



PUNJAB
EXAMINATION
COMMISSION

2015

REPORT ON
GRADES 5 AND
8 EXAMS

TABLE OF CONTENTS

4

List of Abbreviations and Acronyms

4

Key to Knowledge Domains

5

Message from CEO

6

Executive Summary

7

Section 1: Introduction to PEC Exams in 2015

11

Section 2: Student Performance

12

Grade 5

28

Grade 8

43

Key Findings and Recommendations

45

Annex 1: Student Performance Against SLOs - Grade 5

53

Annex 2: Student Performance Against SLOs - Grade 8

LIST OF ABBREVIATIONS AND ACRONYMS

CRQ	Constructed Response Question
CTSC	Cluster Training & Support Center
DDEO	Deputy District Education Officer
DEO	District Education Officer
EDO	Executive District Officer
DSD	Directorate for Staff Development
GoPb	Government of the Punjab
MCQ	Multiple Choice Question
PCTB	Punjab Curriculum and Textbook Board
PEC	Punjab Examination Commission
PPBP	Parho Punjab Barho Punjab
SED	School Education Department
SLO	Student Learning Outcome

KEY TO KNOWLEDGE DOMAINS:

Knowledge:	Recalling something that has been learnt, for instance, $2 + 4 = 6$
Understanding:	Realizing why $2 + 4 = 6$, and that if $2 + 4 = 6$, $4 + 2$ should also be equal to 6.
Application:	Synthesizing, analysing and applying their knowledge of basic addition to everyday life, for instance word problems such as: If your parents have 4 children, how many people are in your family? 6

MESSAGE FROM CEO

FOR THE LAST TEN YEARS, THE PUNJAB EXAMINATION COMMISSION (PEC) HAS ADMINISTERED EXAMS TO MILLIONS OF GRADES 5 AND 8 STUDENTS FROM ALL GOVERNMENT SCHOOLS AND THE MAJORITY OF PRIVATE SCHOOLS IN PUNJAB. THESE EXAMS PROVIDE THE GATEWAY FOR PRIMARY SCHOOL STUDENTS TO ENTER MIDDLE SCHOOL, AND MIDDLE SCHOOL STUDENTS TO ENTER HIGH SCHOOL.

For most students, PEC exams are among the most important exams they will take in their lives. It is therefore important that these exams are developed carefully, administered efficiently and marked reliably.

PEC therefore emphasizes a cycle of ongoing improvement, through which it continuously improves the design, conduct and marking of its exams.

This year, PEC introduced multiple innovations and improvements to its exams; these innovations and improvements are described in the following pages. As a result, more than ever before, this year's exams provide a credible measure of student learning levels across the performance. These improvements are the start of an ambitious institutional strengthening agenda for PEC, and we will continue to steadily improve exam design, conduct and marking over the next three years.

This report has been prepared to communicate the outcomes and trends from this year's exams and to inform key stakeholders of strengths and weaknesses in students' knowledge and skills. We at PEC hope that the findings in this report can inform improvements in the quality of

education delivered to our young boys and girls, who are the future of our province. We also believe that reforms at PEC will make a valuable contribution to the Chief Minister's Parho Punjab, Barho Punjab campaign, launched to transform the quality of education in Punjab by the year 2018.

I express my gratitude to Mr. Abdul Jabbar Shaheen, Secretary, Govt. of the Punjab, School Education Department for his continuous encouragement and guidance to accomplish this enormous task.

I am grateful to Prof. Dr. Khalid Hamid Sheikh, Chairperson and members of the Punjab Examination Commission for their support and guidance.

I am also indebted to Dr. Thomas Christie who remained engaged with the PEC data analysis team and guided their efforts. I am also thankful to CM Road Map team for their technical contribution throughout the process, and to UNICEF for their abiding and generous technical and financial support at every step of the way.

I would like to acknowledge contribution made by my colleagues in PEC who have helped in preparing this report.

Nasir Iqbal Malik
Chief Executive Officer
Punjab Examination Commission

30th November, 2015

EXECUTIVE SUMMARY

THIS YEAR'S PEC EXAMS PROVIDE INSIGHTFUL INFORMATION ON THE QUALITY OF LEARNING IN PRIMARY AND MIDDLE SCHOOLS IN PUNJAB. THIS SECTION SUMMARIZES TRENDS THAT HAVE EMERGED FOR BOTH GRADES 5 AND 8.

Grade 5

Students performed best in Islamiyat, and were weakest in Science. They achieved a mean percentage score of 68 in Islamiyat, 61 in Urdu, 50 in Mathematics, 49 in English and 45 in Science. Students in private schools outperformed students in government schools, and girls performed better than boys, especially in Constructed Response Questions (CRQs), which tested understanding and application of curricular topics. Overall, students fared best in questions that tested knowledge; these were mostly Multiple Choice Questions (MCQs). They were far weaker in questions that tested application of knowledge and skills. Students from districts Muzaffargarh, Layyah and Vehari performed the best on average, whereas students from districts Rawalpindi, Sheikhupura and Narowal had the lowest scores, on average. Overall, students in southern districts performed better than students in central and northern districts of Punjab.

Grade 8

Student performance in Grade 8 exams showed patterns similar to that of the Grade 5 exams. However, performance among Grade 8 students was better than Grade 5 students in all subjects, with the lowest performing district averaging at 51.3%, compared to an average of 33.8% for Grade 5 exams. The highest performing subject was Islamiyat, whereas Science was the weakest. Their mean percentage scores were as follows: 76 in Islamiyat, 68 in Urdu, 57 in English, 50 in Mathematics, and 47 in Science. Students, on average, scored

better on MCQs than on CRQs. Students from private schools performed better than students from government schools, and in both school systems, girls performed better than boys. Within cognitive domains, students fared best in questions that tested knowledge and had difficulty with questions that tested application. As with Grade 5, students from districts Muzaffargarh, Layyah and Vehari performed the best, on average, whereas students from districts Rawalpindi, Narowal and Sheikhupura had the lowest scores, on average. Overall, students in southern districts performed better than students in central and northern districts of Punjab.

Recommendations suggest that Science textbooks and teacher training need to be improved. Low performing districts be specially focused. Attention needs to be given to the questions that require writing skills. Teachers should focus on helping students understand concepts and topics, by engaging them in a variety of thought provoking activities. Students lack frequent practice at deriving the meaning of words in context. This needs to be given special attention. Extra reading material needs to be developed to improve the reading ability of students. SLOs against which students performance is low, need specially to be focused.

SECTION 1: INTRODUCTION TO PEC EXAMS IN 2015

Every year, the Punjab Examination Commission (PEC) conducts exams for Grade 5 and Grade 8 students in the province. These Grades are selected because they are critical milestones for students as they progress towards graduation. Grade 5 is the final year in primary school and Grade 8 is the final year in middle school. Therefore, if designed and conducted fairly, PEC exams can provide valuable data on how well students have performed at the primary and middle school levels.

In 2015, PEC introduced a four year improvement plan to strengthen the design and delivery of its exams and to use findings on student performance to provide rich, reliable data to inform the Government of the Punjab's quality education drive.



SCALE OF THE EXAMS

The Punjab Examination Commission has been administering exams to the entire population of Grade 5 and Grade 8 students in government schools and a significant number of private candidates in Punjab. For the year 2015, exam details of both grades are:

Last date for registration: 7th January 2015
 Date of exam: 21st February 2015 to 3rd March 2015
 Result declared on : 31st March 2015

These PEC exams determine levels of student achievement, reveal teaching and learning issues and provide the basis for award of scholarships to high performing students. The scale on which these exams are conducted is massive, as Table 1 and 2 reveal.

**Number of Students and
Table 1. Grade-5: Results Summary (Year-2015)**

	Gender	Registered	Appeared	Declared Pass	*Pass %
Public Schools	Male	412513	403700	210649	52.18
	Female	372633	366591	213496	58.24
Private Schools	Male	235418	219306	144764	66.01
	Female	201721	188068	134041	71.27
Private Candidates	Male	12174	11032	4324	39.20
	Female	9283	8417	3964	47.10
Total		1243742	1197114	711238	59.41

*Candidates who obtained 33% marks were considered pass.

**Number of Students and
Table 2. Grade-8: Results Summary (Year-2015)**

	Gender	Registered	Appeared	Declared Pass	*Pass %
Public Schools	Male	362856	357210	227830	63.78
	Female	307197	303530	207381	68.32
Private Schools	Male	130031	119420	86079	72.08
	Female	126983	117304	88397	75.36
Private Candidates	Male	20692	18794	7585	40.36
	Female	14634	13617	6580	48.32
Total		962393	929875	623852	67.09

*Candidates who obtained 33% marks were considered pass.

A total of 6620 exam centers were set up for Grade 5 students and 5863 exam centers were established for Grade 8 students across the province, in which thousands of staff members were engaged to oversee the conduct of the exams and perform invigilation duties. The staff deployed by PEC comprised 6271 superintendents, 5888 resident Inspectors, 40477 invigilators,

6271 grade IV staff, 1996 CTSC Heads and 2287 IT Teachers for Grade 5, and 5482 superintendents, 5128 resident Inspectors, 31445 invigilators, 5482 grade IV staff, 1996 CTSC Heads and 2274 IT teachers for Grade 8 examination. PEC subsequently established 241 marking centers for checking the exam papers with marking staff of 23797 sub examiners and 4875

head examiners for Grade 5 and 22365 sub examiners and 4572 head examiners for Grade 8 exams.

In addition, education managers including the EDOs, the DEOs and the DDEOs, as well as the CTSC heads of all districts were engaged in the administration and conduct of these exams. Significant human and material resources were committed to ensure the smooth running of the exam cycle and considerable investment was made in printing, storing and distributing the exam papers to each and every exam center in the province. It was imperative that these exams were administered efficiently.

While the 2015 exam cycle showed a remarkable improvement in exam administration, conduct and marking over previous years – particularly in terms

of ensuring secrecy of the exam papers prior to distribution, and more noticeably, in terms of a drastic reduction in the incidence of cheating – considerable gaps emerged in communication across the delivery chain, the supply of exam papers and exam and marking center staff, exam and marking center infrastructure, and most importantly, in training administered to exam and marking center staff on exam conduct and marking protocols. These gaps were bridged by the unremitting efforts of PEC's headquarters staff who did not allow these challenges to nullify the success of the several interventions introduced during the 2015 exam cycle to better manage the exam process.



The depth and credibility of data from the 2015 exams can be attributed to the following key improvements in the content, conduct and marking of exams, introduced as the first phase of the improvement process:

1. An online registration system was introduced for transparent registration of students
2. The exam questions provided optimal coverage of the curriculum, and were fair tests of topics covered during the academic year
3. The exams contained constructed response questions, which required students to demonstrate an understanding of curricular topics, but also multiple choice questions for students who knew their topics but could not express them in their own words
4. Exam questions were thoroughly pre-tested to ensure they rewarded high achievement in each subject
5. Six reliable and comparable versions of Grade 5 and four of Grade 8 exams were distributed to each examination room and used in a seating arrangement that minimized cheating among students
6. Just-in-time printing and extensive monitoring and inspection were introduced to minimize systemic cheating in exams
7. Clear and detailed marking rubrics were developed for consistency in marking, and syndicated marking¹ was introduced to minimize human error.

As a result of these improvements, we are confident that PEC exams in 2015 fairly and thoroughly assessed student capabilities. This report is the first of its kind to be distributed by PEC. In the coming years, PEC aims to institutionalize reports on its annual exams, and in doing so, provide information on: how well students are performing in tested subjects, strengths and weaknesses in student knowledge and skills, and the

comparative performance of sub-groups of students.

As in the past, students from both Grades 5 and 8 were tested in the following subjects: Urdu, English, Mathematics, Science and Islamiat. Papers for Science, Mathematics and Islamiat were printed in both English and Urdu languages, and students had a choice in which language to take their exam. All subjects were divided into two sections: an objective section containing multiple choice questions (MCQs) and a subjective section consisting of constructed response questions (CRQs). Both sections tested knowledge, understanding and application of different concepts.

There are two possible units to measure how well students are learning in their classrooms: the chapters of the Punjab Curriculum and Textbook Board's (PCTB) textbooks and the national curriculum. The long-term intention of PEC is to measure educational growth in Punjab's student body, which calls for a stable unit of measurement. PCTB's textbooks change frequently. The curriculum evolves much more slowly. This report is therefore based on the curriculum and is intended to provide a baseline against which changes in student performance can be measured in the coming years.

A total of 1,197,114 students participated in Grade 5 exams, while a total of 929,875 students participated in Grade 8 exams. As reported earlier, multiple versions were developed of Grade 5 and four of Grade 8 exams, which were equal in terms of curricular coverage and difficulty levels. These versions not only helped minimize cheating but provided rich coverage of the curriculum and a wealth of data on student performance within different topics and SLOs prescribed in the curriculum. This report does not provide a micro-level analysis on SLOs but it does distinguish between topics in which students performed well and those in which students performed poorly.

¹. In syndicated marking each CRQ is marked by a different examiner. This evens out the effect of lenient and severe markers. A CRQ mark which is out of line with the others is remarked by a senior marker to ensure that it is fair.

This report is intended to provide a baseline against which changes in student performance can be measured in the coming years.

SECTION 2: STUDENT PERFORMANCE

This section is divided into two sub-sections: the first covers student performance in Grade 5 and the second covers student performance in Grade 8.



GRADE 5

Key findings

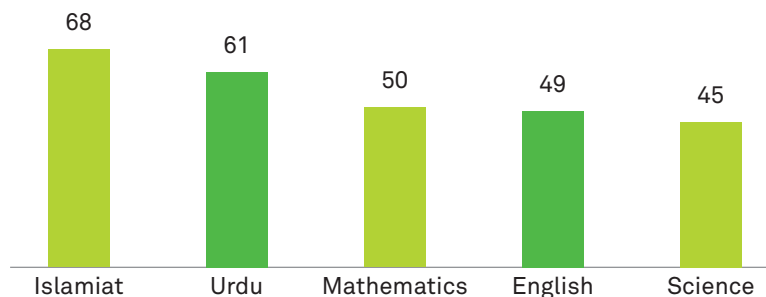
Overall, students performed best in Islamiat and worst in Science, and in all subjects their performance was better in MCQs than in CRQs. Girls performed better than boys and students in private schools performed better than students in government schools. Within cognitive domains, students fared better in questions that tested knowledge and were weaker in questions that tested higher order thinking skills.

Performance by subject

Mean scores by subject are provided in the figure below:

Subject-Wise Comparison of Students Achievements in Grade 5

Mean % achievement score by subject area



SOURCE: PEC

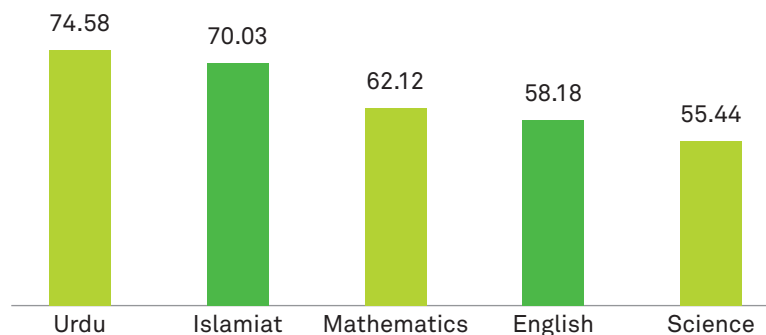
Figure 1: Performance by subject

Considering students' performance in individual subjects, we can fairly assume from the above figure that their understanding of Islamiat and Urdu was far better than of Mathematics, English and Science. And within these subjects, students consistently performed comparatively better in MCQs which mostly tested knowledge.

