%
IEB 2015	31%	54%	15%	0%

A comparative analysis reflects that questions at Difficulty level 1 have remained stable at around 30%. In terms of the distribution of questions across the levels of difficulty, the data indicates that the 2015 paper is under-loaded at difficulty level 4. In comparison to 2014, Difficulty level 4 has decreased by 4%.and stands at 0% in 2015. Difficulty level 2 has increased from 33% to 54%, an increase of 21%. Questions at difficulty level 3 have dropped from 33% to 15%.

A total of 85% of this examination was classified as easy to moderately difficult. In essence, the <30% learner in 2015 is likely to perform as well as in 2014 examination. The 80% candidates of 2015 are likely to experience this paper as easier than the 2014 papers since there has been a substantial decrease in questions at difficulty levels 3 and 4.

1.4 Geography

1.4.1 Compliance in terms of format and structure

In all years, the examination as a whole and both papers comply with the specified format and structure of the CAPs and of the assessment body.

1.4.2 Coverage of examinable curriculum

In all years, questions were set on all the major curriculum topics; at least three quarters of the subtopics were covered across the two papers. There were no major gaps; however, there was a noticeably higher number of marks for climatology than for geomorphology in paper 1, with this imbalance offset by the inclusion of geomorphology rather than climatology questions in paper 2. With regard to non-curriculum content in the examination, the team felt that question 4.3 in paper 2 requiring candidates to design a PowerPoint presentation was somewhat outside the prescribed curriculum, and could disadvantage learners who do not have access to ICTs. The knowledge and skills being tested could have been tested in other ways. The question was also possibly more suited to paper 1 than to paper 2.

1.4.3 Distribution of cognitive demand in the papers

While the CAPS has three orders of cognitive demand, low, middle and high, the IEB has only two, low and high. Essentially, the difference is that the CAPS middle order of understanding and applying is amalgamated in the IEB's low order.

The IEB's orders and their weightings are:

- Low order (60%): Knowledge, comprehension and application
- High order (40%): Analysis, synthesis and evaluation.

The weighting of cognitive demand across these levels in the IEB 2013, 2014 and 2015 papers is shown in Figure 3.1.1.

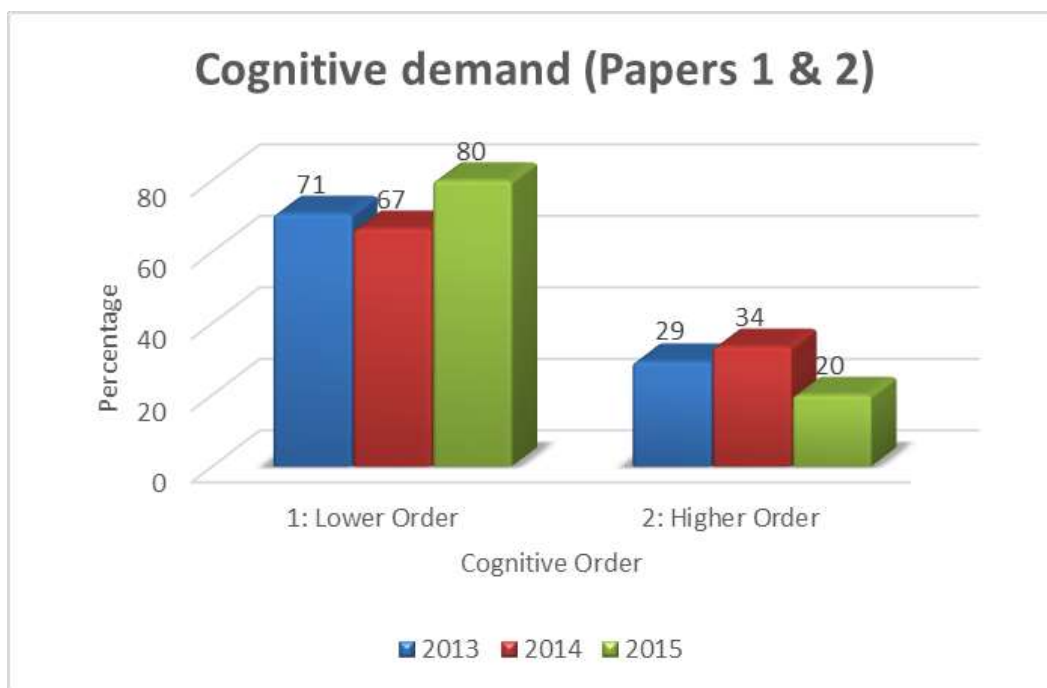


Figure 3.1.1: Comparison of cognitive demand weightings in the paper(s)

The graph shows that:

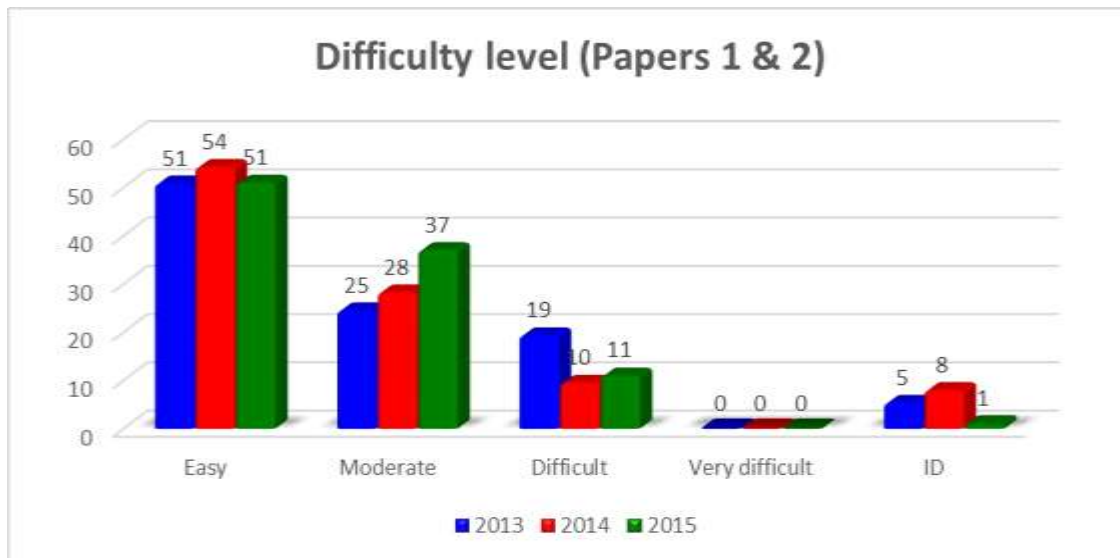
- **For the lowest order:** all the papers are more heavily weighted in this order than the 60% they should be (71% in 2013; 67% in 2014 and 80% in 2015).
- **For the highest order:** the weighting in all three years is lower than the specified 25% (2013: 29%; 2014: 34%; 2015: 20%). The decline over the three years is a negative trend.

These findings suggest that the 2015 examination was less cognitively demanding than the papers of the two previous years, especially the 2014 paper.

1.4.4 Distribution of levels of difficulty in the papers

Figure 3.1.2 compares the weighting of marks across the levels of difficulty in the 2014 and 2015 examinations.

Figure 3.1.2: Comparison of difficulty level weightings in the paper(s)



The graph shows that:

All examinations are most weighted, and are similarly weighted in the easy category, with 51% (2013) and 54% (2014) and 51% (2015) of the marks being awarded for questions in this category.

There has been an upward trend in the percentage of marks in the moderately difficult category over the three years (25% in 2013; 28% in 2014 and 37% in 2015)

The percentage of marks for difficult questions has declined over the three years, from 19% in 2013 to 10% and 11 % in 2014 and 2015 respectively.

There are no questions deemed very difficult by the team in any year.

The percentage of marks for invalidly difficult questions changed from 5% (2013) to 8% (2014) to 1% in 2015, a trend in the right direction overall.

Neither the CAPS nor the assessment body have any specifications for the distribution of marks across levels of difficulty, and so the papers cannot be compared with these. The team believes that the weightings across levels of difficulty should be as follows:

Easy: 35 % as this allows even weak candidates a chance of passing at the pass mark of 30%.

Moderately difficult: 40% as this would allow for candidates worthy of a C or a B to achieve these grades.

Difficult: 20% - achievable by candidates worthy of a distinction

Very difficult: 5% for the high-end achievers in the distinction category.

In the light of this it is the team's view that for all examinations analyzed, the marks are far too heavily weighted in the easy category, and that there are too few marks in either of the other categories, except that in 2013 the proportion of marks deemed difficult is very close to the suggested weighting. .

Because the percentage of marks in the easy category is so similar in all three years it is likely that weak candidates' performance in 2015 will be very similar to that of these candidates in the previous two years. The rise in the proportion of marks in the moderately difficult category with a decrease in the difficult suggests that average candidates will do better than in the previous two years. The pattern in the weighting of marks in the difficult and invalidly difficult categories over the three years suggests that strong candidates' performance will be similar to or perhaps slightly better than that of those in 2014, and better than those in 2013.

1.4.5 Invalid sources of question difficulty or ease

The percentage of marks for invalidly difficult questions increased from 2013 (5%) to 2014 (8%) and decreased to 2015 (1%). When combined with the percentages for difficult questions, the percentage of marks perceived as difficult by the candidates has decreased each year (from 24% in 2013 to 18% in 2014 to 12% in 2015). This suggests that top candidate in 2015 will do better than in either of the previous two years.

There were choice questions in 2013, but none in the other two years. Thus only candidates in 2013 would have been differentially affected by the distribution of invalidly difficult questions.

1.4.6 Difficulty of stimulus/source material

The Geography team did not evaluate the stimulus/source material separately with regard to level of difficulty of stimulus material. The difficulty of the stimulus material was considered as part of the assessment of the difficulty of the question – particularly with regard to the construct 'stimulus difficulty' and the nature of the stimulus material was also considered in analysing the cognitive demand of the papers.

None of the stimulus material should have been too difficult for learners to access; however, the team is of the view that there was too much stimulus material, with some of it being unnecessary; also, the fact that it was not all consolidated in one place suggests that candidates will spend too much time finding the source to which they are referred in the questions.

1.4.7 Comparability of 2014 – 2015 examination papers)

In the light of the analysis of the levels of difficulty given above, the 2015 paper can be considered a slightly easier examination than that of 2014.

1.4.8 Other points regarding the standard of the examination

Some general points regarding the 2015 examination are given below¹.

- The structure of paper 1, with three questions and no choice is sensible; it allows for more reading time and mitigates against the effects of some questions inevitably being easier or more difficult than others.
- There were some good examples of different questions from those usually set, or which integrated different aspects of work, or were interesting in some other way:
 - Paper 1: Questions 1..2.4 good question requiring the drawing of a sketch map; 2.3.1a; 2.3.1.b; 3.4.5; 3.5.2 – an extended piece of writing, in which marks awarded for structure of answer as well as content.
 - Paper 2: Questions 1.1 16.b – and other subsections in this question;

¹ More detailed information pertaining to the examples given here can be found in the comments related to the questions noted in the analysis spreadsheet.

- The stimulus material could have been better organized- it was unnecessarily time consuming to have to move between the annexure/insert/map/ and the examination paper to refer to different sources.
- There was sometimes too much stimulus material – with a heavy demand on reading time – even though there were only 3 questions to answer. Some questions could as well be answered without all the resources provided. (Paper 1, Q1.2.3; 2.2.6; Paper 2, Q 2.3.1; 3.3.1; 3.3.2; 4.2 (map not really needed)).
- Quality of the diagrams. The diagrams and other visual resources were of good quality. The use of colour is a great advantage.
- Language: This was generally clear and accessible. Paper 2, Q 2.1.3 should perhaps be referring to mean monthly temperature rather than to annual average temperature, which is not shown on the graph. In Q4.1 fracking seems to be given as a synonym for mining?
- Answers in the memo:
 - The team felt that in some cases the memo answered a different question to the one set, was incorrect or that the given answer was too restricted: Examples include:
 - Paper 1: Q 1.1.2b; 1.3.2; 1.3.4b; 1.3.5a; 1.4.6; 2.1.2.2.7; 4; 2.2.6.c; 2.4.2b;
 - Paper 2: Q1.2.4a; 2.3.3

1.4.9 Concluding discussion

3.9.1 There were very few questions where poor formulation of the question could have disadvantaged learners, or where a graphic was poor.

3.9.2 There were no questions considered by the team to be so easy as to as to unfairly advantage learners in this year.

3.9.3 The team did not feel that any questions were so easy or so difficult that they should be discounted as everyone would get them right or wrong.

3.9.4 Because there are no optional question, no candidates could be advantaged or disadvantaged by choosing questions that were easier or more difficult than others.

1.4.10 Recommendations for improving the quality and standard of geography examinations

- Ask more moderately difficult and difficult questions, and fewer easy questions
- Ask more questions with greater cognitive demand;
- Check the memo more carefully to ensure that answers are correct and that the answer given always answers the question asked.
- Consider reducing the volume and variety of resources that accompany many questions – be more selective and hone in on those that are most essential.
- Place all stimulus material together in one document so that learners can refer to it easily and quickly.
- In paper 2, focus more on map work skill and techniques and on the application of map work skills to the analysis of theory – and reduce the number of questions which assess knowledge and understanding of theory per se, and which could as well be asked in paper 1.