In order to show the difference between student performance in MCQs and CRQs, we have placed two different charts below representing the mean score achieved for each subject. They clearly show that students performed much better in MCQs, obtaining more than 50% marks for all subjects as compared to their respective CRQ scores.

Comparison of Mean Achievement Score in objective (MCQ) paper

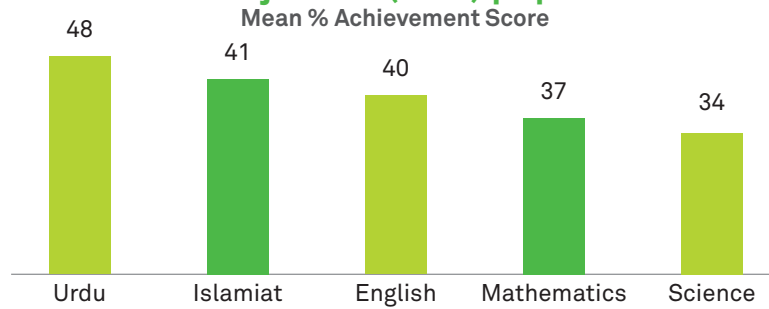
Mean % Achievement Score



SOURCE: PEC

Figure 2: Performance in MCQs

Comparison of Students Mean Achievement Score in subjective (CRQ) paper



SOURCE: PEC

Figure 3: Performance in CRQs

Another aspect highlighted by Figure 2 is that students mastered knowledge questions from Urdu and Islamiyat (with a score of more than 70%) and had a normal performance in Science, English and Mathematics (a score of 55%-62%).

In contrast, when we look at mean score CRQs in Figure 3, we can see that students barely made it to the minimum expected score bracket for each subject, with the lowest score of 34% in Science. Students who scored 33% or below require further coaching in the subject.

Figure 4 provides us with the best evidence that student performance across all four to six versions for all subjects was almost the same, ensuring that student performance was not affected by the version they received. Questions from these versions were also pre-tested in six to eight different districts of Punjab to ensure a uniform difficulty level.

These four to six versions served the purpose of covering a large number of concepts and SLOs for each subject, and also proved to be one of the best defences against cheating in exams.

Average marks obtained in Grade 5

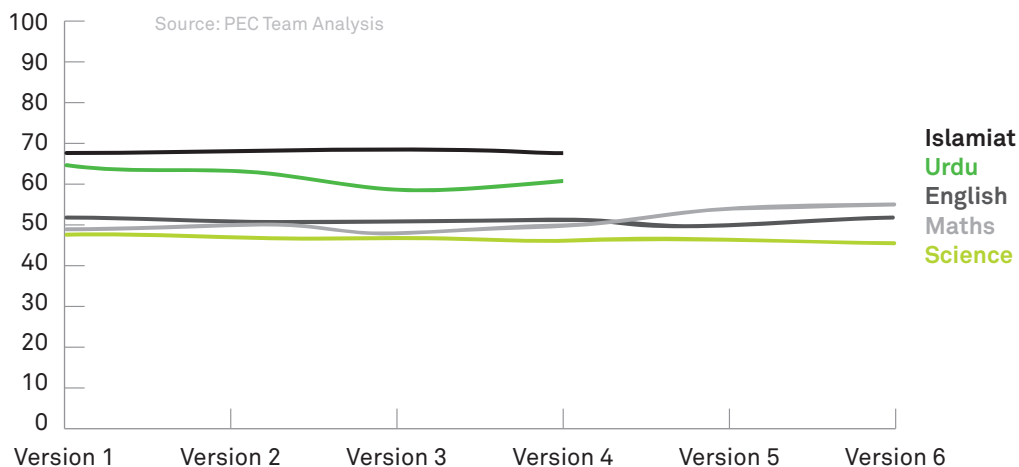


Figure 4: Performance by version of attempted paper

Performance by gender

Overall, girls performed better than boys. Although their performance on MCQs was, on average, the same, their CRQs scores became the differentiating factor.

In CRQs both girls and boys performed lower when compared to MCQs. However, girls performed slightly better in CRQs.

Comparison of Overall Male and Female Students Mean Achievement Score in Grade 5

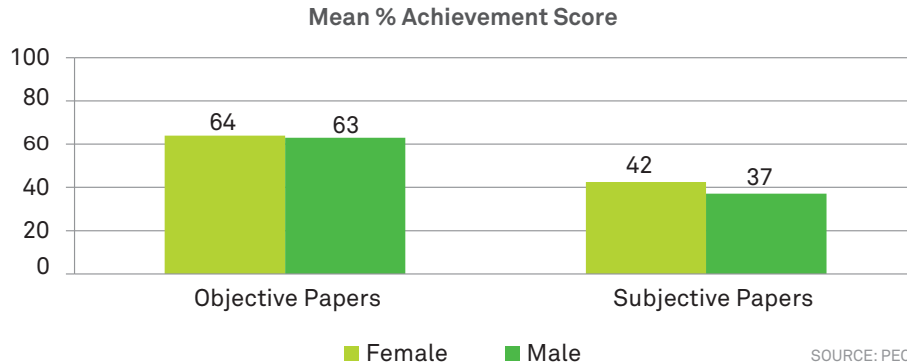


Figure 5: Performance by gender

In order to further investigate the results of overall student performance with respect to gender, we can look into their detailed subject-wise scores, separately shown for MCQs and CRQs, which also substantiate our earlier findings.

In MCQs, there isn't much difference in the performance of both girls and boys but girls perform better than boys in CRQs in all subjects except for Mathematics. It can be inferred from this that subjects in which students need to convey their thoughts in the form of logical flow of information with structured use of sentences were more difficult for boys as compared to girls.

Subject-Wise Comparison of Male and Female Students in MCQs in Grade 5

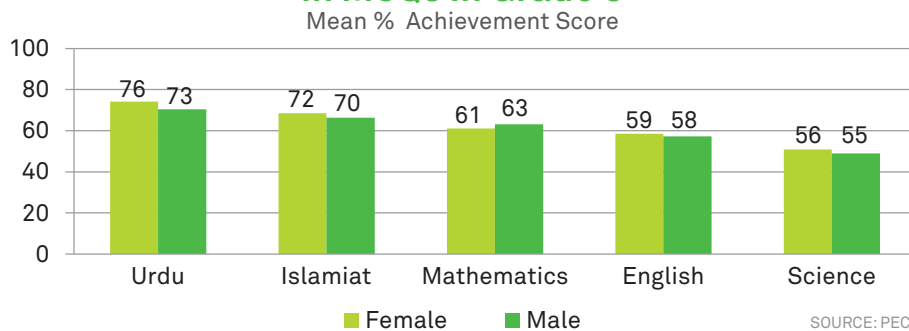


Figure 6: Performance by gender and subject in MCQs

Subject-Wise Comparison of Male and Female Students Mean Achievement Score in CRQs in Grade 5

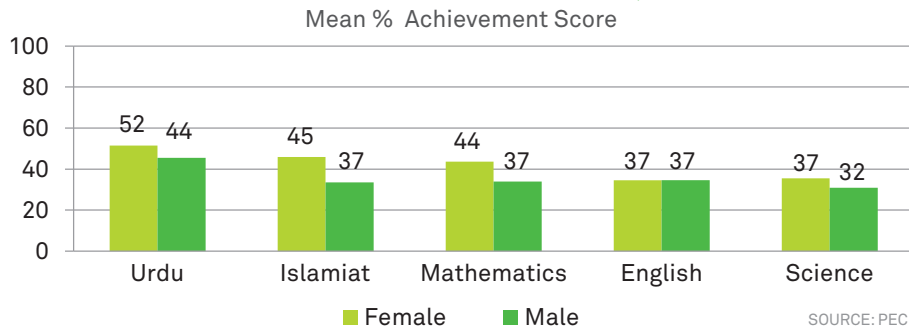
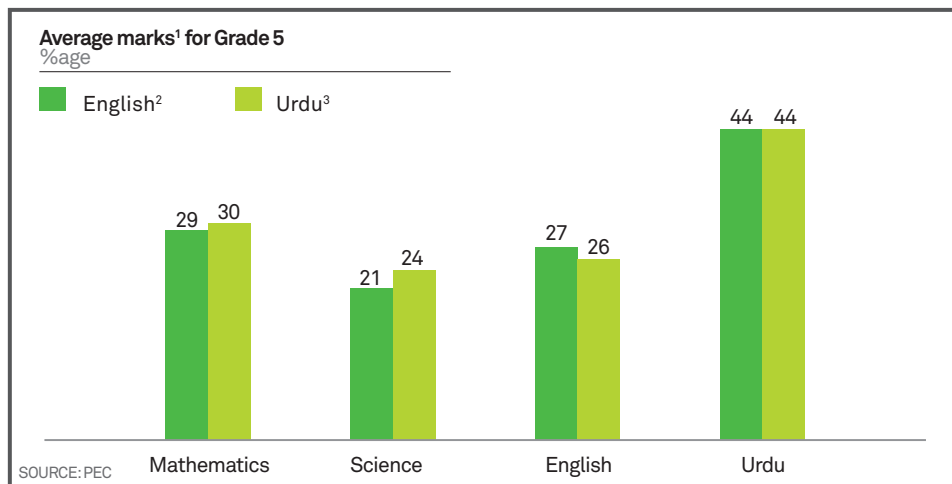


Figure 7: Performance by gender and subject in CRQs

Performance by language of exam

There was negligible difference in performance of students who attempted the exam in English versus Urdu



1. Subjective parts only.
2. Students attempting Mathematics and Science subjective exam in English
3. Students attempting Mathematics and Science subjective exam in Urdu
4. In Islamiyat less than 10 students attempted the subject in English

Figure 8: Performance by language of exam

Figure 8 shows that the performance of Grade 5 students was not seriously affected by the language in which they took the exam. While the mean scores differ slightly, they are in the same range.

Performance by cognitive domain

At the Grade 5 level, student performance was roughly uniform across cognitive domains. Furthermore, if we compare these results with Grade 8 students, Grade 5 students showed lower performance on knowledge and understanding based questions. However, they outperformed the Grade 8 students in the application and higher order thinking skills appropriate to their Grade.

Student performance¹ across the cognitive domains

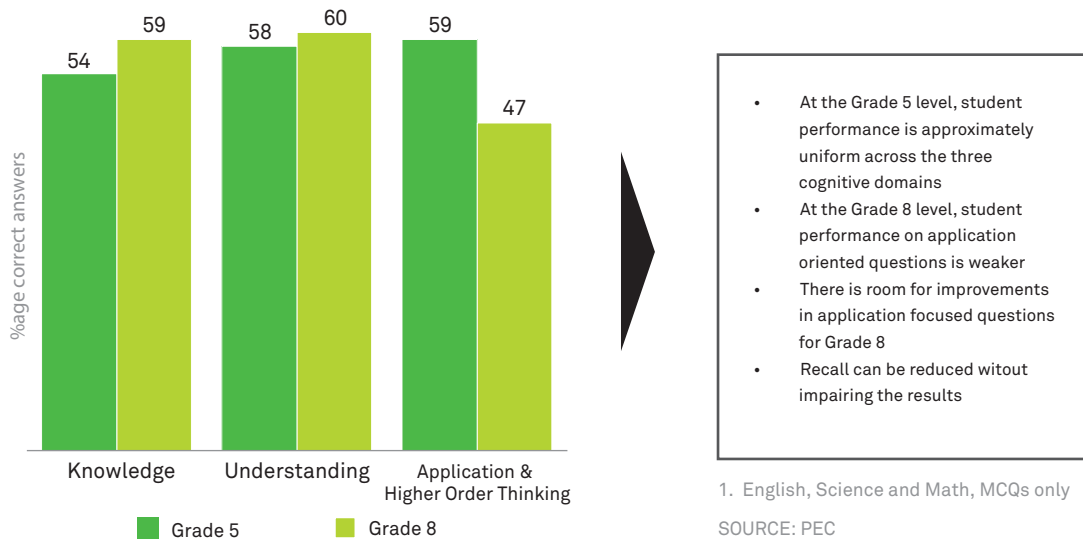
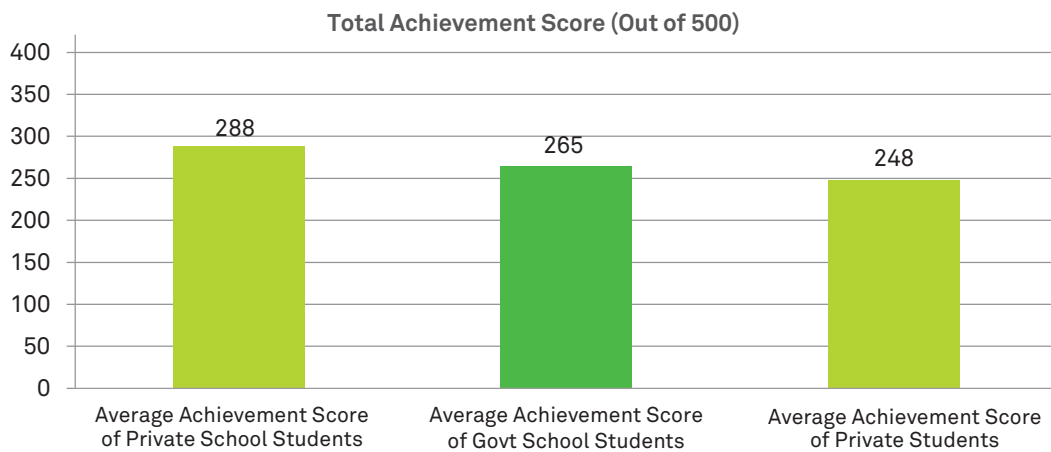


Figure 9: Performance by cognitive domain

Performance by school system

A total of 1,199,751 students appeared in the Grade 5 exam, 64% of whom were from public schools, 34% from private schools, and 2% candidates registered privately. On average, students from private schools performed better, while students who registered as private candidates were the weakest.

Comparison of Achievement of Govt. School, Private School and Private Students in Grade 5



SOURCE: PEC

Figure 10: Performance by school system

Figure 11 shows that regardless of which school type they belonged to, girls consistently performed better than boys in terms of average scores. There is no differential effect of type of schooling on boys and girls in Grade 5.

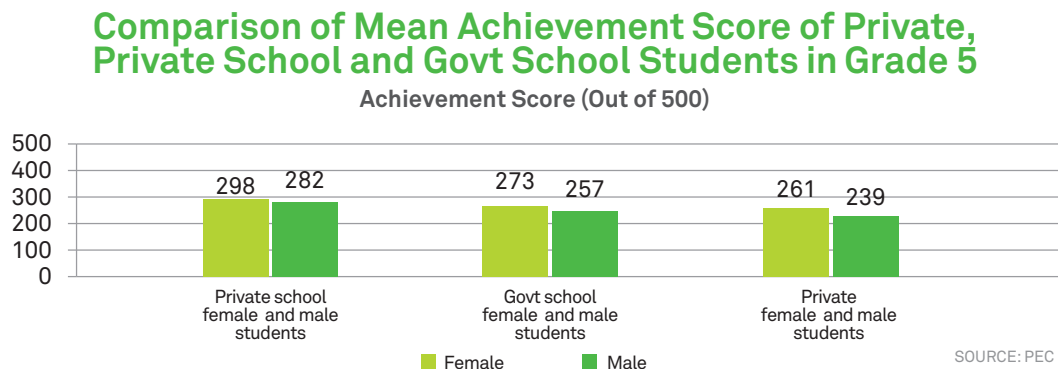


Figure 11: Performance by gender in the different school systems

Distribution curves:

If we look at each specific subject in these distribution curves (Figure 12), all of them have a normally distributed bell curve except for Urdu. For Urdu, it is peaking at 70%, representing a larger number of students performing better in this subject. This result is consistent with our previously drawn inference of students performing better in Urdu. The distribution curves have a subsidiary peak at the pass mark, 33%. This is a common feature of any system including overseas examinations in which a single marker marks a whole paper and is therefore aware of the paper outcome.