1.5 History

1.5.1 Compliance in terms of format and structure

MARKS	IEB examination structure (2014 and 2015)
	PAPER 1
TOTAL 200	All questions compulsory, based on three topics which will be rotated on an annual basis.
60	Section A In depth Individual Source Analysis made of three questions each worth 20 marks. The three sections being: <ol style="list-style-type: none"> 1. Visual Analysis 2. Textual Analysis 3. Media Analysis
90	Section B – Source-based questions – A single topic with a considerable number of sources presenting a range of different perspectives and reflecting different types of sources.
50	Section C – Source-based essay - The sources used in Section B are used to construct a source-based essay.
	PAPER 2
TOTAL 100	A choice of ONE out of three in Section A. A choice of ONE out of three in Section B.
70	Section A – Discursive Essays. Candidates choose ONE out of THREE topics.
30	Section B – Extended Writing. Candidates are only required to answer ONE of THREE topics set.

Table 1: Examination requirements for the IEB history papers

Both IEB papers are compliant with the format and structure of the IEB requirements

1.5.2 Coverage of examinable curriculum

The exam papers cover the examinable curriculum.

1.5.3 Distribution of cognitive demand in the papers

The IEB Examination Guidelines require that 60% of marks in paper 1 are lower order thinking (that is knowledge, comprehension and application) and 40% should be higher order thinking (that is, analysis, synthesis and evaluation).

Paper 1 comprises in depth source-analysis, source-based questions and a source-based essay. Figure 1 shows that the 2014 and 2015 papers have very similar levels of cognitive demand, but that these are higher than required by the IEB examination requirements.

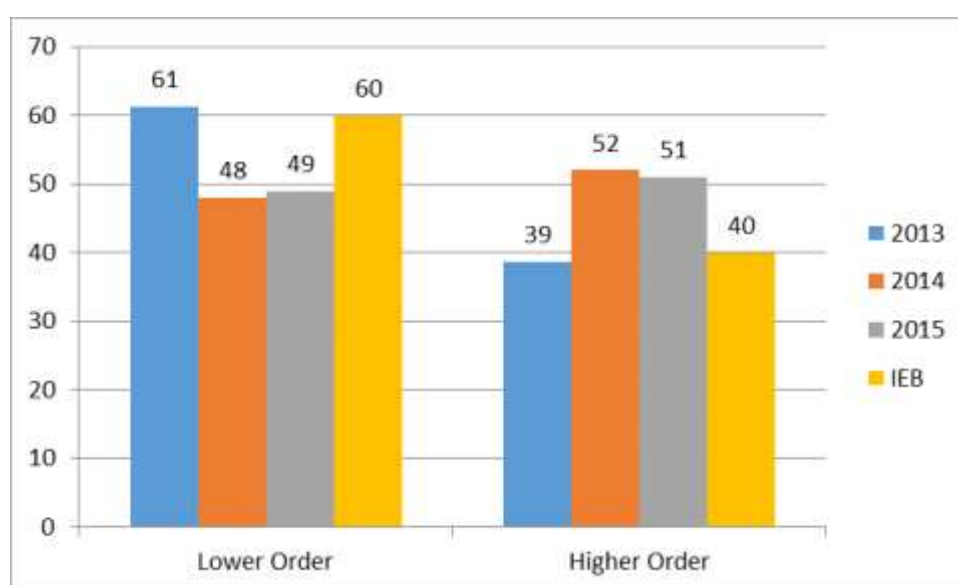


Figure 1: Comparison of cognitive demand weightings in 2013, 2014 and 2015 Paper 1 (source-based paper)

Paper 2 comprises the essay questions, where learners must answer one discursive (argumentative) essay which tests higher order thinking (70 marks of 100) and one extended writing essay which tests lower order thinking (30 marks of 100).

Figure 2 shows that the 2015 essay questions have 30% lower order and 70% higher order questions.

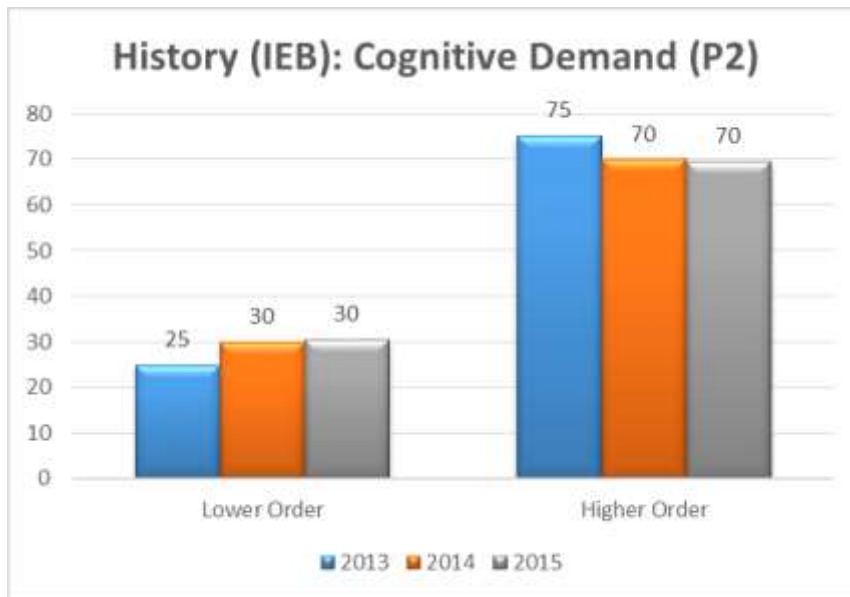


Figure 2 : Comparison of cognitive demand weightings in 2013, 2014 and 2015 Paper 2 (essays)

Figure 3 shows the cognitive demand of both papers, which is has 40% lower order and 60% higher order, an inverse of the IEB requirements.

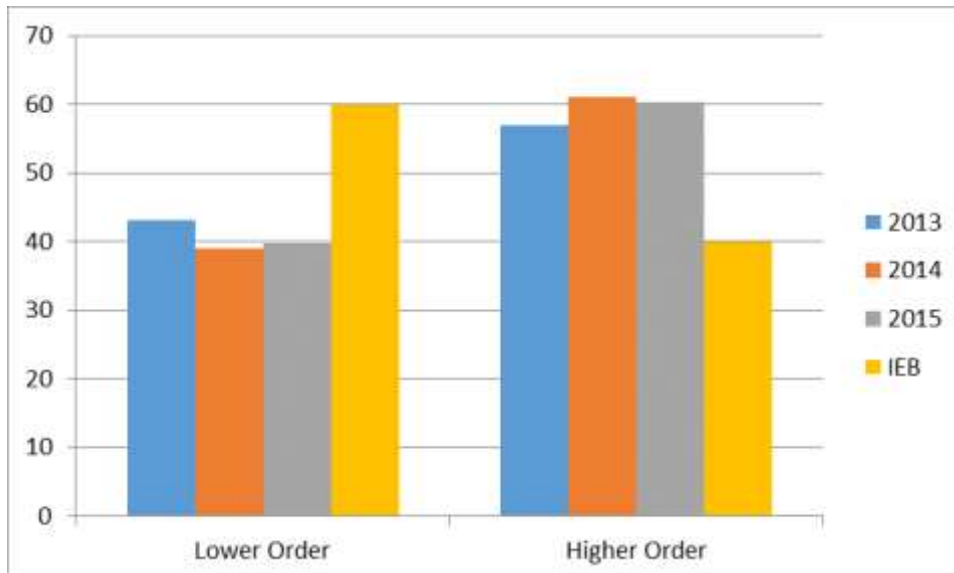


Figure 3: Comparison of cognitive demand weightings in 2013, 2014 and 2015 Paper 1 and 2

1.5.4 Distribution of levels of difficulty in the papers (300 words)

IEB Examination guidelines make no provision for levels of difficulty. The team believes that an 'ideal' paper may have 30% easy (all candidates can get these correct), 50% moderate, and 15% difficult and 5% very difficult questions to discriminate amongst the top learners.

In the team's expert judgment, an adequate proportion of marks is allocated in 2015 at **each** level of difficulty (Figure 3). There may be too many marks at the moderate level for 2015, but there are still 13% of marks allocated to difficult questions. These are the questions that may potentially discriminate the top candidates.

Candidates may experience the 2015 paper as easier than 2014, as there are more moderate questions, and fewer difficult questions.

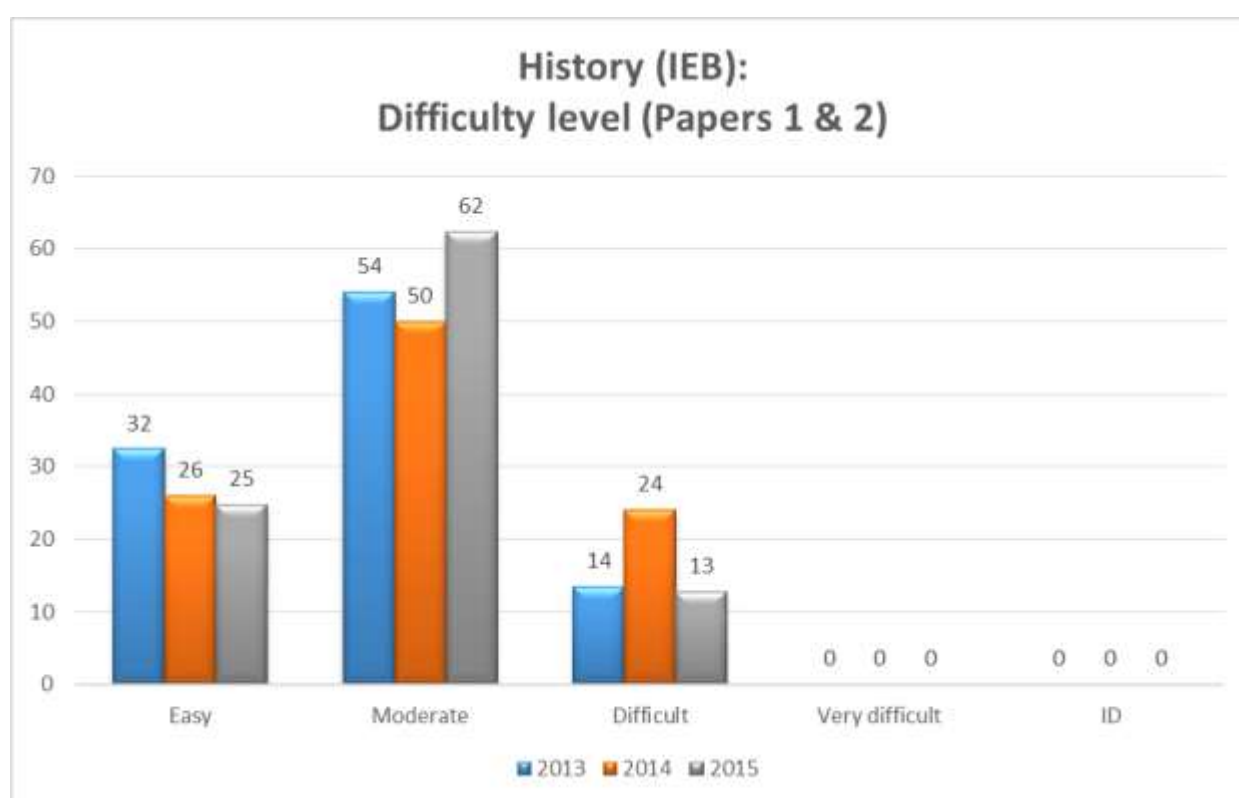


Figure 4: Comparison of difficulty level weightings in the Papers 1 and 2, 2013, 2014 and 2015

1.5.5 Invalid sources of question difficulty or ease (200 words)

No questions were categorised as having invalid sources of difficulty.

However P1 Section B, 7 was a poorly phrased question which the team felt was very difficult to understand. "Explain how the interpretation of the speech in Source C differs from its original intention in Source A".

This could be more clearly phrased as "what was the USSR's viewpoint of the Marshall Plan and how was this different to Marshall's perspective on it".

P1, Q 1.3 "Do you think that the photograph succeeded in capturing the atmosphere in the USSR in 1991?" was thought difficult by the team as the expected response in the memo provided only one reading of the picture, and there is no clear evidence in the photograph for the girl being sad.

1.5.6 Difficulty of stimulus/source material (200 words)

Sources were all well contextualised. Sources tended to be short (5 – 10 lines long).

The team did not identify any source stimulus as particularly difficult.

1.5.7 Comparability of 2013 – 2015 examination papers (200 words)

In terms of levels of difficulty, the percentage of easy questions for 2014 and 2015 were similar at 25% and 26%. The 2013 papers had more easy questions with 32%. The percentage of difficult questions in the 2013 and 2015 papers were similar at 14% and 13%. The 2014 papers had a higher percentage of difficult questions at 24%.