Distribution curves - Grade 5

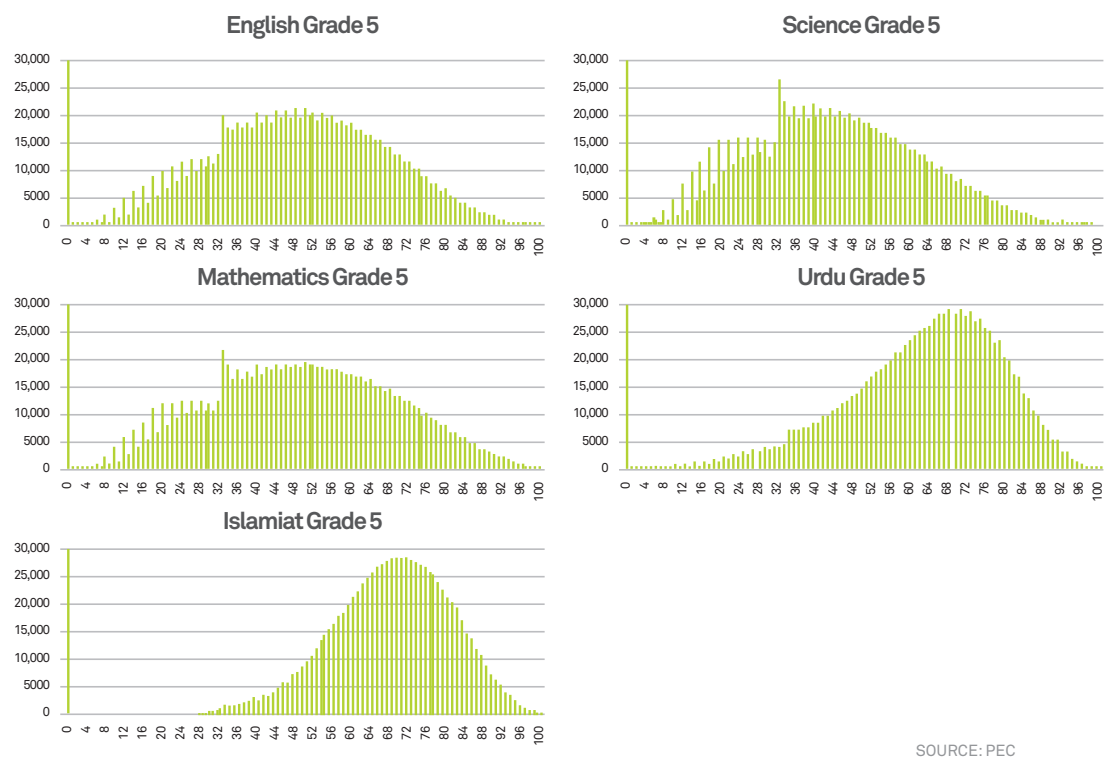


Figure 12: Distribution curves

Student performance by district

Overall, student performance was highest in Muzaffargarh and lowest in Rawalpindi district. Students from Muzaffargarh had the highest scores in all subjects, while students from Sheikhpura, Sialkot, Rawalpindi, Narowal, Hafizabad, Mandi Bahaiddin and Kasur consistently performed in the lowest ranges.

District - Wise Comparison of Mean scores in Grade 5

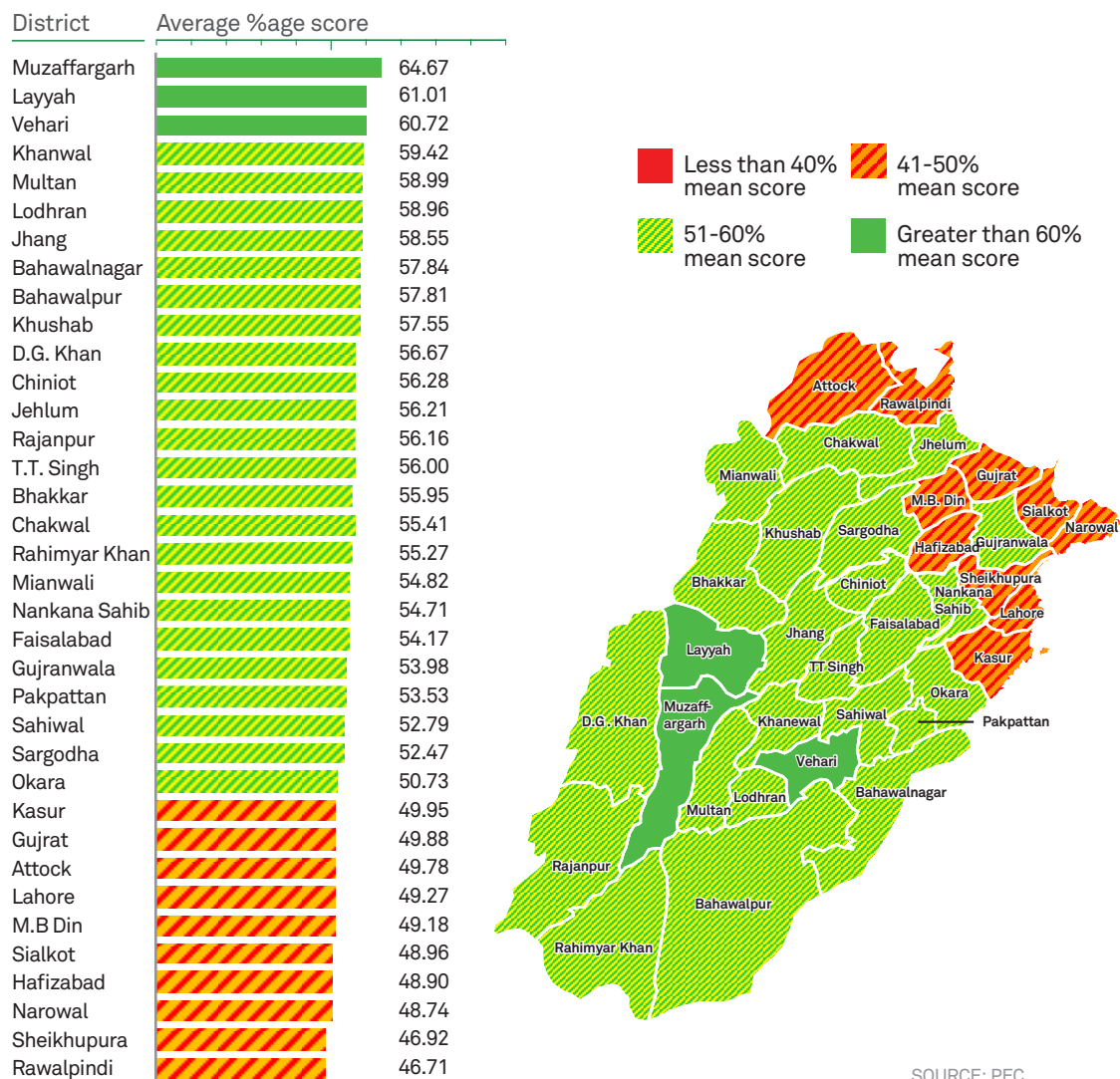


Figure 13: Performance in different Districts

On average, almost all the districts have scored above 50% in Urdu except for Narowal, but none of the districts was able to achieve an average score of over 70%.

District - Wise Comparison of Students Achievement in Urdu in Grade 5

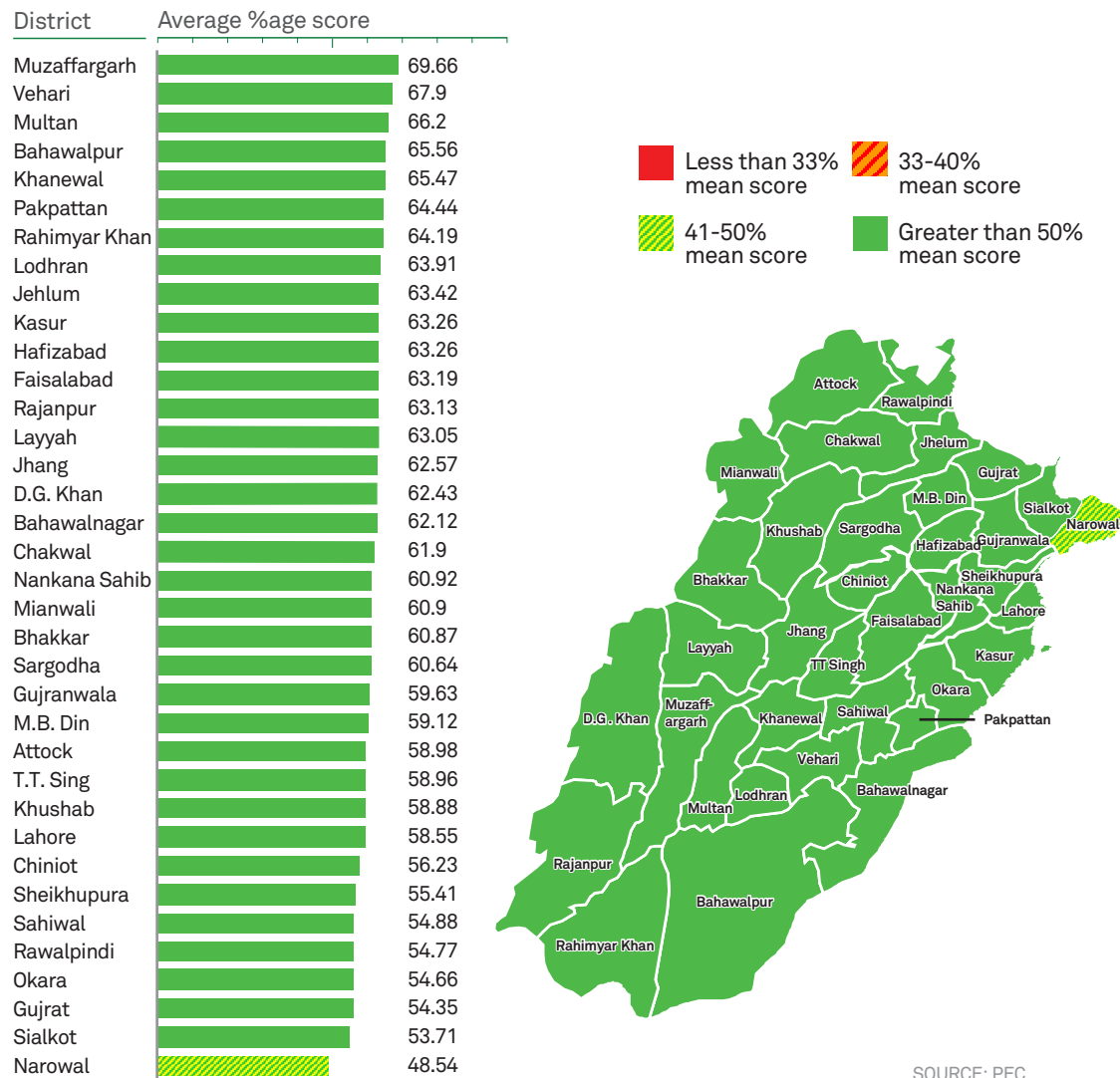


Figure 14: Performance by District in Urdu

In Mathematics, districts falling in southern Punjab performed better as compared to the central and northern districts. The overall performance ranged from 39% to 63%, with 20 districts crossing an average score of 50%.

District - Wise Comparison of Students Achievement in Mathematics in Grade 5

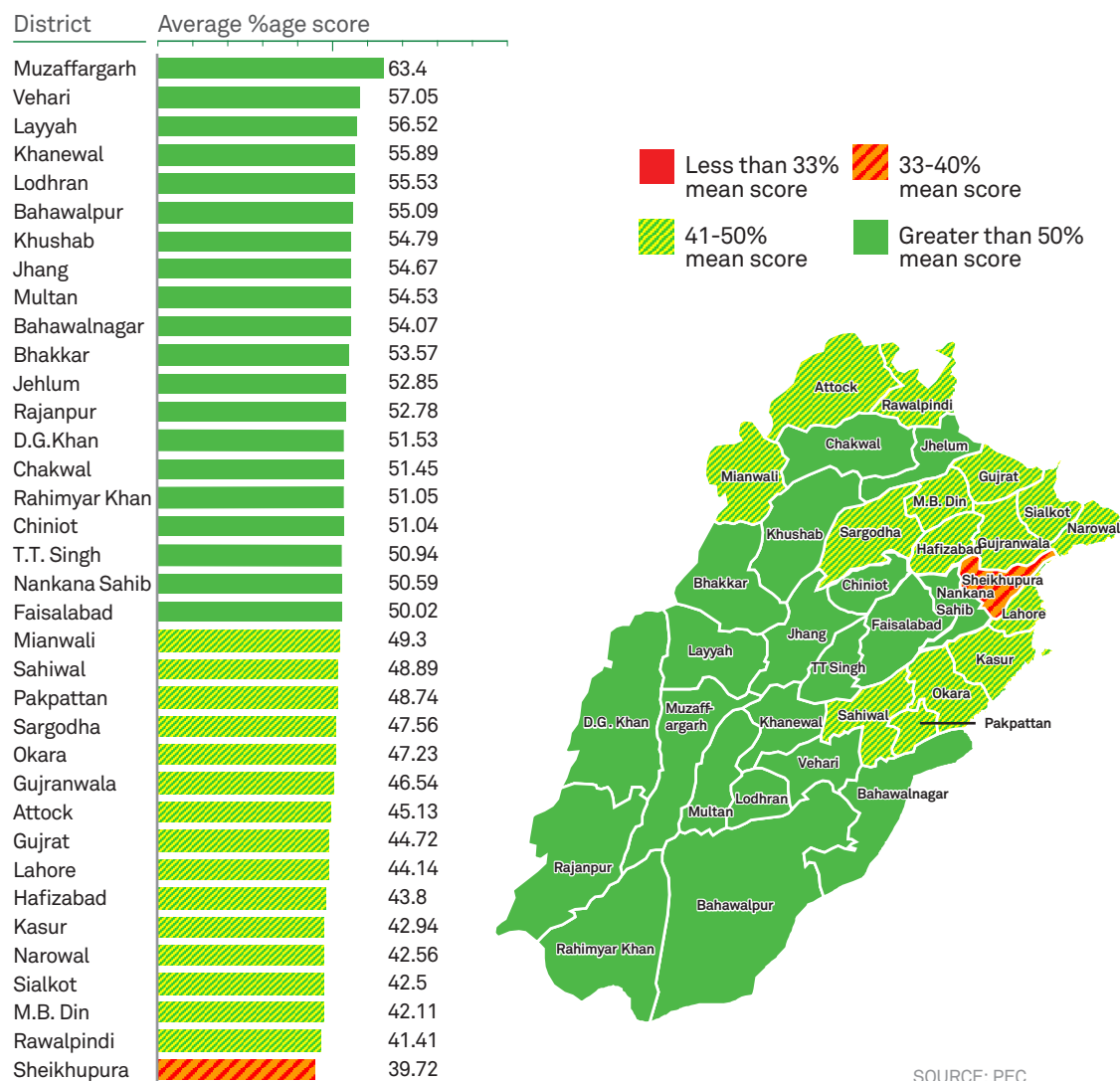


Figure 15: Performance by District in Mathematics

In Science, only seven districts managed to score above 50% on average. The lowest scoring district, i.e. Rawalpindi, is not only significantly below the top ones, but also very close to the pass marks of 33%.