1.5.8 Other points regarding the standard of the examination (200 words)

P1 Section B allocated 30 marks to 15 questions which were weighted at two marks each. These questions tend to be easy, lower order questions that would probably be ably answered by most candidates. The team felt that the questions in P1, Section B, No 15, where the definition of a concept was provided, did not essentially require the source, and thus did not really fit within a source-based section.

1.5.9 Concluding discussion

1.5.8.1 Was there anything on the exams that could disadvantage learners taking this exam? (e.g. a picture/graphic that could not be read; an instruction that was confusing; an unexpected question; a question that was much too difficult)

No

1.5.8.2 Was there anything on the paper that could unfairly advantage learners taking this examination? (e.g. a question that was much too easy)

Section B, Question 8 asked some questions of the Berlin Wall that were easy (8.2 Name the event captured in the photograph.

8.3 Name the city in which the photograph was taken).

However these were only for a few marks, so would not have a huge impact on grades.

1.5.8.3 Were there any non-questions on the exam paper (i.e. questions which everyone will get wrong or right – they do not discriminate between learners)?

The questions at Level 1 which are easy would not discriminate, but that is their purpose.

1.5.8.4 Were there any other questions where choices are made, where the choices were not at the same level of difficulty?

No. The only choices are in P2 which is the essay paper. None of the essays were categorised as difficult.

1.5.10 Recommendations for improving the quality and standard of History examinations

The team considers the IEB 2015 papers as a good model for future examinations. However, there was discussion (and some divided opinion) about the assessment value of allocating 30 marks of Section B to the easy questions on the photograph (Q8, Source D), true and false (Q 12, Source F) and finding historical concepts (Q 15, Source F and G). The value of questions asking candidates to identify statements as true or false (Q12) is not so clear, however, these questions were not necessarily all easy, and did require a close interrogation of the source. Questions asking

candidates to only identify concepts from sources are also limited, as it was not clear that this really assesses learners understanding of the concepts. It is possible that Q15 could be answered without even engaging with the sources.

1.6 Life Sciences

1.6.1 Compliance in terms of format and structure

<i>Table 3.1.1(a) Prescribed format and structure and examination paper(s) analysed</i>				
Official document	Name	Paper	Sections	Total marks (h)
Examination Guidelines 2011	DBE 2012	1	ALL EXAM PAPERS FOLLOW THE SAME FORMAT A: Short answer, objective questions such as MCQ, terminology, columns and statements (50 marks) B: Two questions divided into 3-4 subsections (2 x 30 mark) C: Data response question (20 marks); Essay (20 marks)	150 (2½)
		2		150 (2½)
	DBE 2013	1		150 (2½)
		2		150 (2½)
1. Curriculum and Assessment Policy Statement 2. Circular S5 of 2013 3. Examination Guidelines 2014	DBE Final 2014	1	ALL EXAM PAPERS FOLLOW THE SAME FORMAT A: Short answer, objective questions such as MCQ, terminology, columns and statements (50 marks) B: Two questions divided into 3-4 subsections (2 x 40 marks) C: Mini-essay (20 marks)	150 (2½)
		2		150 (2½)
1. Curriculum and Assessment Policy Statement 2. Circular S5 of 2013 3. Examination Guidelines 2014	DBE Final 2015	1	ALL EXAM PAPERS FOLLOW THE SAME FORMAT A: Short answer, objective questions such as MCQ, terminology, columns and statements (50 marks) B: Two questions divided into 3-4 subsections (2 x 40 marks) C: Mini-essay (20 marks)	150 (2½)
		2		150 (2½)

Table 3.1.1(c) Prescribed format and structure of Life Sciences examination papers

Official document	Name	Paper	Sections	Total marks (H)
National Senior Certificate Handbook 2014	IEB 2014	1	PAPERS 1 & 2 FOLLOW THE SAME FORMAT Q1: Short questions answered on the paper (40 marks) Q2, Q3 & Q4: Longer type questions. (30 marks each) Q5: Essay (20 marks)	150 (2½)
		2		150 (2½)
		3	Includes a practical procedure following instructions and an experimental design	50 (1½)
Life Sciences Subject Assessment Guidelines updated October 2014 (must be read in conjunction with the IEB Manual for the moderation of SBA updated February 2014)	IEB 2015	1	Q1: Short questions answered on the paper (80 marks) Q2, Q3 & Q4: Longer type questions. (40 marks each)	200 (3hrs)
		2	Q1 and 2: Case studies including longer type questions (30 marks each) Q3: Essay (40 marks)	100 (2hrs)
		3	Includes a practical procedure following instructions and an experimental design	50 (1½)

Length, mark allocation and time are specified in the Subject Assessment Guidelines, and are adhered to. The format of the sections of examination papers is specified in official documents and was adhered to. The format in 2014 was repeated exactly in Papers 1 and 2. This format changed in 2015 to Paper 1 (3 h, 200 marks) and Paper 2 (2 h, 100 marks). Paper 3 continued but was again examined outside the examination period. The change in the format of Papers 1 and 2 for 2015 may influence the results of the learners as they are unfamiliar with the format and there are some unfamiliar questioning techniques used i.e. case studies were examined for the first time.

1.6.2 Coverage of examinable curriculum (topic or content and/or skills area weightings)

Table 3.1.2 (e) Comparison of the topic weightings (% of marks) specified with the weightings for the IEB examination papers for 2014 and 2015.

Year	Paper	Topics	Prescribed weighting	Actual weighting
2014	Paper 1	Diversity, change and continuity	40	37
		Tissues, cells and molecules	60	57
		Nature of Science	Not weighted	6
	Paper 2	Environmental Studies	40	47
		Life Processes	60	45
		Nature of Science	Not weighted	8
	Paper 3	Nature of Science	100	100
2015	Paper 1	Diversity, change and continuity	Not weighted	20
		Tissues, cells and molecules	Not weighted	37
		Environmental Studies	Not weighted	30
		Nature of Science	Not weighted	13
	Paper 2	Life Processes	Not weighted	93
		Nature of Science	Not weighted	7
	Paper 3	Nature of Science	100	100

There are no specified weightings allocated to content areas for Paper 1. Paper 2 only covers the content area Life Processes. In Paper 1 there seems to be an equal weighting for the content areas. Paper 3 is entirely devoted to experimental procedures, which are classified here as Nature of Science. Papers 1 and 2 also contain questions about scientific procedures and skills that have their context in the relevant content, but do not test knowledge of that content. These questions are classified here as "Nature of Science", which does not receive a separate weighting in the prescribed weighting for Papers 1 and 2. The 2015 SAG specifies the weighting of all three aims across the papers and the weighting of the practical component is specified in Table 3.1.2(f) under Aim 2.

Table 3.1.2 (f)

Weighting of the AIMS across the papers		AIM 1 Theory	AIM 2 Practical	AIM 3 Application
	Life Sciences P1	120 marks	40 marks	40 marks
	Life Sciences P2	30 marks	10 marks	60 marks
	Life Sciences P3 (Practical Examination)		50 marks	
		43% of 350	29% of 350	29% of 350
	The weighting for Aims 1 and 3 may differ by 5% either way.			

Coverage of examinable curriculum

<i>Table 3.1.2 (g) Coverage of examinable curriculum in each paper</i>		
Year	Paper	Coverage
2012 IEB	1	All
	2	All
	3	Not weighted
2013 IEB	1	All
	2	All
	3	Not weighted
2014 IEB Final	1	All
	2	All
	3	Not weighted
2015 IEB Final	1	All
	2	All
	3	Not weighted

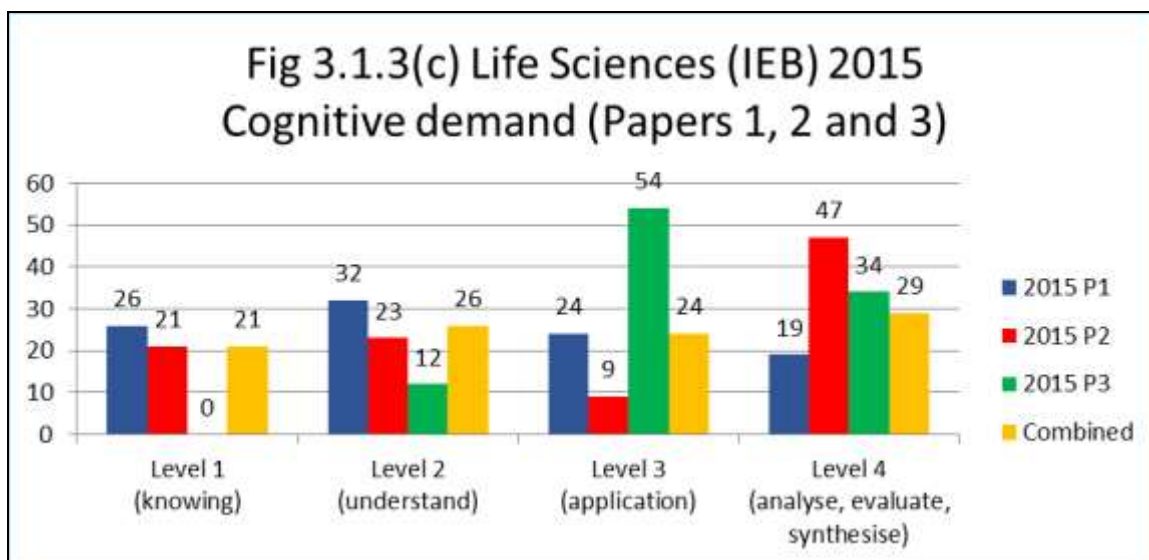
The examinable curriculum is fully covered in every examination paper. The Practical examination (Paper 3) includes an investigation that does not necessarily relate to prescribed content, but assesses eight skill areas that are prescribed in the SAG.

1.6.3 Distribution of cognitive demand in the papers

Team members analysed papers of the three examination bodies individually and compared and discussed the results. We continued until there was reasonable agreement among team members in the total scores for each type of cognitive demand.

Comparison of cognitive demand weightings in the IEB papers for 2015

<i>Table 3.1.3(c) Comparison of cognitive demand weightings specified and the percentage for the papers analysed</i>					
Year	Paper	Types of cognitive demand			
		Know (A)	Understand (B)	Apply (C)	Analyse, Evaluate, Create (D)
	Specified	60		40	
2015 IEB Final	P1	26	32	24	19
		Know	Understand	Apply	Analyse, Evaluate, Create
	Specified	40		60	
2015 IEB Final	P2	21	23	9	47
	P3	0	12	54	34
	Total	21	26	24	29



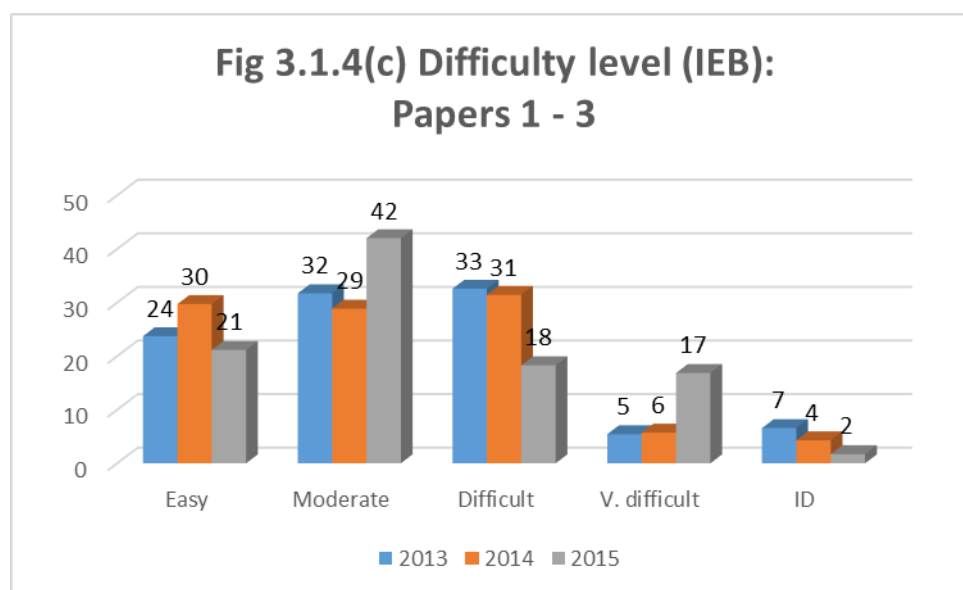
The allocation of marks to cognitive types depends on the definitions of cognitive demand, which differs between this analysis tool and the IEB who uses six Blooms levels to analyse their papers. The specified weighting is given as “lower order” (knowledge, comprehension and application) and “higher order” (analysis, synthesis, and evaluation) cognitive demand.

Application questions are included in the lower order thinking skills for IEB and thus the team have used level 1 and 2 to indicate lower order skills (corresponding with the analysis tool) and Level 3 and 4 to indicate higher order thinking skills.

The change in format in Paper 1 called for 60% lower order questions and 40% higher order questions. Paper 1 followed these specifications closely. Paper 2 was a new format using Case Studies and longer questions that were higher order, including an essay. Paper 2 also followed these specifications closely. The IEB SAG of 2015 specifies that there should be at least 60% higher order questions in Paper 3 and this was the case.

The examinations represent an **acceptable spread of questions across different cognitive skills.**

1.6.4 Distribution of levels of difficulty in the papers



2013 and 2014 papers were very similar in their allocation of levels of difficulty. Of concern was the low numbers of questions that were judged to be very difficult and that differentiated the learners at the upper end.

The change in format between Paper 1 and Paper 2 in 2015 has resulted in a change in the difficulty levels. The team welcome the change – by introducing a new format of Paper 2, it has enabled a change in the type of questions that are asked. Paper 2 has different questioning techniques in the form of Case Studies and a new format to the essay question that has enabled a larger number of Questions that are judged to be very difficult.

Paper 1 for 2015 has 60% of the paper assigned to lower cognitive levels and this has resulted in an increase in the number of questions judged to be “moderate” in comparison to 2013 and 2014. Paper 1 has a lower number of level 3 and 4 questions (difficult and very difficult) and therefore Paper 1 should be easily accessible to the average learner.

Paper 2 has 60% of the paper assigned to Higher Order Questions. As a result 40% of the paper was allocated to be “very difficult”.

Paper 3 has the same format as previous years so that, although the questions themselves are judged to be “difficult”, such as identifying variables and designing new experiments, the learners are well trained in this process and will cope well with this paper.

Overall, IEB Papers for 2015 have more difficult questions than previous years. There is a high percentage of “easy” and “moderate” questions (63%) which will enable the weaker candidates to pass. Pleasing to note was that 35% of the papers overall have been judged to be “difficult” or “very difficult” which will differentiate the learners at the upper end.

1.6.5 Invalid sources of question difficulty or ease

Table 3.1.5(c) Number of questions assessed as having invalid sources of difficulty of ease in IEB papers 2013 to 2015				
Year	Paper	Q No.	Marks	Reason for invalidity
2013	1	1.2.2	1	Two possibly correct answers
		1.5.2	1	Can't answer the question; memo incorrect
		Total	2	
	2	1.3C	2	Question poorly phrased; answer should be given per year.
		2.2	6	Question poorly worded. Data lacks scientific rigour.
		3.1.5C	1	Subjective decision of "some" vs "excellent"
		3.2.1	3	B and C are incorrect answers
		3.3.2	4	Invalid question.
		4.3.3	4	Estimating bird numbers may be confusing
		4.3.4	3	Too wordy; obvious answer not given
		Total	23	
	3	18	3	Answer is incorrect. Concentration of yeast cells is not related to growth
		1.1	3	Answer is incorrect
		1.2	2	Based on an incorrect assumption
	Total		8	
2014	1	1.4.3	2	Insufficient information provided to answer the question correctly
		3.1.3b	1	Confusing use of symbols
		3.2.1b	1	Memorandum did not allow for alternatives
		Total	4	
	2	1.3.4	2	None of the answers is correct
		2.1.4	1	Wording of question incorrect
		3.4	8	Stimulus in diagram is misleading; incorrect labelling of FSH
	Total		11	
2015	1	3.2.1	3	Average running speed was irrelevant to the answer and may have been a distractor. Use of the term "fittest" could be misinterpreted.
		3.4.2	2	X-axis of the graph makes reading of the graph difficult.
		3.4.3	1	X-axis of the graph makes reading of the graph difficult.
	Total		6	
	2	-	-	
	3	23	2	Memorandum requires two reasons but insufficient space on answer sheet.
	Total		2	

There was a fewer number of ID questions in 2015 compared to previous years and this is encouraging. Those that were allocated to ID will hopefully be marked accordingly and adjusted at the memo discussions so that learners will not be disadvantaged.

1.6.6 Difficulty of stimulus/source material

Table 3.1.6(b) Number of questions assessed as having stimulus/source of difficulty in IEB 2015 papers

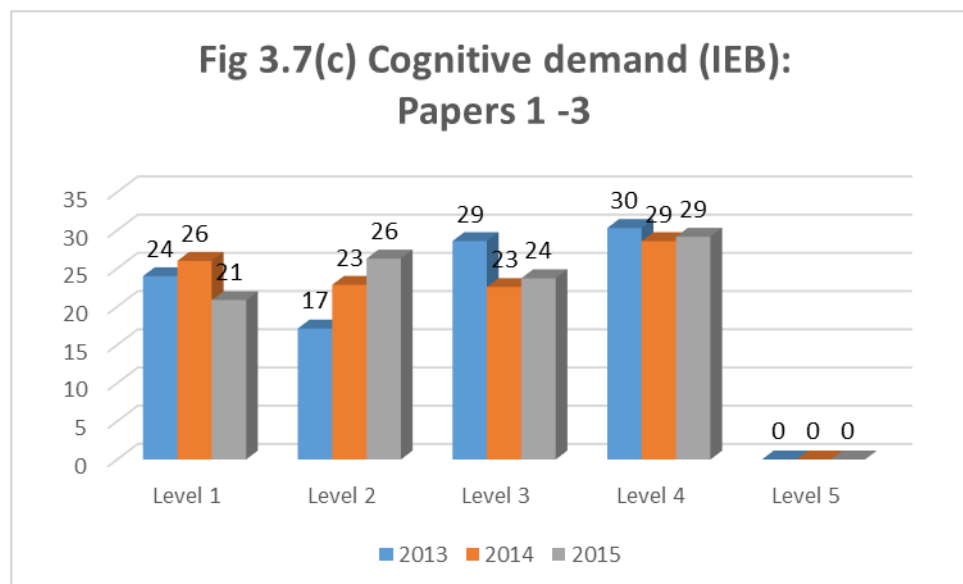
Year	Paper	Q No.	Marks	Reasons for invalidity
2015 Final	1	1.2.5	2	Lot of source material to be interpreted for only two marks
		3.4.2	2	X-axis scale of graph makes reading of the graph difficult
		3.4.3	1	X-axis scale of graph makes reading of the graph difficult
	Total		5	
	2	-	-	-
	Total		-	
	3	-	-	-

Most source material of all three examination bodies was at an appropriate level of difficulty, considering that most candidates who wrote the DBE and SACAI papers do not have English as their home language. The English level of language and comprehension of learners writing IEB papers needs to be at a much higher level because of the stimulus material in these papers.

Examiners should note that all tables, graphs and diagrams should be numbered and given titles. This is correct scientific practice and would enable examiners to avoid the use of "the above, the below, the following, etc." in their questions.

The use of scientifically correct and clear diagrams needs to be encouraged.

1.6.7 Comparability of 2013 – 2015 examination papers (200 words)



There has been a change in the format of the IEB Question papers from 2014 to 2015. In 2013 and 2014, there were two theory papers – each 150 marks and 2½ hours long and each had the same cognitive level weightings. In other words, the content areas changed but the skills and cognitive level weightings for the two papers were the same.

In 2015, the two papers have changed in format and cognition – they test different skills and levels of cognition. Paper 1 covers THREE content areas. It is a 3 hour paper out of 200 marks. 60% of the paper is assigned to lower order thinking skills (Knowing, understanding and applying) and 40% to higher order thinking skills (Analysing, synthesising, evaluating and creating). Paper 2 covers ONE content area. It is a 2 hour paper out of 100 marks and includes higher order questions. 40% of the paper is assigned to low order and 60% to high order thinking skills. Paper 2 includes two Case Studies and an Essay (40 marks). The case studies have longer, analysis type questions that involve a high degree of language ability of the learners as they have to read articles and interpret data. The essay involves reading of source material and critical analysis. Paper 3 (the Practical paper) continued in the same format as previous years with over 60% of the paper assigned to high order thinking skills. It also includes a design element which adds to the level 4 questions.

In 2015 there were a slightly lower number of questions set at Level 1 and a slightly higher number of Level 2 compared to 2014. There is a bigger difference between 2013 and 2015 in Level 2 questions. 2015 and 2014 are very similar in Level 3 questions (1% difference) and they are the same in Level 4.

The team anticipates that the performance of the learners in 2015 should be very similar to 2014, and the only difference may be in the adjustment of the learners to the new questioning techniques in the different papers.

1.6.8 Other points regarding the standard of the examination

There are no other points regarding the standard of the papers of the different examination bodies.

1.6.9 Concluding discussion

The following are examples of questions which should be avoided by examiners:

- (a) Repetition of the same skill e.g. drawing of graphs

IEB P 1 2015

Q1.6.6 Plot a line graph (7 marks)

IEB P 2 2015

Q2.1.4 (c) Plot a bar graph (5 marks)

IEB P3

Q22 Plot a line graph (8 marks)

1.6.10 Recommendations for improving the quality and standard of Life Sciences examinations

- The team agrees that the quality of the papers is acceptable as they exist. The layout is clear, most diagrams are clear, and all questions have the correct marks attached. There are more questions in the 2015 Paper 2 requiring in-depth interrogation of information that enables the top performers to be differentiated from the average.
- The 2015 IEB Papers 1, 2 and 3 are good models for future examinations provided that the repetition of certain skills in all the three papers e.g. drawing of graphs is avoided.

General recommendations for examiners of all three examination bodies

- Avoid asking questions which are leading and which require the learner to choose one aspect or another where they have a 50% chance of guessing.
- Avoid asking questions which are dependent on getting the previous question correct. It can lead to the students getting penalised twice for an incorrect answer
- Use diagrams that are clear and are scientifically accurate.
- Use diagrams that are not readily available to everyone – many diagrams are commonly used and available on the internet
- Avoid giving information in a previous question which can be used to answer a question later on in the paper

- Avoid repeating the same skill in the same paper or in two consecutive questions e.g. drawing of graphs, solving of genetic crossings etc.

1.7 Mathematics

1.7.1 Compliance in terms of format and structure

The table below indicates the number of marks indicated in the IEB examination guideline document per topic area and the number of marks in the 2015 papers for each of the topic areas. This indicates that the 2015 complied with the stipulation of the IEB examination guideline document.

	Algebra	Sequence	Finance	Function	Calculus	Probability	Geometry	Trigonometry	Statistics	geometry
Maths IEB 15	25	26	14	32	38	15	41	41	18	50
Required Marks as per CAPS document	25	25	15	35	35	15	40	40	20	50

Table 1: Weighting of topic areas

1.7.2 Coverage of examinable curriculum

The examination papers analysed covered the examinable curriculum. Clearly no examination paper can examine every detail of the curriculum. So for example, the IEB 2015 paper 2 does not contain the graph of the tan function in trigonometry. However the graphs of the sin and cos functions are included and the tan function is used in other trigonometry questions. Thus although no single examination paper examines every detail of the curriculum, the examination papers provide full coverage of the examinable curriculum at a broader level.

1.7.3 Distribution of cognitive demand in the papers

Table 2 shows the percentage of marks that fell into each of the categories of cognitive demand for the 2013, 2014 and 2015 examinations. The weighting

stipulated by IEB examination guideline is also provided. However, as discussed in more detail below, the team do not feel the categories of cognitive demand are sufficiently well defined to provide a reliable analysis.

IEB Paper 1&2	Knowledge	Routine	Complex Procedure	Problem Solving
2013	11	48	34	6
2014	10	56	28	7
2015	11	46	34	9
IEB Exam Guide	20	30	35	15

Table 2: Comparison of cognitive demand weightings in the papers

The table suggests that the 2015 papers did not comply with the weighting of cognitive demand as stipulated in IEB examination guidelines. The team's analysis suggested that the papers were too heavily weighted towards routine procedures and did not contain sufficient weighting for problem solving or knowledge. However the team felt that the problem might be a result of inadequacies in the taxonomy itself rather than a result of problems with the examination per se.

The CAPS document of 2011 provides descriptions of the levels of cognitive demand. However the description of each of the levels in this document is not entirely clear. For example, it is not clear how "complex procedures" differ from "problem solving" as the descriptors for both allude to higher order reasoning, solving problems and having no obvious route to the solution. The team queried whether it would be possible, in a time-limited examination to include 15% worth of true problem solving questions (i.e. questions where there is no clear starting point or clues as to the approach to take). It is also not clear whether a well-known procedure that contains many steps or tricky algebraic manipulation should be classified as a routine or complex procedure. The IEB examination guideline does not clarify the taxonomy. This makes the taxonomy very difficult to work with, and, means that differences between the team's analysis of the papers and the stipulated weighting in IEB examination guidelines might be a result of different interpretations of the categories.

1.7.4 Distribution of levels of difficulty in the papers

The team judged the level of difficulty of questions based on the assumption that learners writing the examination would have been taught the full curriculum in an adequate manner. The team considered whether a question would be easy, moderate, difficult or very difficult for the average learner to answer. In order to help ourselves make clear and consistent judgments we further refined this as follows: Easy questions would be those questions that the learner who just passes should be able to do. Moderate questions would be more challenging than this but still be accessible to the student aiming for a “solid pass” and should indicate a mastery of the routine procedures in mathematics. Difficult questions are challenging questions that would be aimed at those wanting to demonstrate a good grasp of mathematics. Very difficult are aimed at the top students. With these judgments in mind the teams proposed ideal split of weights were as follows:

	Easy	Moderate	Difficult	Very difficult
Team's proposed ideal weighting	30%	30-35%	20-25%	15%

Table 3: The team's proposed weighting of levels of difficulty in the examination

IEB Paper 1	Easy	Moderate	Difficult	Very Difficult	Invalid
2013	18	36	39	7	0
2014	23	51	23	3	0
2015	17	41	28	15	0

Table 4: Comparison of level of difficulty in the IEB Paper 1

Table 4 indicates that Paper 1 in 2015 was more difficult than Paper 1 of 2013 and 2014. In particular the weighting of very difficult questions increased in 2015. In 2015, the team judged only 17% of the questions on paper 1 to be easy. This would mean that weak candidates might find it difficult to achieve the 30% pass mark. The paper is more difficult than the team's proposed weighting.