District - Wise Comparison of Students Achievement in Science in Grade 5

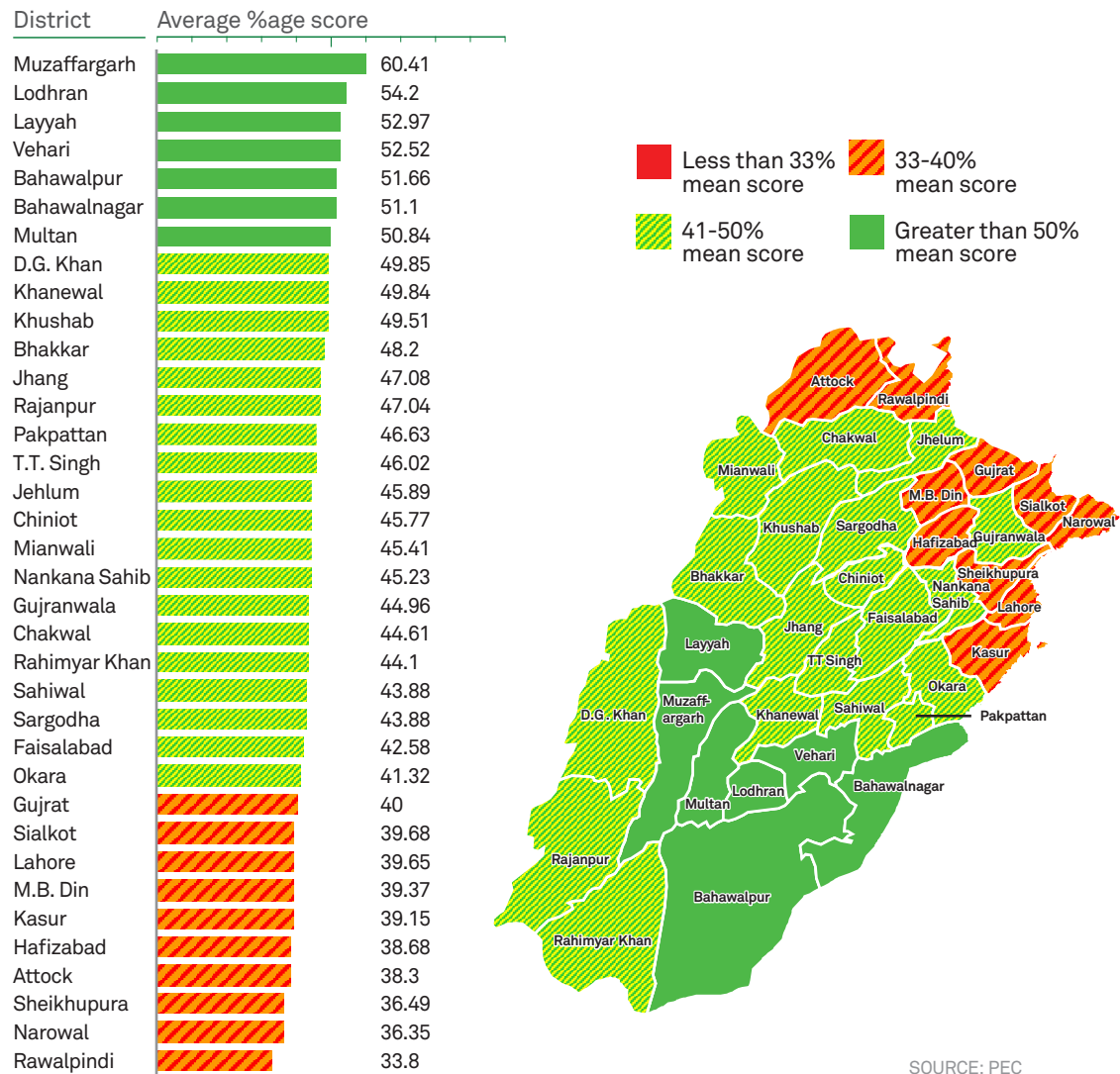


Figure 16: Performance by District in Science

In English, the average score ranged from 41% to 61% but only 15 districts were able to achieve a score of more than 50%.

District - Wise Comparison of Students Achievement in English in Grade 5

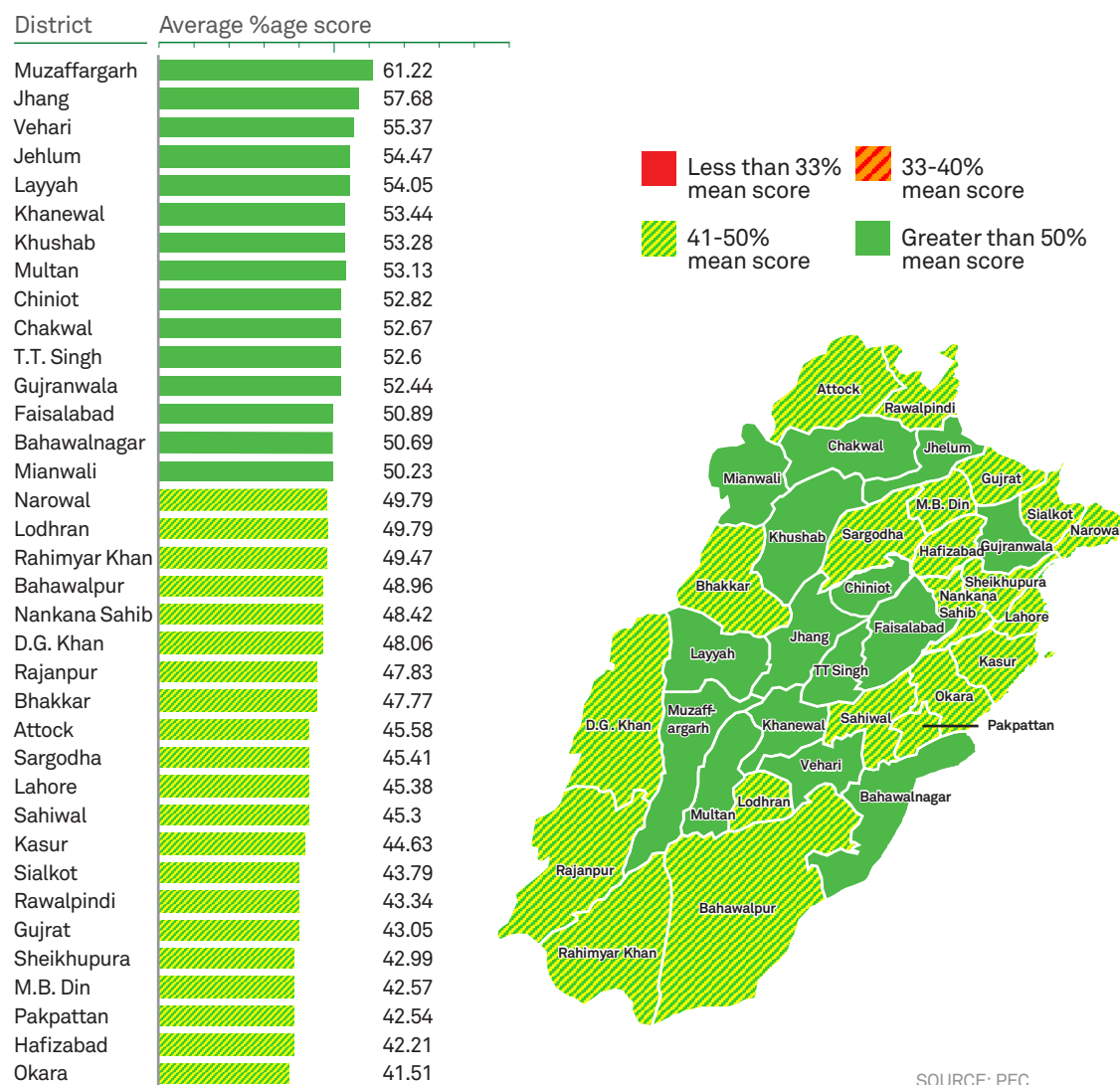


Figure 17: Performance by District in English

In Islamiyat, all the districts generally performed very well. The average scores ranged from 77% in district Muzaffargarh to 58% in district Rawalpindi and out of 36 districts, eleven managed to score more than 70%.

District - Wise Comparison of Students Achievement in Islamiyat in Grade 5

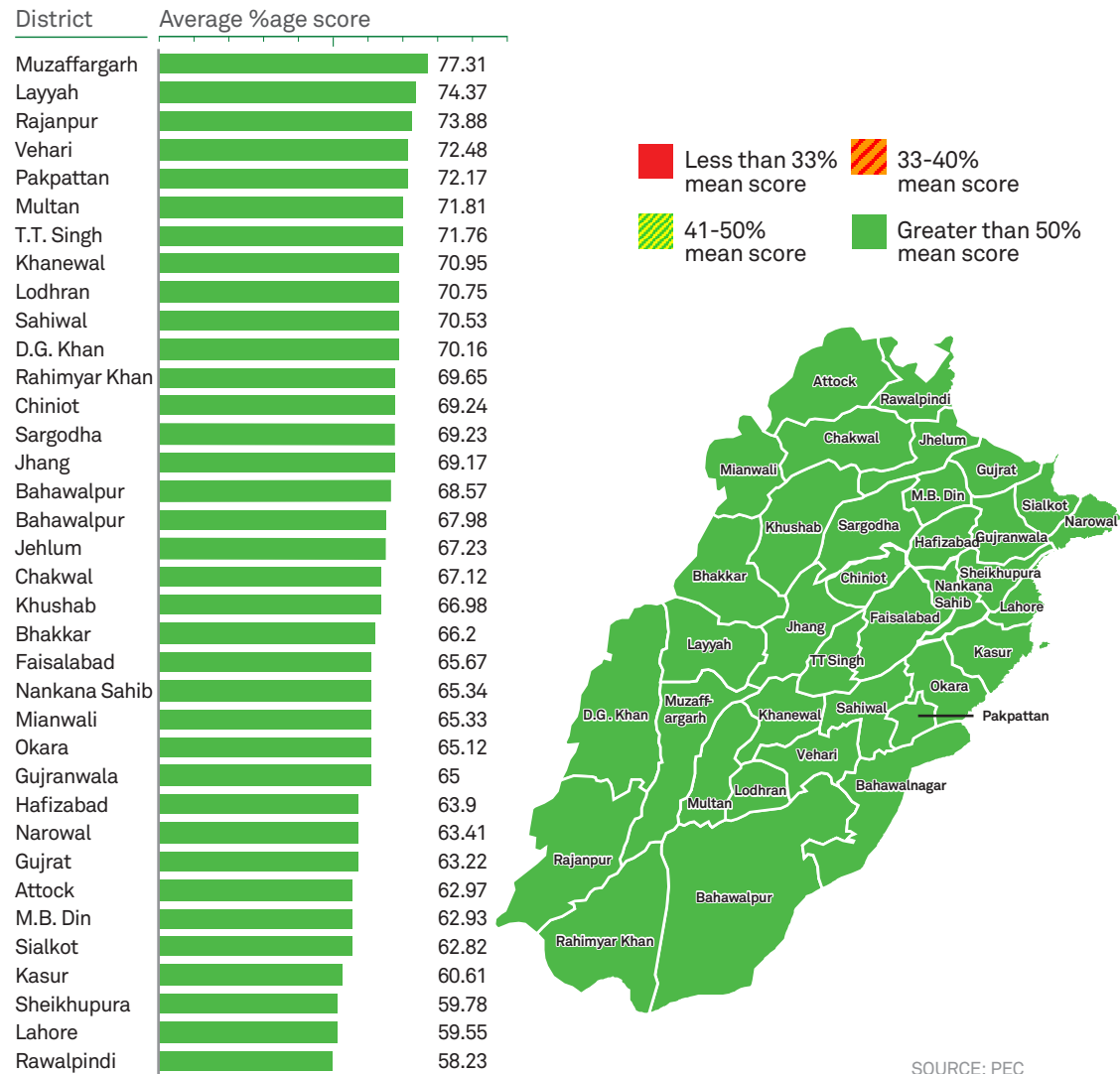


Figure 18: Performance by District in Islamiyat

Performance by topic

Within topics, student performance is shown in Figure 19. Within English, students showed weakness in writing a guided story and were also unable to write a letter. This shows that they are not able to develop a logical flow in their writing, nor are they able to communicate their thoughts clearly.

SUBJECT	WEAK TOPICS AND SLOs	PERFORMANCE ¹
MATHS²	- Perimeter and Area - Identify the units for measurement of perimeter and area - Solve appropriate problems of perimeter and area - Decimals and percentages - Round off decimals up to specified decimal points - Divide decimals by 10,100 and 1000	49% 41% 42% 56% 37% 37%
SCIENCE²	- Matter and changes in its state - Demonstrate arrangement of particles in three states of matter - Explain processes involved in changes of matter - Electricity and Magnetism - Explore different electromagnetic devices used in daily life - Explain the production of static electrical charges	42% 29% 37% 49% 39% 40%
ENGLISH	- Write a guided story using elements of story writing - Demonstrate use of conventions of formal letter writing - Reading and thinking skills - Guess meaning of difficult words from context - Determine main idea of a paragraph - Illustrate use of words to express permission, doubt or obligation	11% 16% 58% 38% 50% 36%
URDU	- Writing - Can write poems and narration in his own words - Can complete story with the help of pictures and symbols - Creative Writing	44% 36% 41% 36%
ISLAMIAT	- Life of Prophet Muhammad PBUH (Seerat e Tayyaba) - Charter of Madina - Battle of Uhud - Battle of Trench - Ethics and Manners (Akhlaq aur Adaab) - Islamic Brotherhood - Fulfillment of promise	50% 21% 42% 38% 56% 30% 43%

1. Weighted percentage of student marks against SLO/topic, Grade 5 only.

2. MCQ only

SOURCE: PEC

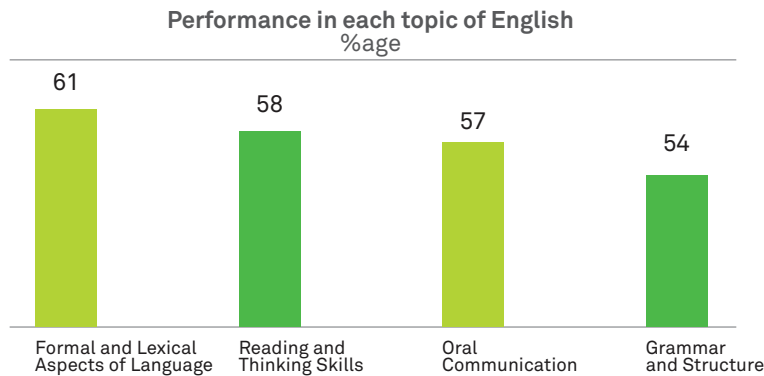
Figure 19: Performance by topic

A deeper analysis of student performance in these subjects shows, as reported earlier, that students performed better in questions that tested knowledge compared to questions that tested understanding and application. For instance, they were unable to exhibit logical flow of thoughts or communicate effectively when writing guided stories and letters. Figure 20 illustrates that students performed poorly in reading and thinking skills, and conventions used in formal communication, which require spontaneous application. Students performed better (61%) in areas of formal and lexical aspects of language, as compared to performance in reading and thinking skills (58%).