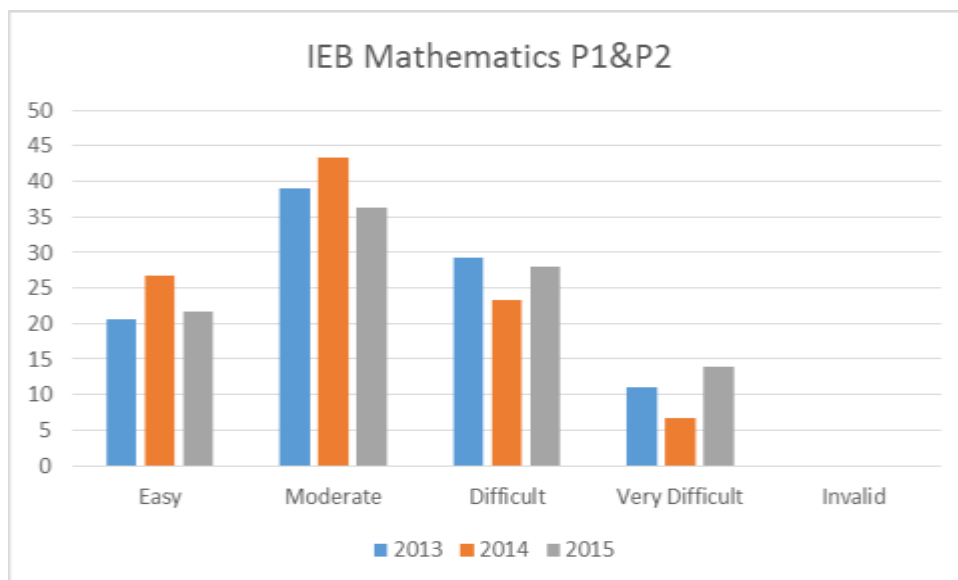
IEB Paper 2	Easy	Moderate	Difficult	Very Difficult	Invalid
2013	23	42	19	15	0
2014	31	36	23	10	0
2015	27	32	28	13	0

Table 5: Comparison of level of difficulty in the IEB Paper 2

Table 4 indicates that Paper 2 in 2015 was more difficult than both the 2013 and 2014 papers and very closely aligned to the evaluation team's proposed ideal weighting.

IEB Paper 1&2	Easy	Moderate	Difficult	Very Difficult	Invalid
2013	21	39	29	11	0
2014	27	43	23	7	0
2015	22	36	28	14	0

Table 6: Comparison of level of difficulty in the IEB Paper 1 and 2 combined



Graph 1: Comparison of difficulty level weightings in the paper(s)

Overall the distribution of marks to levels of difficulty in the 2015 IEB Mathematics examination was closely aligned to the ideal weighting proposed by the evaluation team, but on the difficult side of this. There were perhaps too few easy questions,

particularly in paper 1 which would make it difficult for weak learners to attain a passing grade.

Comparing the papers across the years, we see that the 2015 papers were more difficult than the 2014 papers. The 2013 and 2015 papers contained a similar distribution of marks across the levels of difficulty although the 2015 papers appear to have been slightly more difficult. The fact that approximately 20% of the examination in 2015 was made up by questions on Euclidean geometry and probability, which are challenging topics that were examined as part of the core curriculum for the first time in 2014, might also mean that the 2015 papers would be experienced as more difficult than the analysis suggests and thus more difficult than 2013 papers.

1.7.5 Difficulty of stimulus/source material

In paper 1 in particular, there were a number of instances where the mathematics was embedded in a context. A number of these contexts were contrived and didn't add anything to the question (e.g. qu 6c). In addition there were places where the diagrams included were complex, but did not contribute significantly to the question (e.g. qu 8). Although these didn't mislead or invalidate the question, we would suggest that they add an unnecessary distraction.

1.7.6 Recommendations for improving the quality and standard of Mathematics examinations

The IEB Mathematics examination papers of 2015 were of a high standard and are a good model for future examinations, although perhaps on the difficult side. The evaluation team judged only 22% of the marks to be for easy questions and thus we would recommend that consideration be given to whether there are sufficient marks on basic easy questions for those learners just needing a pass in Mathematics.

1.8 Mathematical Literacy

1.8.1 Compliance in terms of format and structure

Exam	Duration (hrs)	Mark allocation	Number of questions and type	Probability	Basic topics
2013 IEB P1	3	150	5 – 8 shorter; all integrated	Covered under LO 4: Data Handling	Covered in question: context free
2013 IEB P2	3	150	4 – 6 longer Q1 only assessed LO1 in Paper 2 and Question 5 only LO3. LOs not integrated	Covered under LO4: Data Handling	Integrated to all questions
2014 IEB P1	3	150	4 per topic; 1 integrated Q2 and Q3 are integrated	Integrated to one or more	
2014 IEB P2	3	150	4/5 all integrated		
2015 IEB P1	3	150	4 per topic; 1 integrated Q3 is not supposed to be integrated		
2015 IEB P2	3	150	4/5 all integrated		

The IEB 2013, 2014 and 2015 Final Mathematical Literacy Papers generally complied in every respect with the format and structure of the examination as described in the Subject Assessment Guidelines (SAG) both for the NCS and CAPS.

1.8.2 Coverage of examinable curriculum

Table 2: Coverage of examinable curriculum in 2013, 2014 and IEB 2015 papers

	Paper 1	Paper 2	Combined overall
2013 IEB	Most of the curriculum	Most of the curriculum	Almost all
2014 IEB	Most of the curriculum	Most of the curriculum	Almost all
2015 IEB	Most of the curriculum	Most of the curriculum	Almost all

The design of the Mathematical Literacy examination requires that the whole curriculum be covered by the two papers which are equally weighted. Therefore it is unrealistic to expect that each paper will cover the whole curriculum. The sub-topics that were omitted constitute very little of the total number in the whole curriculum. All the papers covered the essential knowledge of the curriculum.

Table 3: Topics that were omitted in all examinations

2013 IEB	<ul style="list-style-type: none"> • International time zones • Investigate a problem on issues such as those related to social, environmental and political factors • Design simple contingency tables to estimate basic probabilities
2014 IEB	<ul style="list-style-type: none"> • Loans and inflation • Cost price and selling price • Temperature
2015 IEB	<ul style="list-style-type: none"> • Temperature
All papers: Topics which are impossible to examine in a written examination	<ul style="list-style-type: none"> • Measurement of mass and volume • Developing questionnaires • Collecting and classifying data • Building models

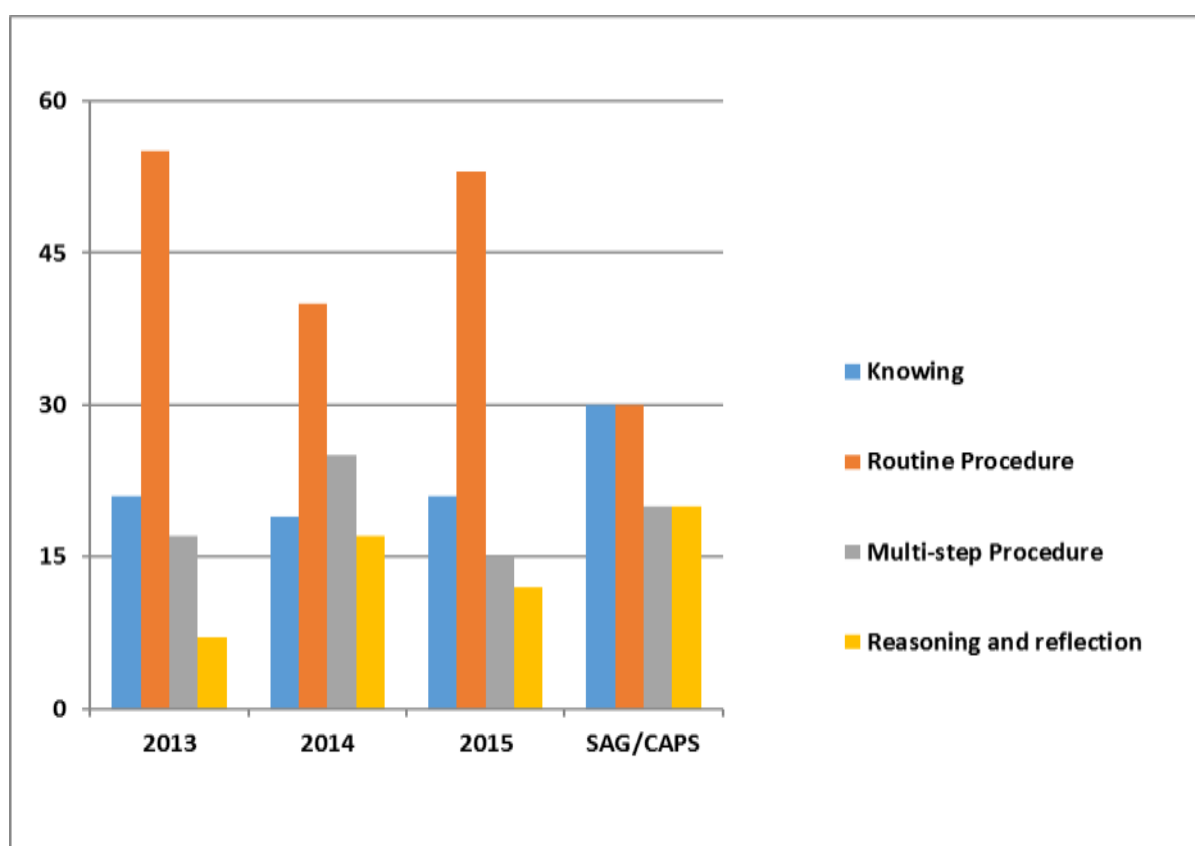
1.8.3 Distribution of cognitive demand in the papers

Table 4 below shows the combined overall weighting of cognitive demand levels in the IEB papers for the last three consecutive years. This table of values was used to generate the graph in Figure 3.1.1 below.

Table 4: Combined overall percentage weighting of cognitive demand levels

Cognitive demand	2013	2014	2015	SAG/CAPS
Knowing	21	19	21	30
Routine Procedure	55	40	53	30
Multi-step Procedure	17	25	15	20
Reasoning and Reflection	7	16	12	20

Figure 3.1.1: Comparison of cognitive demand weightings of IEB papers with SAG/CAPS



From Table 4 and Figure 3.1.1 above, the following comments can be made about the comparison between the IEB Final Mathematical Literacy Papers for 2013, 2014 and 2015:

- The percentage marks allocated to **Knowing** in the 2015 papers were still lower than the CAPS. Although the percentage did not meet the requirements as stated in the CAPS, it will be significantly closer should the first two cognitive levels be combined.
- The percentage marks allocated to **Routine Procedure** is significantly higher than stipulated in CAPS.
- The percentage marks allocated to **Multi-step Procedure** is within the 5% acceptable range from the CAPS.
- The percentage marks allocated to **Reasoning and Reflection** is lower than the CAPS requirements.

The team believes that there still is a significant area of overlap between cognitive levels 1 and 2. It is our opinion that these two cognitive levels are actually at the same level of cognitive demand and should be conflated into one level with two strands or types of question. With that being said, if the first two levels of cognitive demand are joined in the 2015 IEB paper, it will carry a weighting of 74%, which is significantly higher than the average 60% for Knowing and Routine Procedure.

The Multi-step questions in the 2015 paper are in line with the requirements in the CAPS.