In Mathematics, students were more comfortable with topics that did not require creative handling of information. Fractions, highest common factors and lowest common denominators, and geometry all require application of learnt information and most of the students performed exceptionally well in them, as depicted in Figure 21.

Information handling, questions on distance, time and temperature, on the other hand, require strong analytical skills, and student performance was weak in these areas.

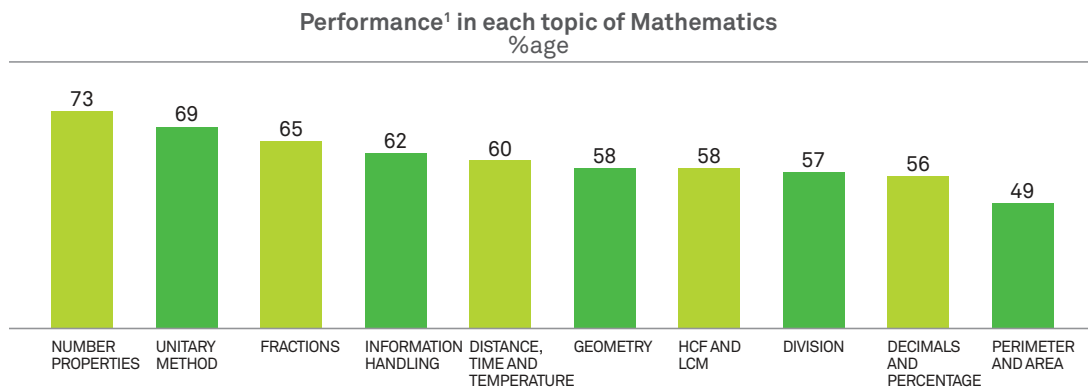
Student performance in English - Grade 5



SOURCE: PEC

Figure 20: Performance in English

Student performance in Mathematics - Grade 5



1. Grade 5 MCQs only

SOURCE: PEC

Figure 21: Performance in Mathematics

An analysis of student performance on individual topics from Science, illustrated in Figure 22, shows that students were unable to achieve good scores where different creative scientific processes and complicated structures were involved. We can fairly conclude from this that students found it difficult to answer questions involving complex information, e.g. states of matter and changes in states, but performed well on the topics where simple stating of facts was involved, e.g. solar system etc.

Another result that can be deduced from Figure 22 is that students are extremely weak in Science as no topic got an average score of more than 70%. However, none of the topics got a fail score i.e. below 33%.

Student performance in Science - Grade 5

Performance¹ in each topic of Science
%age

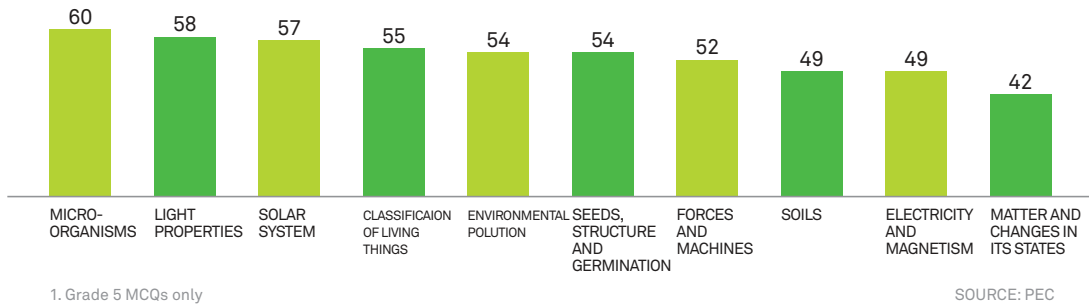


Figure 22: Performance in Science

Student performance in Urdu - Grade 5

Performance¹ in each topic of Urdu
%age

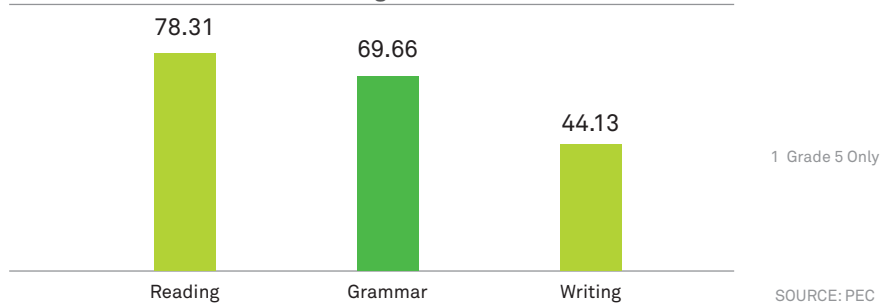


Figure 23: Performance in Urdu

Reading in Urdu is already firmly established at the end of Grade 5 while writing lags behind (Figure 23). Knowledge about the language has been established in the primary phase. Language in use is less balanced although opportunities for the functional use of writing abound in classrooms.

Student performance in Islamiyat - Grade 5

Performance¹ in each topic of Islamiyat
%age

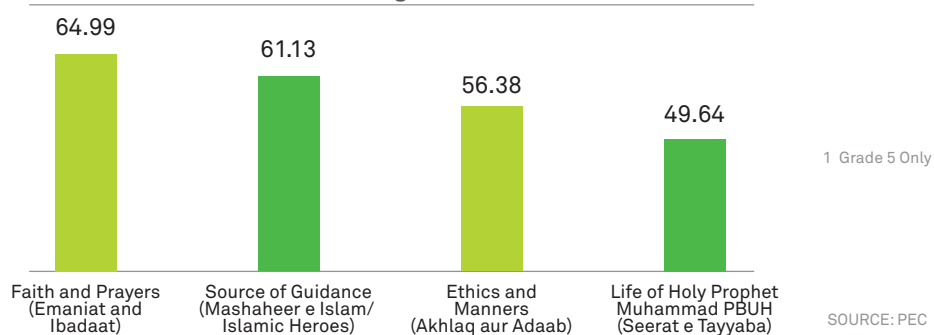


Figure 24: Performance in Islamiyat

Figure 24 Shows that the more abstract dimensions of Islamic studies are proving more accessible than the narrative of the Holy Prophet's (PBUH) life.



GRADE 8

Key findings

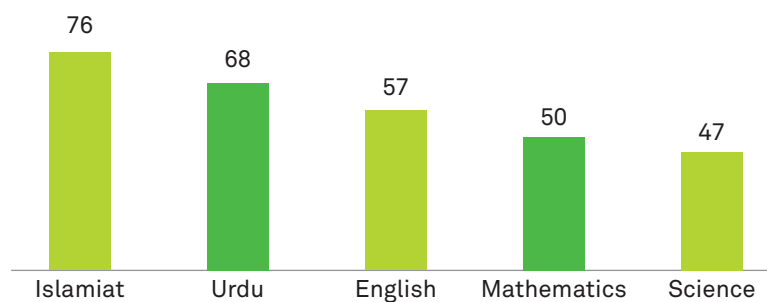
Student learning levels in Grade 8 PEC exam showed patterns similar to that of the Grade 5 exam. The highest performing subject was Islamiyat, whereas Science proved to be the weakest. Students scored better on MCQs than on CRQs. In all three schooling systems (government schools, private schools and private individuals), girls performed better than boys. Within cognitive domains, students fared best in questions that tested knowledge and had difficulty with questions that tested application.

Performance by subject

Students appearing in Grade 8 exam performed the best in Islamiyat, followed by Urdu, while their performance was worst in Science. This is largely in accordance with the performance of Grade 5 students; however, the overall performance of Grade 8 students was better than Grade 5 students in each subject with the exception of Mathematics where both approximately averaged 50%.

Subject-Wise Comparison of Students Achievement in Grade 8

Mean % Achievement Score by subject area



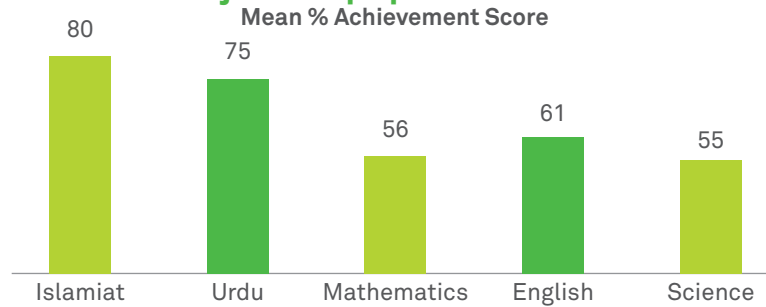
SOURCE: PEC

Figure 25: Performance by subject

Performance by subject in MCQs and CRQs

A detailed analysis of MCQ and CRQ scores in individual subjects breaks down student performance into the two sections of the examination. As shown in Figure 26, student performance in Islamiyat and Urdu MCQ sections was extraordinary with an average of above 75% marks. In comparison, Figure 27 shows that the performance of students in the CRQ section of both these subjects remained low, revealing the difference in students' knowledge level and their command over coherent written communication of knowledge. The performance in the MCQ section of Science and Mathematics was weak; the borderline performance of students in the CRQ section of these subjects was even weaker.

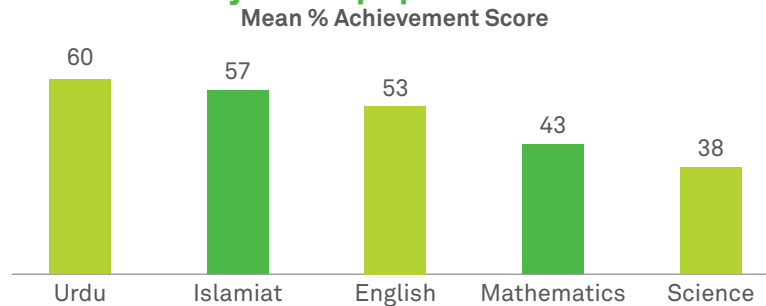
Comparison of Mean Achievement Score in objective paper - Grade 8



SOURCE: PEC

Figure 26: Performance by subject in MCQs

Comparison of Students Mean Achievement Score in subjective paper - Grade 8



SOURCE: PEC

Figure 27: Performance by subject in CRQs

Performance across versions

Student performance in different versions of each subject was fairly uniform. This shows that the versions of the question paper were designed on a similar difficulty level and had negligible bearing on student performance.

Performance by gender

As seen in Figures 28-30, female students outperformed male students in Grade 8 exam, which is consistent with the pattern in Grade 5 exam. It is in the CRQs that female students take lead and dominate the overall average marks. This is an international phenomenon, usually attributed to girls' greater verbal fluency. The male superiority in MCQs is also well established internationally. It is common in Mathematics but it does not usually extend to English. This may be a second language phenomenon, knowledge about the language rather than facility with the language.

Comparison of Overall Male and Female Students Mean Achievement Score in Grade 8

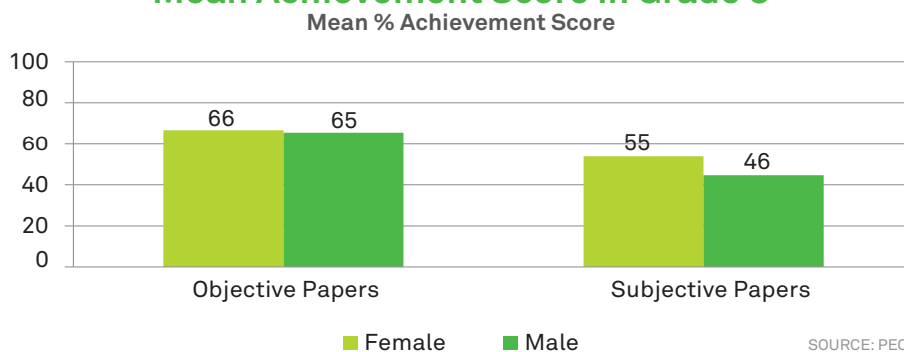


Figure 28: Performance by gender in MCQs and CRQs

Comparison of Male and Female Students Mean Achievement Score - Objective (MCQs) in Grade 8

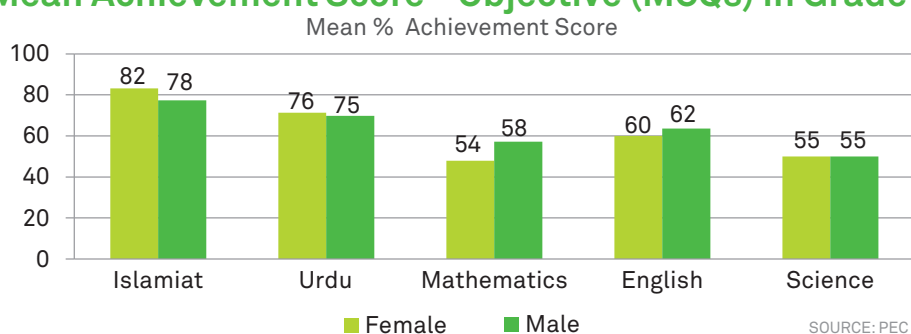


Figure 29: Subject performance by gender in MCQs

Comparison of Male and Female Students Mean Achievement Score - Subjective (CRQs) in Grade 8

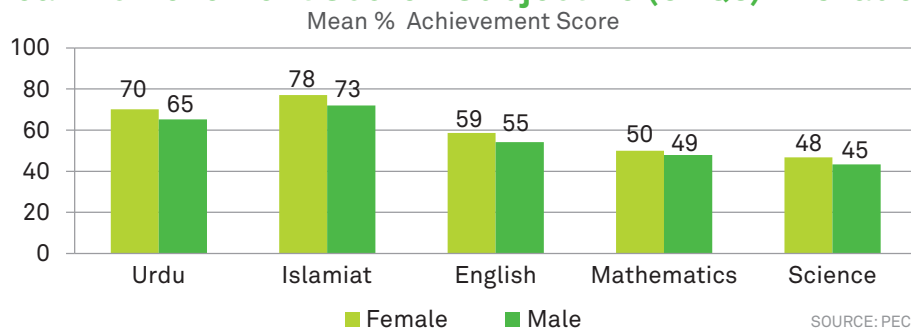


Figure 30: Subject performance by gender in CRQs

Performance by language of exam

As the data in Figure 31 depicts, student performance was not affected by the choice of language in which they attempted the exam. The students who attempted the exam in English scored marginally higher than the students who appeared in Urdu, with the exception of Science. As also shown in the previous sections of this report, Science remains the most challenging subject for students, and this language-based analysis hints at the higher level of difficulty that studying Science in English language can bring.

Average Total Marks² in CRQs for Grade 8

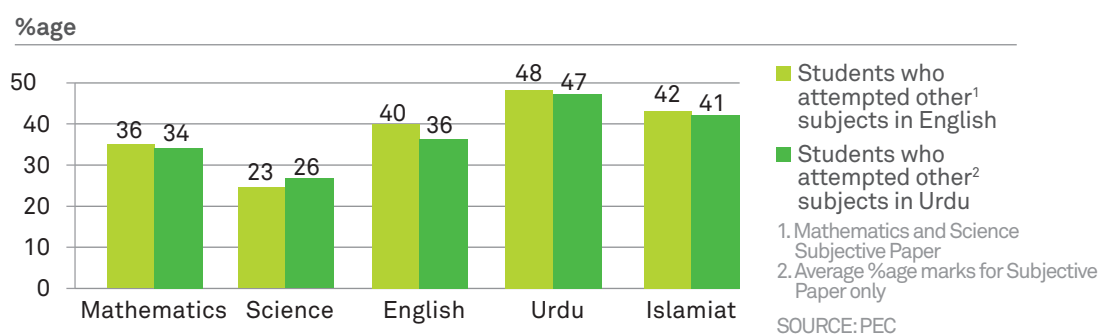


Figure 31: Performance by language of exam

Performance by cognitive domain

Students who appeared in the Grade 8 exam were the stronger on knowledge and understanding based questions even when compared with Grade 5 students. However, when it came to application, their performance was lower (Figure 32).

Student performance¹ across the cognitive domains

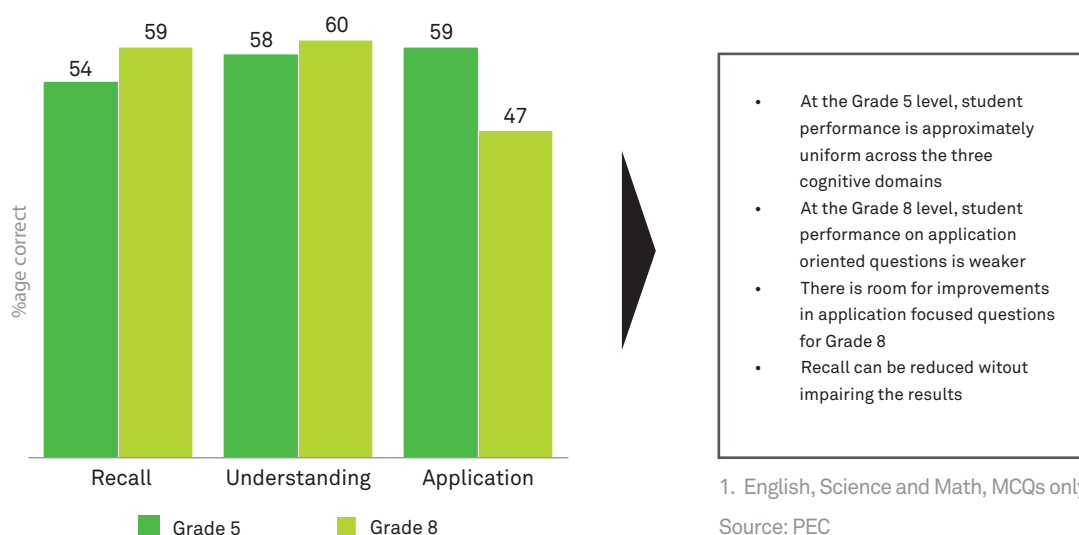
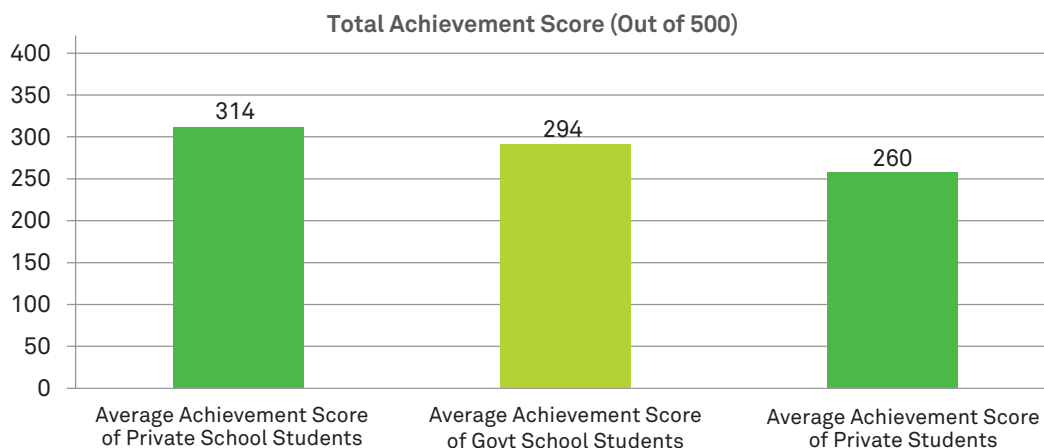


Figure 32: Performance by cognitive domain

Performance by school system

A total of 929,875 students appeared in the 2015 PEC Grade 8 exam, out of which 71% were from public schools, 25.5% students belonged to private schools, and 3.5% of candidates registered privately. Looking at the average scores in Figure 34, students from private schools outperformed the rest, followed by the students of government schools. It is also interesting to note that in private schools, female students scored lower than their male counterparts (Figure 35) against the general trends.

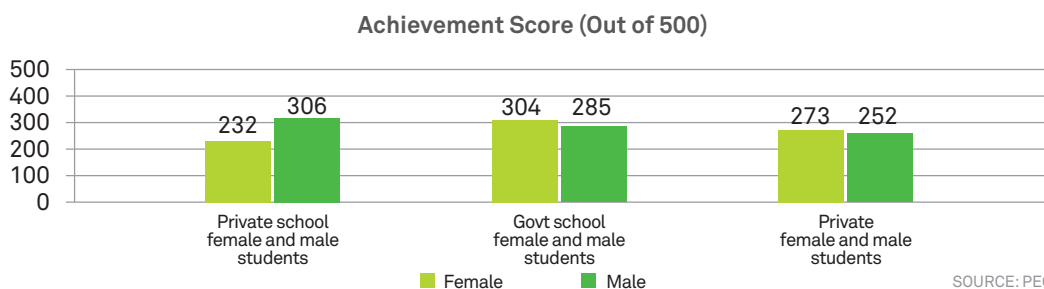
Comparison of Achievement of Govt. School, Private School and Private Students in Grade 8



SOURCE: PEC

Figure 33: Performance by school system

Comparison of Mean Achievement Score of Private, Private School and Govt School Students in Grade 8



SOURCE: PEC

Figure 34: Performance by gender in different school systems

Student performance by district

Overall Performance of districts

Students in Muzaffargarh district comprehensively outshone rest of the 35 districts of Punjab in all five subjects. Their average score was 72%, which was substantially higher than the district Layyah coming second with 67.6%. District Vehari closely followed Layyah with an average score of 66.2%.

District - Wise Comparison of Students Overall Achievement in Grade 8

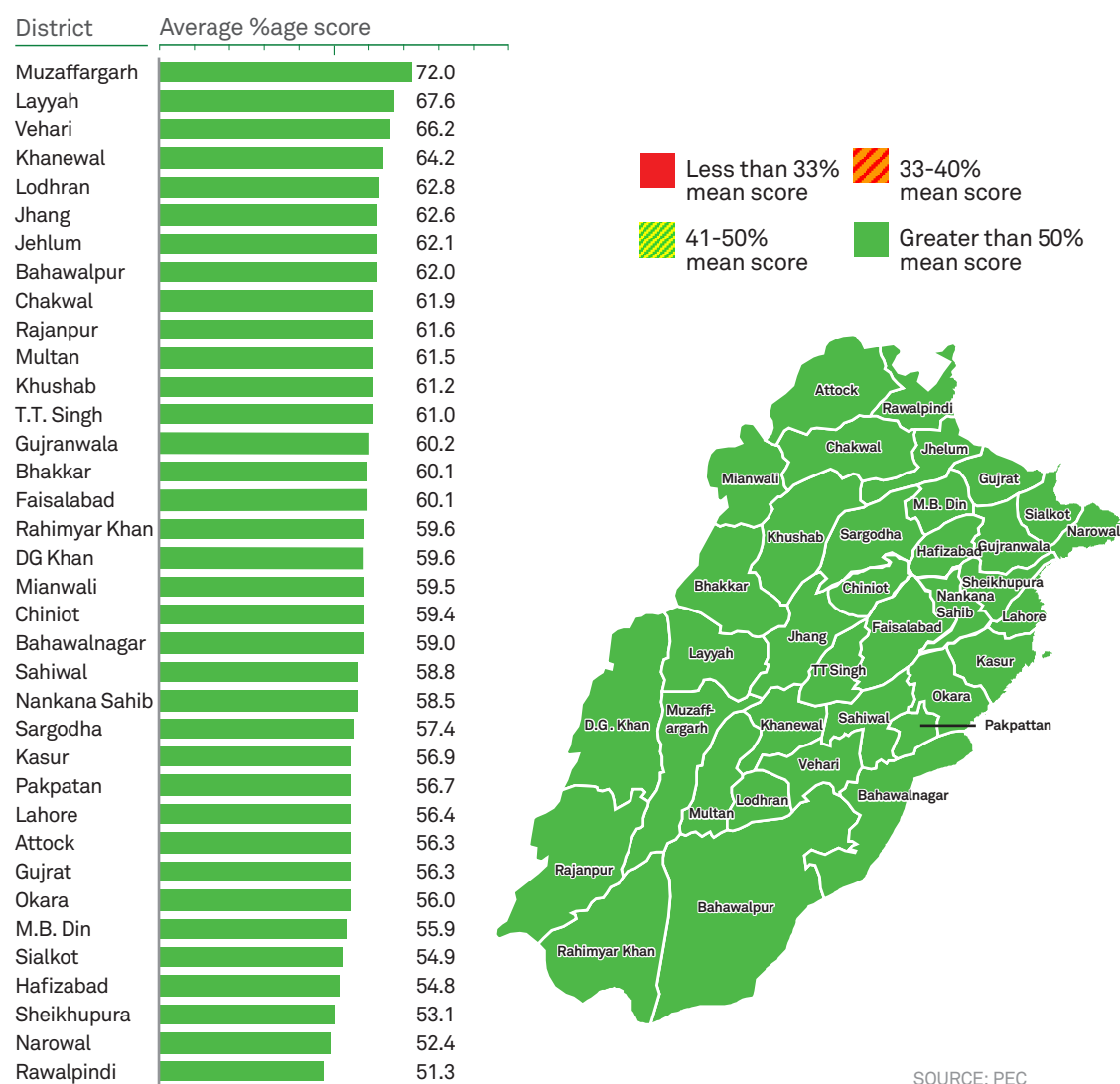
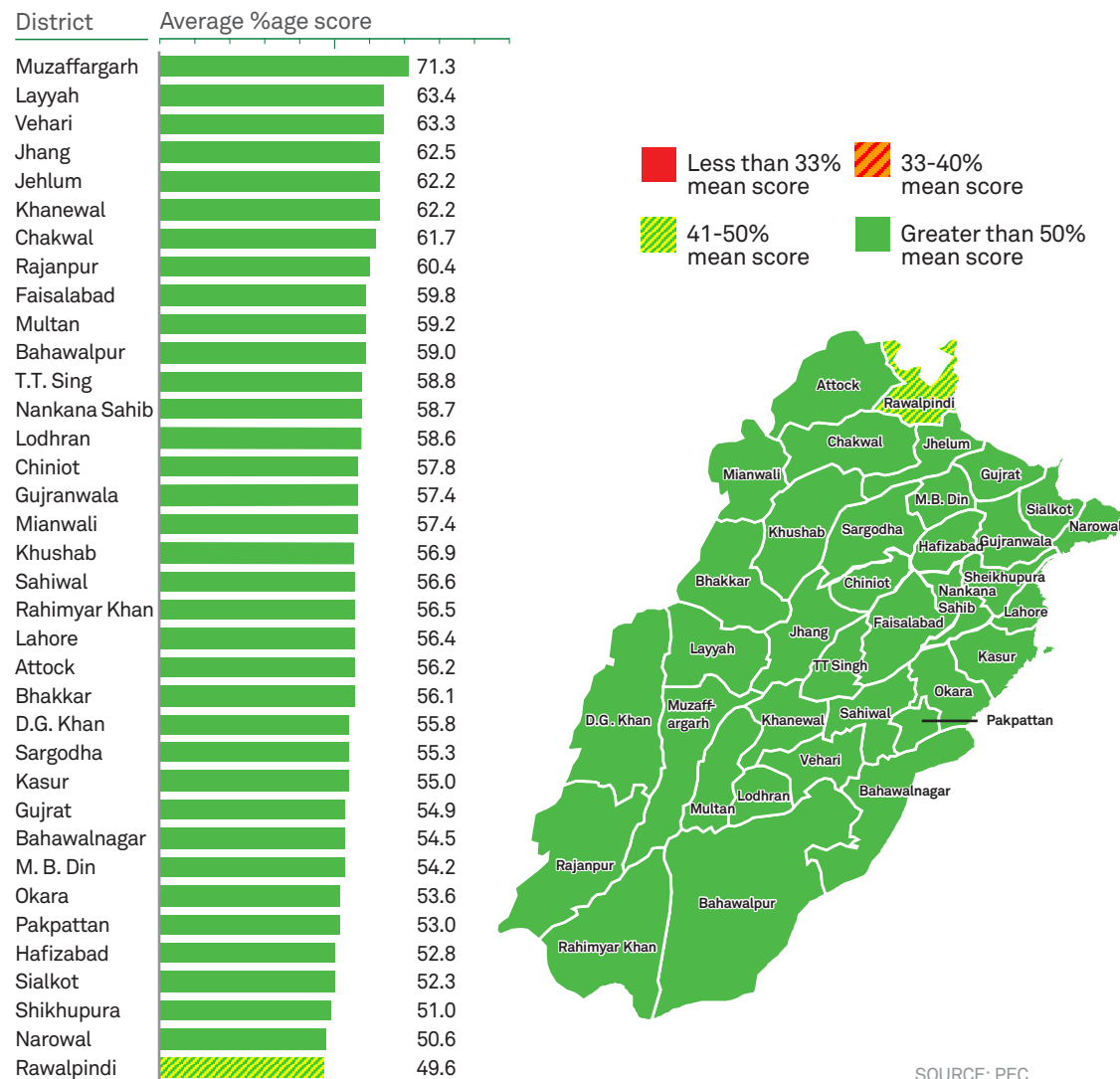


Figure 35: Overall performance of Districts

Performance of districts in English

Mean scores throughout the districts in English remained above 50%, with the exception of Rawalpindi where the average score was 49.6%.

District - Wise Comparison of Students Achievement in English in Grade 8



SOURCE: PEC

Figure 36: Performance by District in English

Performance of districts in Urdu

On average, the province scored well above 50% in Urdu, with six districts performing higher than 70%, revealing that, on average, their students had mastered the subject. No district performed below 60%.