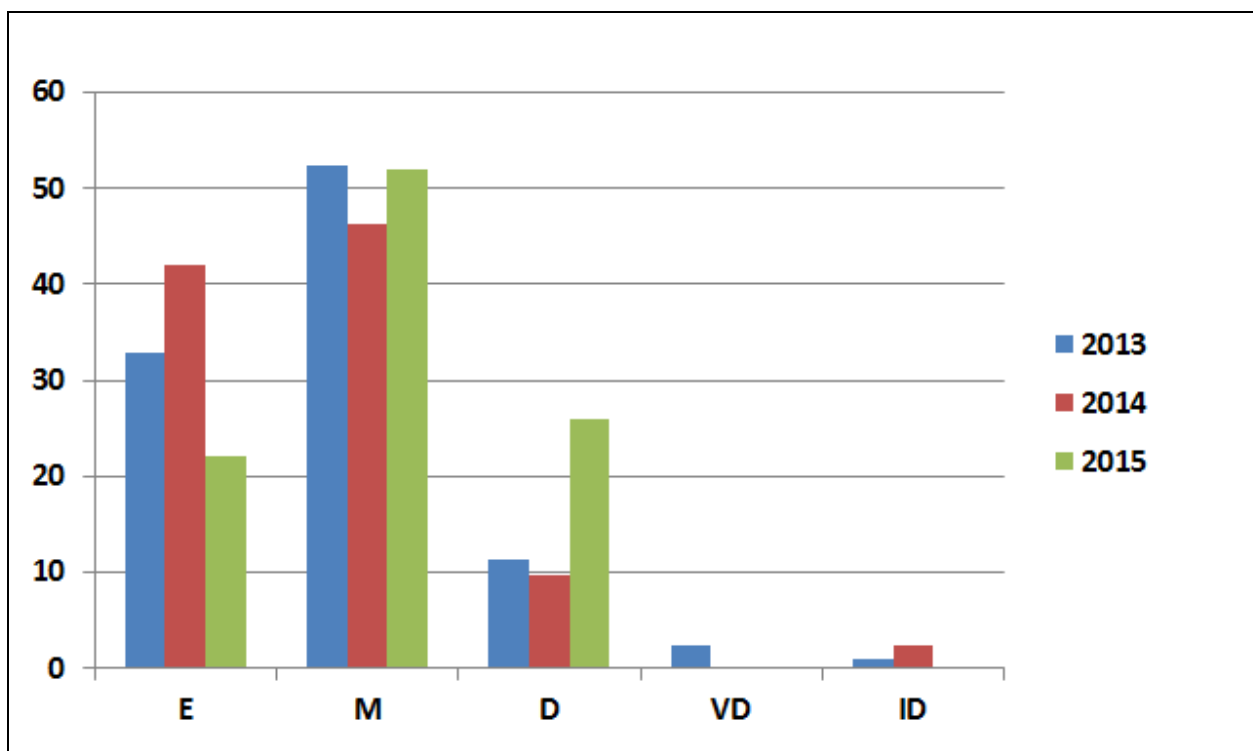
The questions at the highest level of cognitive demand were much lower than the CAPS, which is a result of the team splitting marks within longer reasoning questions.

1.8.4 Distribution of levels of difficulty in the papers

There are no specifications in CAPS in as far as the distribution of levels of difficulty in the papers is concerned. Hence, the Team uses their own professional judgement and experiences in determining whether an item under analysis is regarded as Easy (E), Moderate (M), Difficult (D), Very Difficult (VD) or Invalid Difficult (ID). The graph

below indicates the overall spread of these categories for the examinations pertaining to 2013, 2014 and 2015.

Figure 3.1.2: Comparison of overall percentage weightings of difficulty level in the paper(s)



From Figure 3.1.2 above, the following comments can be made:

(a) The Easy and Moderate questions accounted for almost

- 84.99% of the marks in 2013
- 88.3% of the marks in 2014
- 74% of the marks in 2015

These combined weightings for Easy and Moderate questions show that candidates should have easily passed the 2013, 2014 and 2015 examinations even without attempting the Difficult and Very Difficult questions.

(b) The Difficult questions accounted for almost

- 11.35% of the marks in 2013
- 9.7 of the marks in 2014
- 26% of the marks in 2015

(c) The Very Difficult questions accounted for almost

- 2.35% of the marks in 2013

- 0% of the marks in 2014
- 0% of the marks in 2015

(d) The Invalid Difficult questions accounted for

- 1% of the marks in 2013
- 2.3% of the marks in 2014
- 0% of the marks in 2015

The 2015 papers indicate that overall there is at least 26% of the questions of a difficult degree and none of the questions of a very difficult degree. The implication here is that according to our analysis the 2015 papers overall are more difficult than the 2013 (13.70%) and 2014 (9.7%) papers. This would allow for fairly good differentiation of the A-grade learners (extremely high-achieving/ability learners) to be discriminated from other high ability/proficiency learners. Obviously, this is an improvement in comparison to 2013 and 2014 papers in this respect. On the other hand the calculations above show that, as is expected the 'Very difficult' level is the least weighted overall. It is noted that the Invalid Difficult questions have been eliminated from the papers over the past three years to 0% in 2015.

1.8.5 Invalid sources of question difficulty or ease

Table 5: Number of questions assessed as having invalid sources of difficulty or ease

Exam	Number of questions	Number of marks
2013 IEB P1	1	4
2013 IEB P2	0	0
2014 IEB P1	2	7
2014 IEB P2	0	0
2015 IEB P1	0	0
2015 IEB P2	0	0

The following comments provide details of the invalid sources of difficulty that were found:

2013 IEB

- P1 Q5.2 – It was impossible to distinguish the grey shades of the graph and match them to the key.
- P1 Q2.3.1 - Plan has a grey shadow which could confuse candidates for accurate measurement.

In 2014 IEB P1, 5 marks were impossible to attain and 2 were at risk of not being attained. This constitutes 2.3% of the marks for the exam. This is unacceptable. Time spent on these questions may have negatively affected the attention given to further questions.

In 2015 there are no invalid sources of difficulty. This is an improvement on all previous years' papers and this indicates that the examiners have improved in terms of the quality of papers they set.

1.8.6 Difficulty of stimulus/source material

Table 6: The appropriateness of stimulus material

Exam	Question number	Mark allocation	Explanation
2013 IEB P1	-	-	-
2013 IEB P2	-	-	-
2014 IEB P1	-	-	-
2014 IEB P2	-	-	-
2015 IEB P1	Q 2.2	6	The fact that the formula of the required volume is adapted such that it is expressed in terms of the thickness of the plaster, and the thickness of the plaster is given, makes this question easier to answer.
	Q 4.1.2	4	The given bar graph, with the heading, makes it easier to provide labels on the axes.
	Q 5.1.1	2	The fact that there is only one place/address/town/city in the document, makes it easier to answer this question.
2015 DBE P2	Q 1.6	10	The manner in which these questions are asked makes it easy for learners to answer, they just need to fill in a missing word in a logically constructed provided and correct statement. The source is also a cleaner version of a normal

			Percentile graph (birth charts are more complicated).
	Q3.2	5	The straight line, with clear/bold end points, that are drawn on the graph makes the measuring easy, hence the question easy to answer. It would have been difficult to measure the distance on the map by just following the actual path, and not a straight line.
	Q 4.1.1	4	The source shows the monthly instalments multiplied by the number of instalments. This is leading the learner in solving the problem, unlike if the values were just given without being multiplied to each other.
	Q4.2.2a)	2	The correct option is made very easy and obvious by the source, since there is only one diagram where the second event continues only from a "no discount" option. If there were two of such, learners would be challenged of further making the choice after dealing with the "no discount" aspect of the first event.

1.8.7 Comparability of 2013 – 2015 examination papers

Table 7: Comparability of examination papers

Paper	2015 IEB P1	2015 IEB P2	2015 IEB Overall
2013 P1	Much better than		
2013 P2		Much better than	
2014 P1	Much better than		
2014 P2		Much better than	
2013 Overall			Much better than
2014 Overall			Much better than

The quality of the 2015 IEB papers was better mostly with respect to the type of question. The earlier years' papers had many more contrived questions, awkward and unnecessary diagrams or merely illustrative images. The 2015 papers also had more very challenging questions although, like the other years, still focussed on the easy type of question. The 2015 papers have fewer language issues, fewer errors in the paper itself and fewer technical problems, however, the marking memo is still problematic.

1.8.8 Other points regarding the standard of the examination

Problematic questions and the reason

- Paper 2, Question 1.4.1a)
'Annexure 3, 32%' could have been 'Annexure 3 indicates that 32%'.

Errors in the question paper

- Paper 1, Question 2.1.1
'See sketch below' should have been added after length and breadth measurements, and not height. This might lead to students looking for height on sketch.
- Paper 1, Question 2.1.1
The sketch shows damaged walls which had no windows, but photograph shows damaged wall under window.

Errors in the memorandum

- Paper 1, Question 2.5.2 and 2.5.3
No ticks and no symbols for marking
- Paper 1, Question 2.5.3
The memo should consider wrong answers for 2.5.1 and the result thereof in this answer
- Paper 1, Question 3.4
If only West is excepted, then only South should be excepted as well
- Paper 1, Question 3.6.1
The memorandum did not provide a range of 1mm to each side of accurate measurement
- Paper 1, Question 3.7.1

Memo should include answer in hours and minutes. Memo answer looks like five past one, format incorrect.

- Paper 1, Questions 3.7.3a

The memo refers us to the map for the answer, but the map is not included in memo.

- Paper 1, Question 3.7.3b

'North Rand road' not given on map. 'N Rand road' should be an option on memo.

- Paper 1, Question 4.1.4

Memo does not show where the division value comes from.

Should have been allocated more marks for this question.

- Paper 1, Question 4.2.1

Too many marks for expressing a number as a percentage of another number

- Paper 1, Question 4.2.2

Full words for the unit should also be accepted.

- Paper 1, Question 5.1.1

Memo should consider only 'Durban' as a correct answer.

- Paper 1, Question 5.1.4

Option of total minus VAT should also be on memo.

- Paper 1, Question 5.3.4

Division by 2 can also be considered for full marks

Language issues

- Paper 1, Question 3.7.2

The word 'disembark' should have been explained.

- Paper 1, Question 5.1.1

Question paper should have stated the street address and not where does he stay. This might lead to students answering Durban only.

- Paper 1, Question 5.3.2

Question might have been misleading as students can think 'no decimal, but they must use million'.

- Paper 1, Question 5.3.4

'Hazelmere Dam if it were 50% full'; should be 'if it was 50% full'

General and/or Technical issues

- Paper 2, Question 2.1

The images for this question could have been given on an Annexure. It might have been difficult for students to turn the page, while answering question.

- Paper 2, Question 4.2.1

Students are taught to work with pie-charts, percentages and values. By working with degrees and percentages (that are not represented on the pie chart), it can be confusing for some students.

- It must be noted that Paper 2 contains 7 Annexures, 4 of these have to be used in Question 1. This may be slightly confusing for the learner having to refer to so many Annexures in one question.

- Paper 2, Annexure 2

The fact that 'Average house price' had two curved lines between coordinates, might be confusing.

1.8.9 Concluding discussion

1.8.9.1 Was there anything on the exams that could disadvantage learners taking this exam? (e.g. a picture/graphic that could not be read; an instruction that was confusing; an unexpected question; a question that was much too difficult)

- Memoranda

The fact that many questions had only 'A' and did not consider 'CA', would affect the results of the students negatively. Also the lack of alternative answers where necessary.

1.8.9.2 Was there anything on the paper that could unfairly advantage learners taking this examination? (e.g. a question that was much too easy)

- None

1.8.9.3 Were there any non-questions on the exam paper (i.e. questions which everyone will get wrong or right – they do not discriminate between learners)?

- None

1.8.9.4 Were there any other questions where choices are made, where the choices were not at the same level of difficulty?

- None

1.8.10 Recommendations for improving the quality and standard of SUBJECT examinations

- Standard and quality can be improved, in particular, with reference to the memorandum, which has rather problematic factors which may directly affect the marking. Also the memoranda should include alternative answers and accept 'CA' instead of only 'A' in some instances where learners have to use the previous answer to answer the next question.
- Allocation and distribution of marks should be fair, e.g. in Paper 1, Question 4.1.4 is allocated 3 marks but requires a calculation before the final calculations are done to get to the final result, whilst Question 4.2.1 is allocated 4 marks but is a simple calculation of finding the % of a number.
- In some answers in the memorandum there are no "ticks" to indicate allocation of marks, e.g. in Paper 1, Question 2.5.2 and 2.5.3
- Question 5.3 in Paper 1 on drought is relevant to the current situation in South Africa. Learners can relate to scenario.

1.9 Physical Sciences

1.9.1 Compliance with the IEB Handbook

Table 1 - Format and structure of Physical Sciences Examination Papers			
Exam paper	Focus area	Duration (hrs)	Mark allocation
IEB P1 2013	Physics	3	200
IEB P2 2013	Chemistry	3	200
IEB P1 2014	Physics	3	200
IEB P2 2014	Chemistry	3	200
IEB P1 2015	Physics	3	200
IEB P2 2015	Chemistry	3	200

In Table 1 above, the IEB Physical Science papers that were analysed for 2013 to 2015 are presented. The papers were consistent with the required format in all cases.

1.9.2 Coverage of examinable curriculum

Table 2 - Coverage of examinable curriculum in each paper	
Paper	Coverage of Content Areas
IEB P1 2013	All of the curriculum is covered as per IEB Handbook
IEB P2 2013	All of the curriculum is covered as per IEB Handbook
IEB P1 2014	All of the curriculum is covered as per IEB Handbook
IEB P2 2014	All of the curriculum is covered as per IEB Handbook
IEB P1 2015	All of the curriculum is covered as per IEB Handbook
IEB P2 2015	All of the curriculum is covered as per IEB Handbook

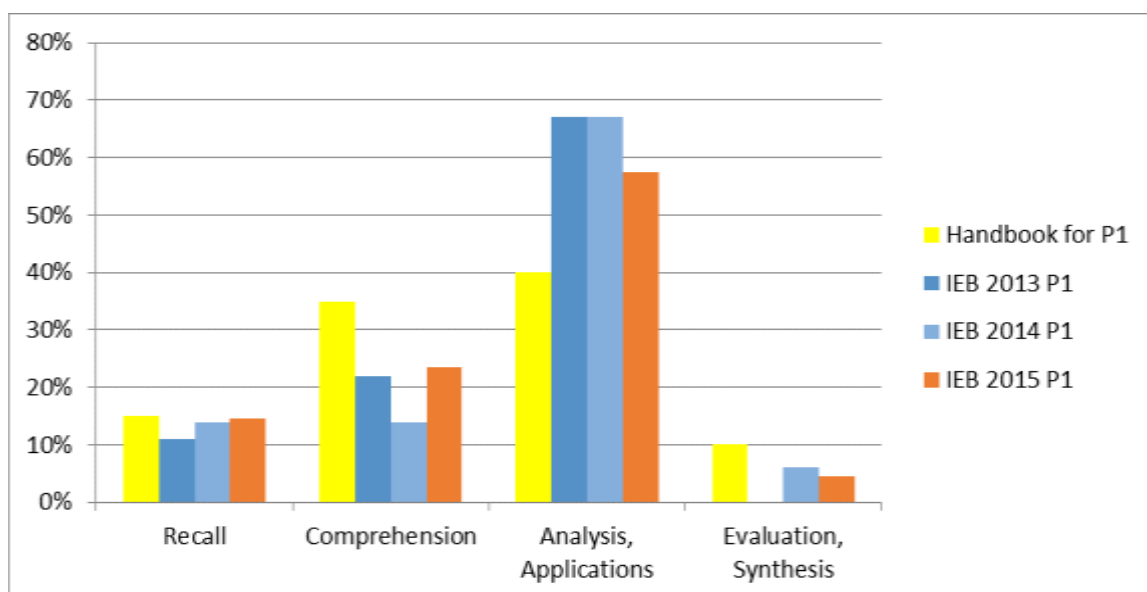
It should be noted that the content stipulated for examination in the IEB Handbook differs from that in the CAPS document in certain areas.

1.9.3 Distribution of cognitive demand in the papers

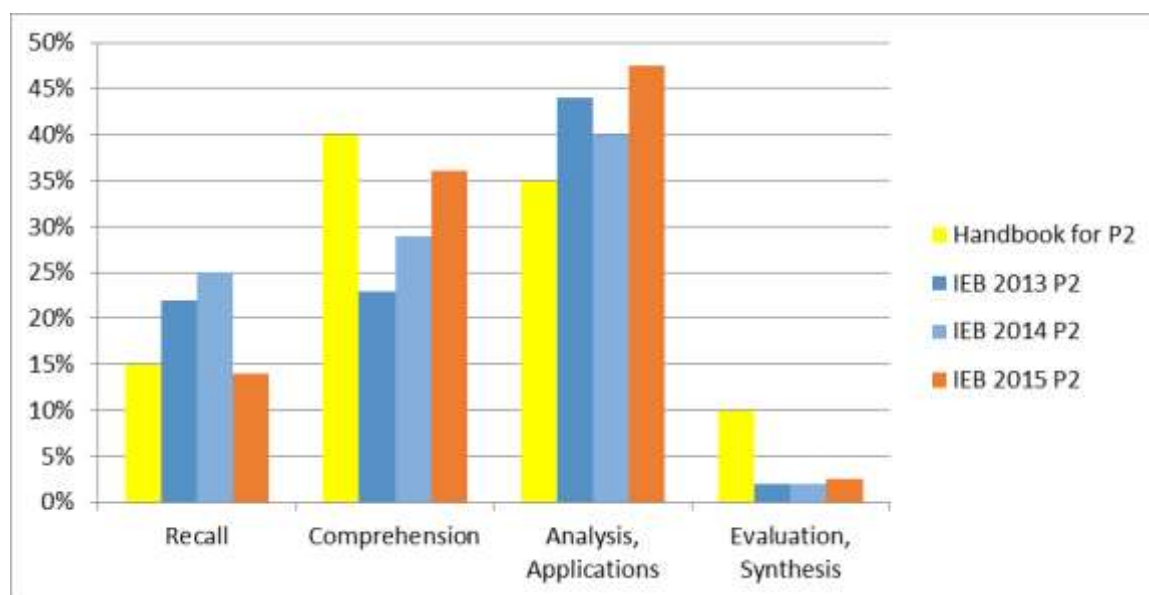
Table 3 - Comparison of cognitive demand weightings specified and the percentage for the paper(s) analysed
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Paper	Percentage of marks allocated to questions at each of the different types of cognitive demand			
	Recall	Comprehension	Analysis, Applications	Evaluation, Synthesis
IEB P1 2013	11%	22%	67%	0%
IEB P2 2013	22%	23%	44%	2%
IEB P1 2014	14%	14%	67%	6%
IEB P2 2014	25%	29%	40%	2%
IEB 2015 P1	15%	24%	58%	5%
IEB 2015 P2	14%	36%	48%	3%
Handbook for P1	15%	35%	40%	10%
Handbook for P2	15%	40%	35%	10%

Paper 1 Cognitive Demand



Paper 2 Cognitive Demand



From Table 3 and the graphs above, the following comments can be made about the 2015 November papers:

- The 2015 Paper 1 has a very high percentage of “Analysis, Application” questions, at the expense of “Comprehension” and “Evaluation, Synthesis”
- For 2015 Paper 2 the distribution of cognitive demand has also shifted slightly more towards Analysis and Application than recommended in the Handbook for Paper 2.

However, it needs to be borne in mind that these categories of cognitive demand are very difficult to judge accurately for Physical Sciences examinations, as they do not adequately describe the types of thinking that are typically involved in the exam questions. As a result, different evaluators might arrive at varying judgments on these. One can therefore not make strong judgments on the basis of these percentages. The levels of difficulty are far more informative for Physical Sciences examinations (see Section 4 of this report).

1.9.4 Distribution of levels of difficulty in the papers

Table 4: Percentage of marks awarded to the different levels of difficulty in the examination paper(s)						
	Easy	Moderate	Difficult	V.Difficult	Invalid	Overall Difficulty Score
Paper 1						
IEB 2013 P1	7%	65%	27%	2%	0%	2.24
IEB 2014 P1	3%	40%	48%	11%	0%	2.66
IEB 2015 P1	7%	40%	42%	12%	0%	2.60
Paper 2						
IEB 2013 P2	12%	52%	26%	1%	4%	2.18
IEB 2014 P2	11%	56%	26%	3%	0%	2.21
IEB 2015 P2	5%	32%	56%	7%	2%	2.65

Table 5: Percentage of marks awarded to the different levels of difficulty for all examination papers combined						
	Easy	Moderate	Difficult	V.Difficult	Invalid	Overall Difficulty Score
Paper 1&2 Combined						
IEB 2013	9%	59%	26%	2%	2%	2.21
IEB 2014	7%	48%	37%	7%	0%	2.43
IEB 2015	6%	36%	49%	9%	1%	2.62

An overall difficulty score for each paper was determined by assigning a value score as follows:

- Easy questions (EQ) = 1
- Moderate questions (MQ) = 2
- Difficult questions (DQ) = 3
- Very difficult questions (VDQ) = 4

The formula applied to determine the difficulty score is:

Overall difficulty score = (%EQ marks x 1) + (%MQ marks x 2) + (%DQ marks x 3) + (%VDQ marks x 4)

Therefore, the higher the overall difficulty score for a paper, the higher the standard of the paper, with 4 as a maximum. Experience has shown that this is a very useful way of rating the level of challenge of Physical Science papers, and that a rating of between 2,2 and 2,4 is appropriate for a Grade 12 exit-level examination.

The appropriateness of the levels of difficulty of these papers will be commented on in the comparative analysis, as there is no set standard in the CAPS document against which to compare these difficulty values. Hence the only valid comment can be made in comparison with other papers.

1.9.5 Invalid sources of question difficulty or ease

Table 6 - Number of questions assessed as having invalid sources of difficulty of ease	
Paper	Number of Questions
IEB P1 2013	0
IEB P2 2013	3
IEB P1 2014	0
IEB P2 2014	0
IEB P1 2015	0
IEB P2 2015	1

The following comment provides details of the invalid source of difficulty that was found in the 2015 Paper 2:

- Question 6.7: This scenario of altering the dimensions of the salt bridge is not dealt with in the curriculum, nor in the average textbook. Learners will not be able to work out the effect of this and so this question is unanswerable except by means of guess-work. This is a “guess-the-teacher” type of question.

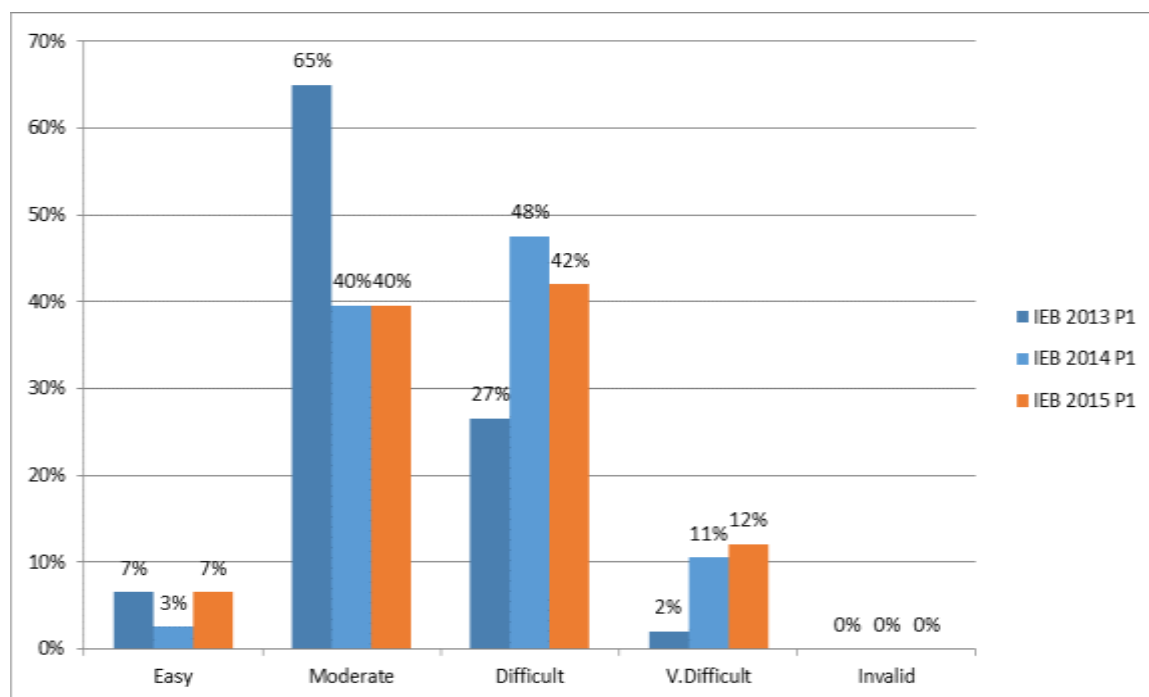
1.9.6 Difficulty of stimulus/source material

In the 2015 Paper 2, Questions 2.1 and 5.1 list a range of chemicals that learners should choose from in answering the questions. This list of chemicals is problematic as, in numerous cases, there could be more than one possible answer, but this is not provided for in the memorandum. Again, this seems to expect learners to guess what the examiner had in mind. In some cases, a greater depth of scientific knowledge is required in order to be able to answer the question than is within the scope of the curriculum.

1.9.7 Comparability of examination papers

The results of the examination analysis are shown below for each of the papers, and for the combinations of the papers. We represented the information graphically, as this clearly allows the comparisons to be seen.