District - Wise Comparison of Students Achievement in Urdu in Grade 8

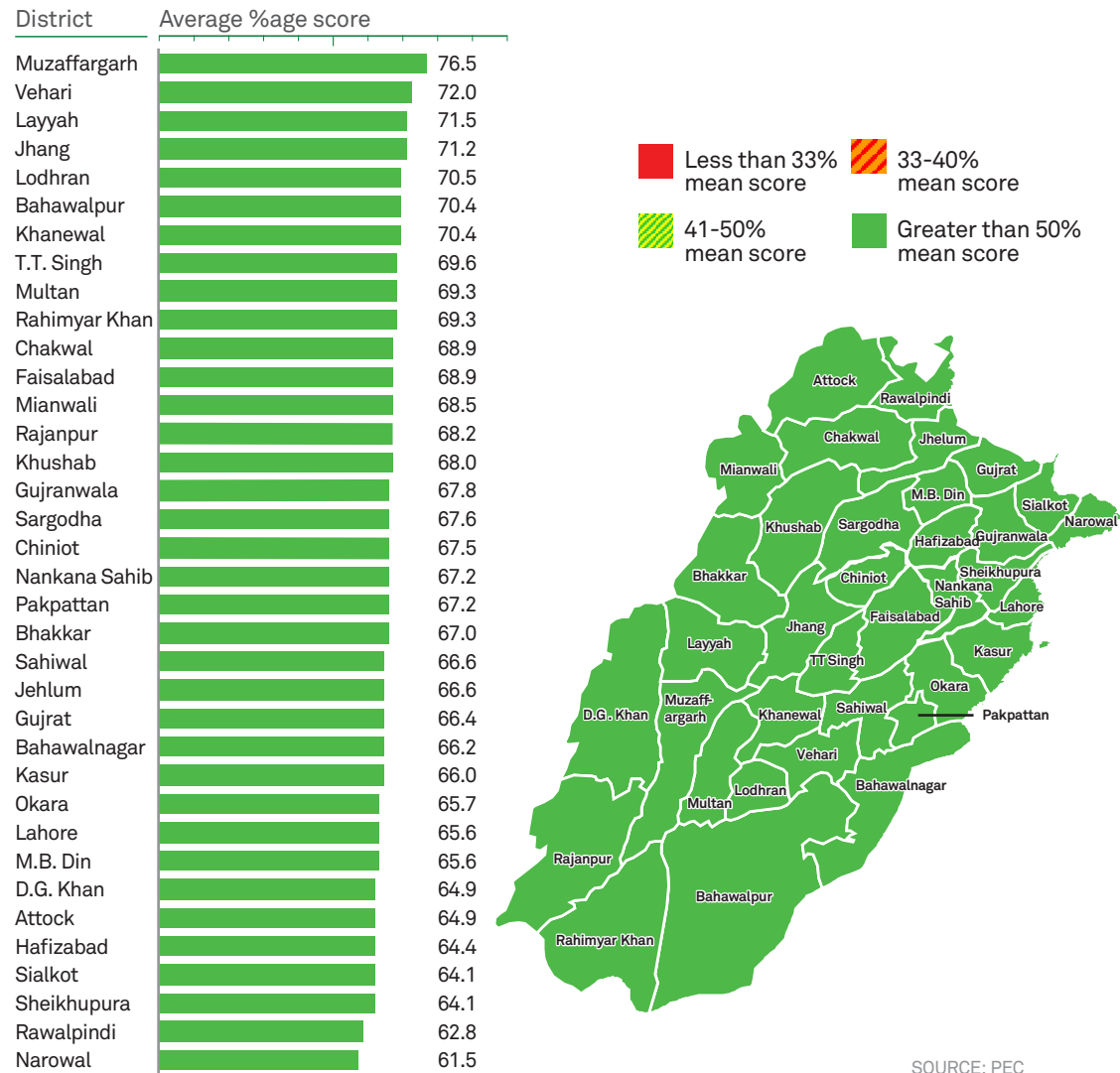


Figure 37: Performance by District in Urdu

Performance of districts in Mathematics

Southern Punjab performed better in Mathematics, on average, as compared to the central and northern districts. Nineteen out of 36 districts scored less than 50% marks, on average.

District - Wise Comparison of Students Achievement in Mathematics in Grade 8

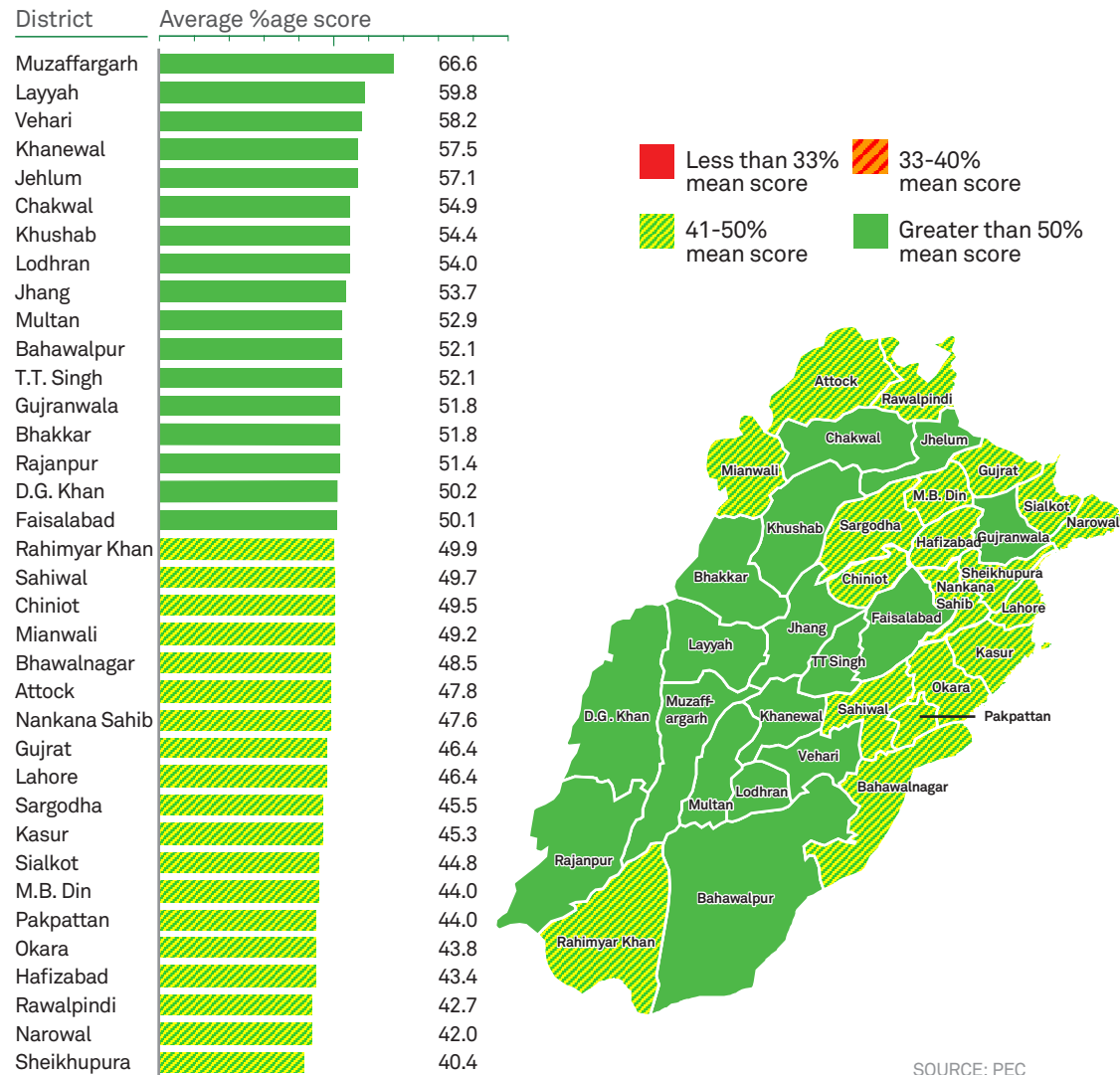


Figure 38: Performance by District in Mathematics

Performance of districts in Science

In Science, only ten districts could score above 50% marks, on average. Twenty two districts remained between 40-50% whereas four districts could score between 35 - 40% marks, meaning that their students, on average, barely passed the subject. The lowest scoring district, i.e. Rawalpindi, is not only significantly below the top five districts, but is also struggling to remain above the minimum threshold of 33%.

District - Wise Comparison of Students Achievement in Science in Grade 8

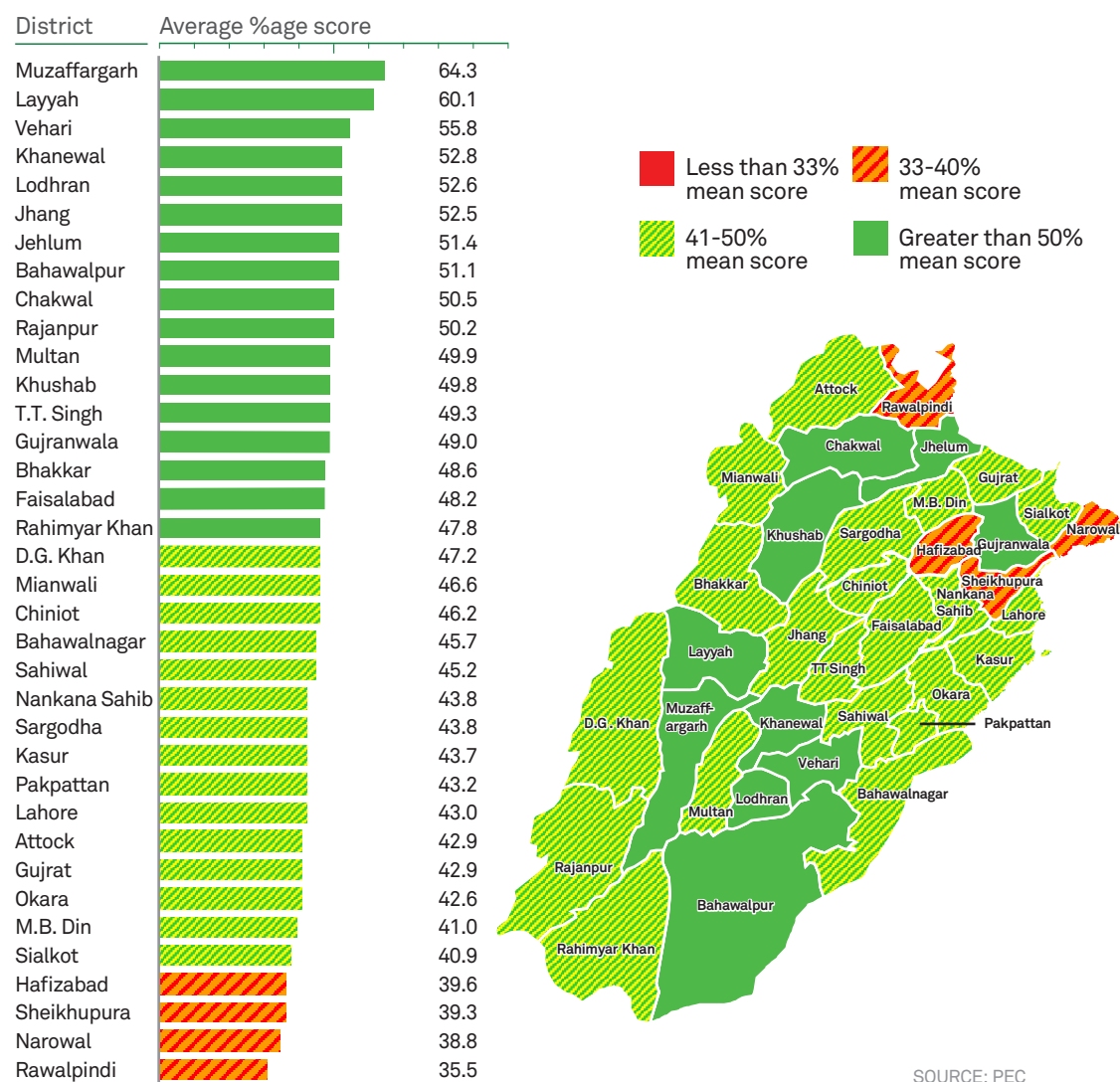


Figure 39: Performance by District in Science

Performance of districts in Islamiat

In Islamiat, students in all the districts generally performed very well. The average scores ranged from 83.6% in district Layyah to 66.4% in district Rawalpindi. It is worth noticing here that all districts of the province scored above 70% in Islamiat; the only exception was Rawalpindi.

District - Wise Comparison of Students Achievement in Islamiat in Grade 8

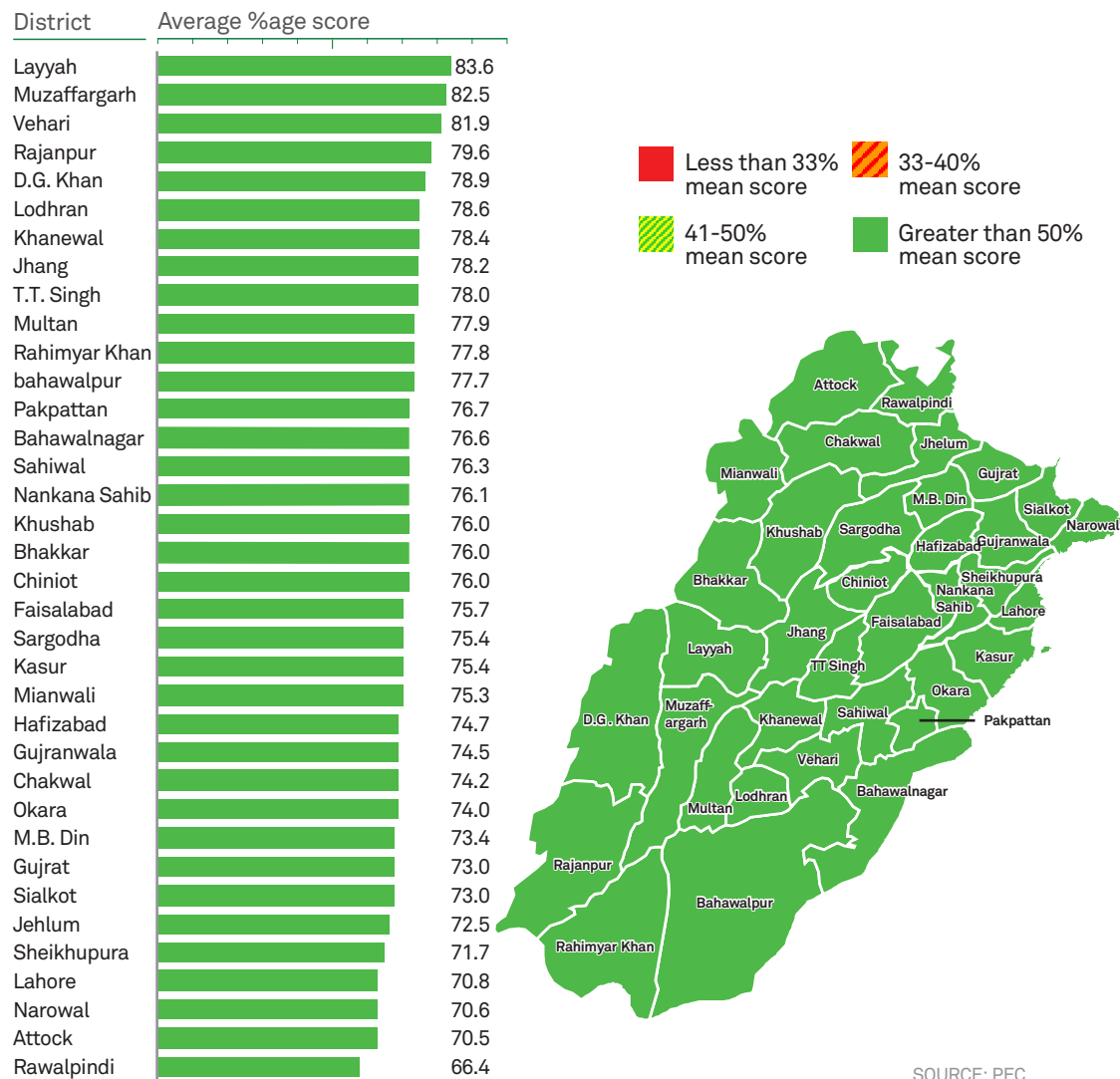


Figure 40: Performance by District in Islamiat

Performance by topic

Within topics, student performance is described in Figure 41. Within English, students showed weakness in grammar, particularly with the usage of tenses. In Urdu, students struggled with writing dialogues and summaries, in addition to performing poorly on writing poetry and narration in their own words. Figure 41 highlights key findings in all subjects.