IEB Paper 1 (Physics) Levels of Difficulty:

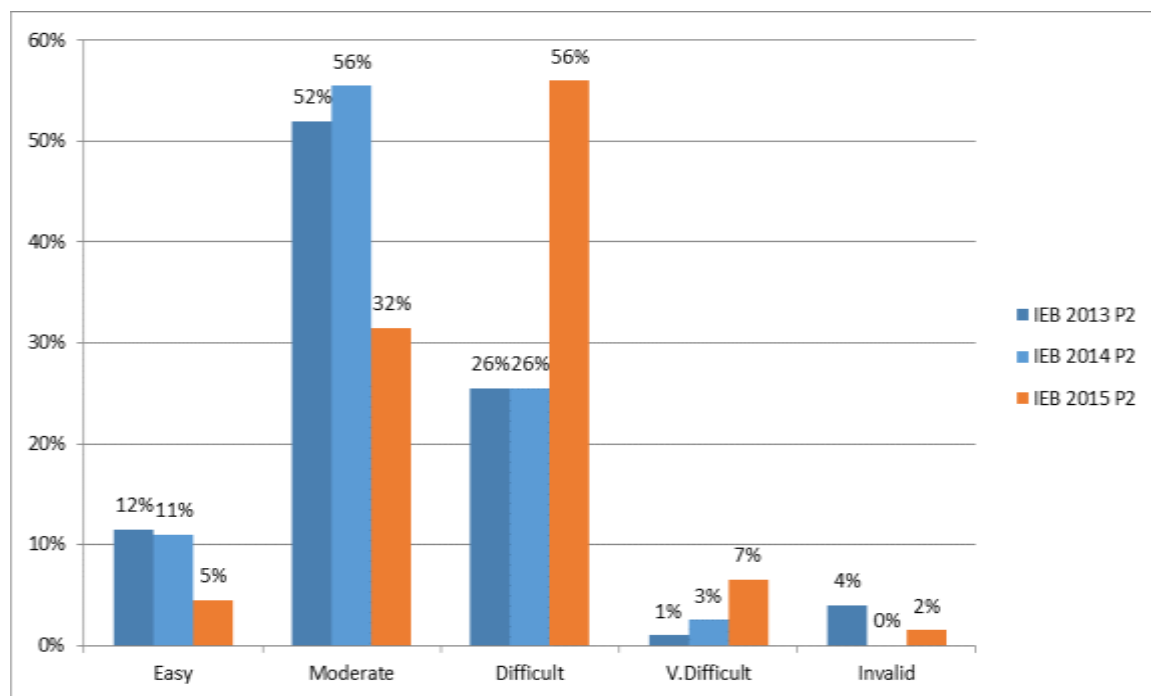


Regarding the standard of the 2015 Paper 1:

- The data clearly shows that the 2015 Paper 1 is similar to the 2014 paper, which was itself a difficult paper.

- This suggests that learners will experience the Physical Sciences November Paper 1 as having a similar challenge than the 2014 paper, and significantly more challenge than the 2013 predecessor.

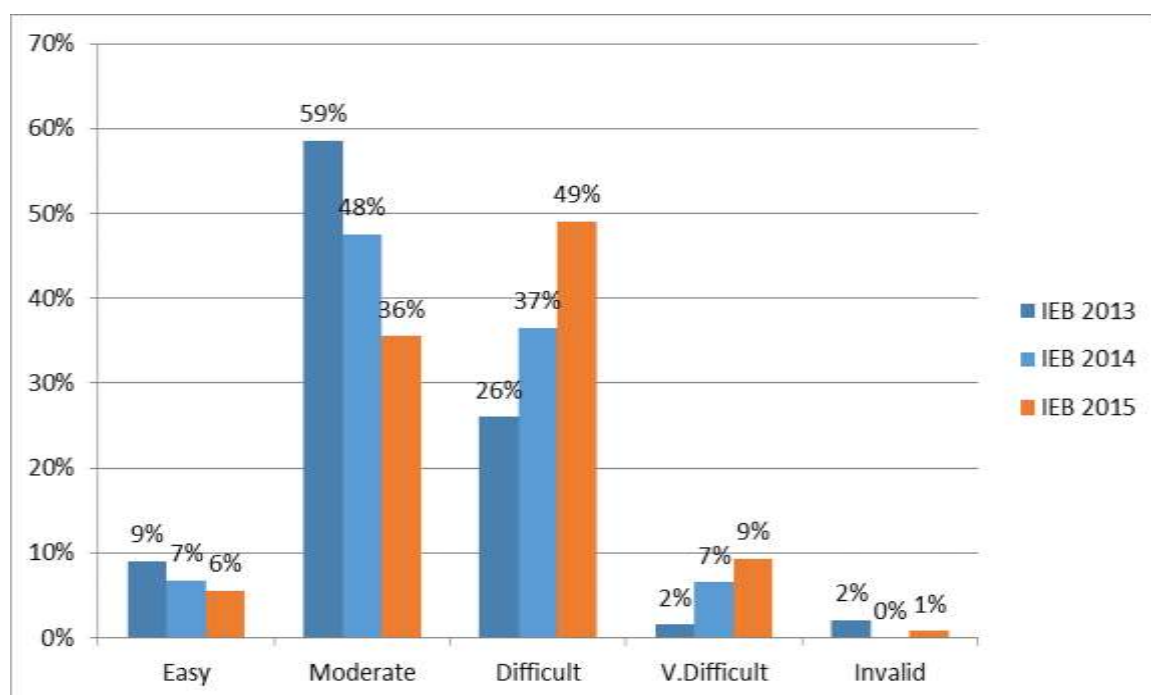
IEB Paper 2 (Chemistry) Levels of Difficulty:



Regarding the standard of the 2015 Paper 2:

- The data clearly shows that the 2015 November Paper 2 is more difficult than the 2014 paper. This is evidenced by:
 - The significant increase of "Difficult" questions from 26% in 2014 to 56% in 2015
 - The increase of "Very Difficult" questions from 3% in 2014 to 7% in 2015
- This suggests that learners will experience the Physical Sciences November Paper 2 as more challenging than the 2013 and 2014 papers.

Combined Paper 1 and Paper 2: Levels of Difficulty



Regarding the standard of the 2015 Combined Physical Sciences Examination:

- The November exam has a higher overall percentage of “Very Difficult” questions (9% compared with 2% for 2013 and 7% for 2014), at the expense of the “Easy” questions (which have dropped from 9% in 2013 to 7% in 2014 to 6% in 2015).
- There has also been a drop in the percentage of moderate questions, and an equivalent rise in the percentage of difficult questions (from 37% in 2014 to 49% in 2015).
- In addition, the overall difficulty rating of the 2015 examination was found to be 2.62, which is greater than that for 2014 (2.43) and 2013 (2.21).
- This suggests that learners will experience the combined Physical Sciences November Papers 1 and 2 as more challenging than the 2013 and 2014 examinations.

This information is summarized in Table 7 below for the November paper:

Table 7 – Rating the standard of the 2015 paper(s) against each of the other papers		
Paper	2015 November P1	2015 November P2
IEB P1 2013	Significantly more demanding	-
IEB P1 2014	Similar demand	
IEB P2 2013	-	Significantly more demanding
IEB P2 2014		Significantly more demanding
Combined P1 & P2 2013	November 2015 is more demanding	
Combined P1 & P2 2014	November 2015 is significantly more demanding	

1.9.8 Concluding discussion

The percentage of marks readily available to the 30% passing candidate was determined as follows:

- 100% of the marks in the “Easy” category + 50% of the marks in the “Moderate” category, expressed as a percentage of the overall marks.

The percentage of marks readily available to the 80% candidate was determined as follows:

- 100% of the marks in the “Easy” category + 100% of the marks in the “Moderate” category + 75% of the marks in the “Difficult” category, expressed as a percentage of the overall marks.

Table 8 below reflects these marks for all papers under evaluation:

Table 8: Marks achievable by groups of learners		
	Marks achievable by 30% passing candidate	Marks achievable by 80% candidate
Paper 1		
IEB 2013 P1	39.0%	91.4%
IEB 2014 P1	22.3%	77.6%
IEB 2015 P1	26.3%	77.5%
Paper 2		
IEB 2013 P2	37.5%	82.6%
IEB 2014 P2	38.8%	85.6%
IEB 2015 P2	20.3%	78.0%
Paper 1&2		
IEB 2013	38.3%	87.0%
IEB 2014	30.5%	81.6%
IEB 2015	23.3%	77.8%

The following comments are made about these:

- In the 2015 November Paper 1 a similar percentage of marks is accessible to the 30% passing candidate to the 2014 Paper 1, but a lower percentage is accessible than in 2013.
- Similarly, in the 2015 November Paper 1 a similar percentage of marks is accessible to the 80% candidate to the 2014 Paper 1, but a lower percentage is accessible than in 2013.
- In the 2015 November Paper 2 a significantly lower percentage of marks is accessible to the 30% passing candidate than in 2013 or 2014.
- Similarly, in the 2015 November Paper 2 a lower percentage of marks is readily accessible to the 80% candidate than in 2013 and 2014.
- For the combined papers the 2015 November paper is more difficult for the 30% learner than the 2013 and 2014 papers.
- Similarly there is a lower percentage of readily available marks for the 80% candidate in the November 2015 papers than in the previous two years' papers.

1.9.9 Recommendations for improving the quality and standard of the examinations

The following recommendations are made:

- Some guidelines for the acceptable distribution of percentages for the levels of difficulty of the examinations should be established to set a benchmark to guide the required standards of a Grade 12 exit level examination. This will ensure a greater continuity in the standard, and allow for the proper discrimination of levels of learner attainment.
- In the experience of the evaluation team, Paper 1 was challenging but fair, in that the questions were clear in what they were attempting to assess. However, Paper 2 was experienced as having a number of ambiguities and unnecessary diversions from the intent of the question, and this could lead to learner anxiety for learners at all levels, and therefore possible underperformance of well-prepared learners. Care should be taken to avoid unnecessary snags in the assessment of an already challenging subject.

Appendices

Appendix A: Umalusi examination analysis tool

C1	C2	C3	C4	C5	C7	C8
Item	Marks	Content / topic / skill	Type of cognitive demand (1,2,3,4,OR 5)	Difficulty level (1, 2 3, 4 OR ID)	Identify and list the main source/s of difficulty (Levels 3 or 4) (i.e. Content, Stimulus, Task and/or Expected Response)	Make a note justifying levels 3 or 4 difficulty or Invalid rating. Also make a note here if there are any unresolved differences in ratings and opinions between individual evaluators.
1.1						
1.2						
1.3						
1.4						
1.5						
1.6						
1.7						
1.8						
1.9						
1.10						
1.11						
1.12						
Total						

(Add an many rows as necessary)

Appendix B: Typology of cognitive demand

Level of cognitive demand	Type of cognitive demand	Explanation of categorization. Question which require students:	Examples
Lower order processes	1. Recognize or recall	To locate, identify and retrieve any kind of explicitly stated information, ideas, facts or details in reading material provided, or from memory of previously learned or read material (for example, names of places), and recognition of the relevance of the information, ideas, facts or details in relation to the question	<p>The contextual questions on Shakespeare's drama Romeo and Juliet:</p> <p>Complete the following sentence by filling in the missing words. Write down only the question number and the words.</p> <p>Juliet sends the Nurse to Friar Lawrence's cell to take Romeo a ... and tell him to come to her that night and say ...</p> <p>The comprehension question: Give two reasons why children become overweight. Refer to paragraph 3 (of the given passage).</p>
	2. Apply or reorganize	To use or apply a basic procedure (for example, a basic grammatical rule), to replicate a model or version (for example, a basic visual representation, a report, memo, invitation in a highly scaffolded way where students have to recreate rather than create), or to reorganize explicitly stated information , ideas, facts or details from reading material or from memory of previously	<p>Rewrite the following sentence in the passive voice starting with the given word: The 18-year-old had developed an illness causing paralysis. Start with: An ...</p> <p>Rewrite the following sentence so that it is grammatically correct. 'When wearing their apparently sprayed-on outfits, it gives them a false sense of being stylish.'</p>

		learned or read material in a different way or form from what was presented (for example, to sort, classify, match, categorize, compare, contrast, summarise or paraphrase, or consolidate explicitly stated information, ideas, facts or details.)	
Medium order processes	3. Infer, interpret or analyse	To engage in more abstract (inferential) reasoning and interpretation , and use conjecture, background knowledge, clues or implicit information , ideas, facts or details in reading material provided or from memory of previously learned or read material as a basis of forming hypotheses, interpreting, inferring or analysing details, relationships or ideas (for example, the significance of a theme, the motivation or nature of a character) which are not explicitly stated in reading or other source material	<p>The contextual questions on Shakespeare's drama Romeo and Juliet: Juliet sends the Nurse to Romeo. What does this show the audience about the relationship between Juliet and the Nurse?</p> <p>The question on an extract from the novel Animal Farm: Refer to lines 12–13: 'the animals <u>crept silently</u> away.' What do the underlined words convey about the animals' feelings at this stage of the novel?</p>
Higher order processes	4. Evaluate or appreciate	To make critical judgement (for example, on qualities of accuracy, consistency, acceptability, desirability, worth or probability) using criteria provided by other sources or authorities, or students' own values, experiences, or background	<p>The question on a Madam and Eve cartoon: The cartoonist does not show the mother-in-law in any of the frames. Do you think that this is an effective technique? Justify your response.</p> <p>The question on an unseen</p>

		<p>knowledge of the subject</p> <p>To show emotional and aesthetic or literary sensitivity or a reaction to the worth of psychological and artistic elements of reading material (including literary techniques, language, forms, styles, and structuring). (For example, commenting on the effectiveness of a poetic device or image).</p>	<p>poem, An Abandoned Bundle by M. O. Mtshali: Discuss how the poet employs diction and imagery to reveal his state of mind to readers.</p>
	<p>5.</p> <p>Synthesise or create</p>	<p>To integrate ideas and information and relate parts of material, ideas, or information to one another and to an overall structure or purpose in a way that is relational.</p> <p>To engage in original creative thought and design and put elements together to form a coherent whole and make a new or unique product showing emotional, aesthetic or literary sensitivity</p>	<p>You are selling a second-hand item (e.g. a Walkman, a CD player, an item of clothing). Create an advertisement which will be placed on the notice board at school.</p> <p>Write an essay of between 250 and 300 words titled 'As I looked at that photograph...'</p>

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