SUBJECT	WEAK TOPICS AND SLOs	PERFORMANCE ¹
MATHS²	- Algebra - Convert an equation equivalent to a linear equation in two variables - Geometry - Find the surface area and volume of a sphere - Solve real life problems involving surface and volume of sphere and cone - Rational Numbers - State properties of equality of rational numbers	54% 39% 47% 43% 29% 53% 39%
SCIENCE²	- Chemical reactions - Balancing of a chemical equation - Electricity and Magnetism - Describe how electric power determines the consumption of electricity - Light - Compare and contrast the working of a human eye with the lens camera	50% 29% 43% 27% 48% 37%
ENGLISH	- Grammar and Structure - Direct and Indirect Narration (Simple, Present and Past) - Form adjectives from nouns and adverbs - Illustrate use of tenses (Present, Past and Future indefinite) - Reading and Thinking Skills - Read silently with comprehension and extract main idea and supporting details	60% 44% 20% 46% 65% 46%
URDU	- Writing - Can write 1/3rd abstract of any passage - Can write dialogue on any topic - Can write poems and narration in his own words	45% 32% 33% 40%
ISLAMIAT	- Life of Prophet Muhammad PBUH (Seerat e Tayyaba) - Fulfillment of Promise - Patience and tolerance - Ethics and Manners (Akhlaq aur Adaab) - Jihaad	71% 39% 42% 71% 23%

1. Weighted percentage of student marks against SLO/topic, Grade 8 only.
2. MCQ only

SOURCE: PEC

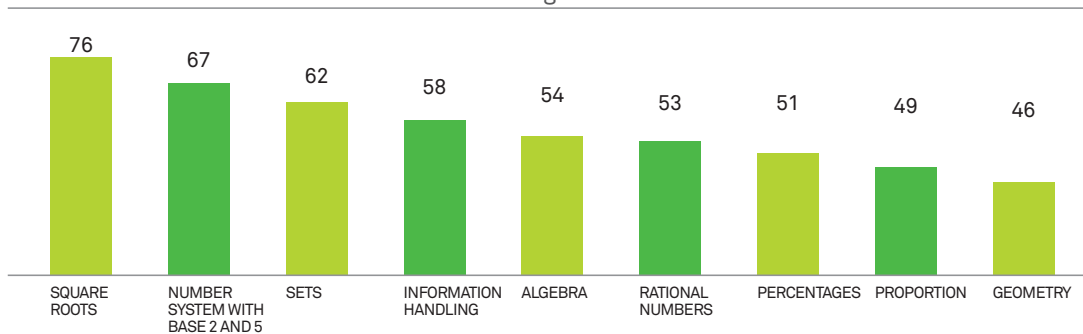
Figure 41: Performance by topic

Performance by topic in Mathematics

Breaking down the student performance in Mathematics according to the defined topics, it becomes evident that the students managed to perform better on some topics than others (Figure 42). There may be multiple explanations for this pattern, but it is hard to ignore the fact that high performing topics (like square roots) require 'knowledge', whereas a low performing topic like geometry requires application.

Student performance in Mathematics in Grade 8

Performance¹ in each topic of Mathematics
%age



1. Grade 8 MCQs only

SOURCE: PEC

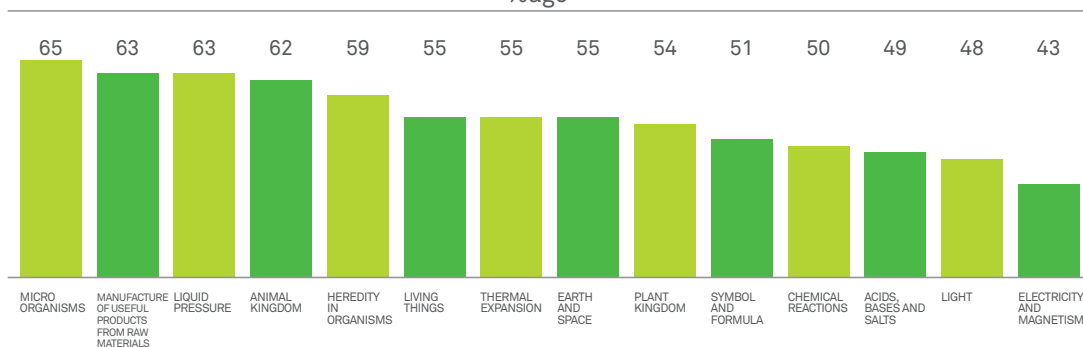
Figure 42: Performance in Mathematics

Performance by topic in Science

In Science, students appeared to perform better on some topics than the others. Figure 43 identifies average performance on each topic. In general, the more descriptive the topic, the better the performance. Physics can be counter-intuitive.

Student performance in Science in Grade 8

Performance¹ in each topic of Science
%age



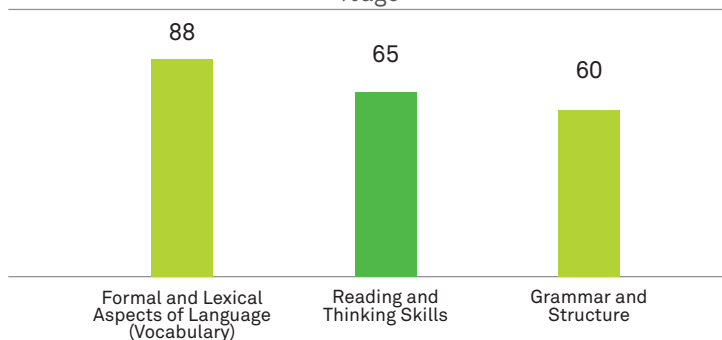
1. Grade 8 MCQs only

SOURCE: PEC

Figure 43: Performance in Science

Student performance in English in Grade 8

Performance¹ in each topic of English
%age



1. Grade 8 MCQs only

SOURCE: PEC

Figure 44: Performance in English

Students performance in Urdu in Grade 8

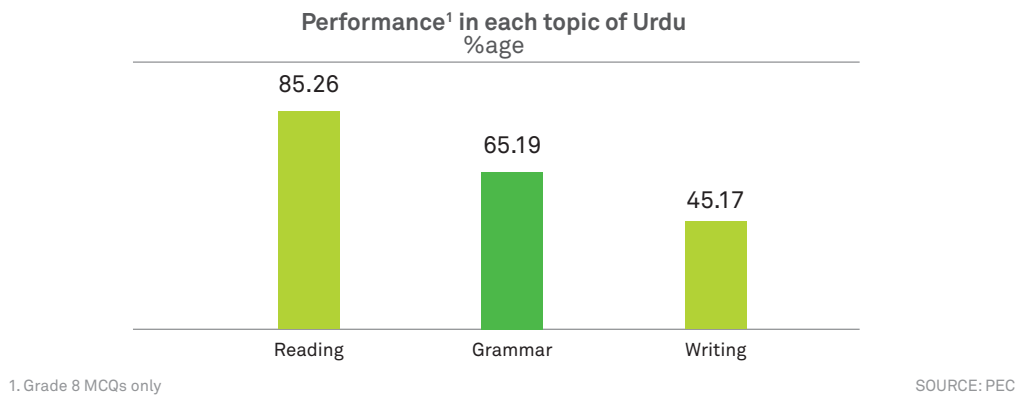


Figure 45: Performance in Urdu

There are ample opportunities to read Urdu in the wider Pakistani society but much less call on the ability to write in Urdu. Figure 45 probably reflects these out of school factors.

Students performance in Islamiyat in Grade 8

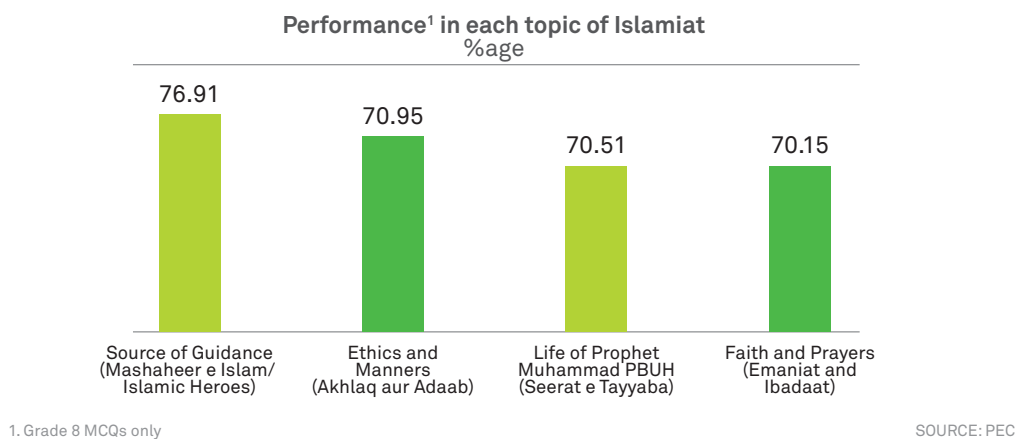


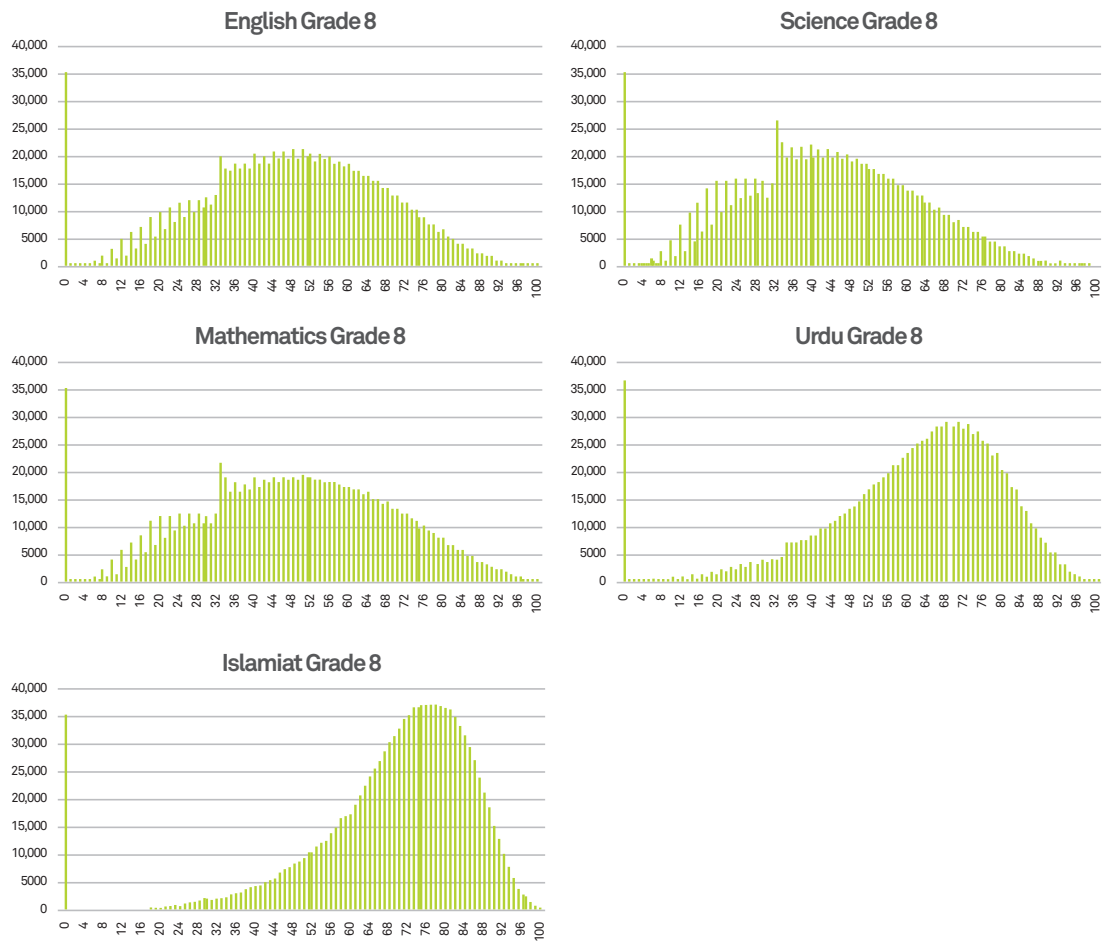
Figure 46: Performance in Islamiyat

Grade 8 students display a comprehensive mastery of the Islamiyat syllabus, performing consistently well across all topics (Figure 46).

Distribution Curves

A frequency distribution bell curve shows a normal distribution along the five subjects. A normal distribution curve not only strengthens the credibility of data, but also provides an interesting insight into the patterns of student performance. As seen in Figure 47, the curve takes a sharp vertical rise towards the right in the case of Urdu, depicting high performance levels for a majority of students. In the case of Mathematics, the curve stays relatively flat hinting at the varied levels of performance in the province. Again the peak at the 33% pass mark can be observed. It is even more marked in Mathematics and Science than it was at Grade 5.

Distribution curves - Grade 8



SOURCE: PEC

Figure 47: Distribution curves

KEY FINDINGS AND RECOMMENDATIONS

FINDING		RECOMMENDATION
1	Students performed best in Islamiat, and were weakest in Science, in both Grades 5 and 8.	Science textbooks and teacher training need to be improved; science resources need to be available in schools.
2	Districts Rawalpindi, Sheikhpura and Narowal had the lowest scores, on average.	The government's quality education drive should focus on low performing districts.
3	Performance among Grade 8 students was better than Grade 5 students in all subjects.	The government needs to focus urgently in improving the quality of education at the primary school level.
4	Students, on average, scored better on MCQs than on CRQs.	Classroom assessments and tests need to focus on CRQs
5	Students' weak performance in CRQs is an outcome of their inability to express their ideas and thoughts in a logical sequence, or to string together sentences in a paragraph.	Teachers should make writing a core component of their lessons in English, Urdu, Islamiat and Science.
6	Overall, girls performed better than boys, especially in Constructed Response Questions (CRQs), which generally focus on understanding, application and higher order thinking skills.	Boys' schools need to improve their focus on written communication, especially in strengthening the logical flow of information with structured use of sentences.
7	Students are unable to perform well in questions that require them to communicate effectively, and exhibit creativity and critical thinking. This leads us to infer that while teachers have had some success in helping students understand simple and basic rules, they have not been effective in helping students think imaginatively or to apply these rules outside of routine repetition. For instance, after reading a text, students cannot fill in missing words in a gapped summary of that text, which communicates the same message as the text, but uses different words.	Teachers need to focus on helping students understand concepts and topics, which they can do by engaging students in a variety of thought provoking activities such as explaining, finding evidence and examples, generalizing, applying their newly learnt knowledge in new ways, making analogies, and representing the topic in creative ways.
8	English and Urdu are being taught as subjects, not as languages. This is especially true for English. Therefore, while students are acquiring knowledge of English, they are not able to master the use of English. For instance, students understand grammatical terminology but cannot demonstrate effective use of this terminology.	The DSD could focus on delivering teacher trainings on teaching of English as a Second Language. This training could also be modified for teaching Urdu as a Second Language, since most students either come from families that speak Punjabi, Potohari or Saraiki.
9	The area most in need of sustained attention is reading for meaning. Students lack frequent practice at deriving the meaning of words in context. There is an SLO in English, which asks them to take words apart but it is not presented in the textbook as an important clue to the meaning of an unfamiliar word. Nevertheless, prefixes and to a lesser extent suffixes are important cues to word meaning especially when combined with a generally positive or negative tone of a passage.	Repeated revisiting of a text may clarify the meaning of the words it contains but is no preparation for deciphering the meaning of unfamiliar text, the basic reading skill. Students should spend time with unfamiliar text several times every week: the daily newspaper is a cheap and reliable source. Reading round the class with students sharing their guesses as to meaning with each other and, given a prompter from the teacher, the justification for their guesses is an important step to increase the reading skill of the whole class. This will help students communicate better in all subjects

FINDING	RECOMMENDATION
10 Within English, students showed weakness in writing a guided story and were also unable to write a letter with a specific purpose. This shows that they are not able to develop a logical flow in their writing, nor are able to communicate their thoughts clearly. Students also performed poorly in reading and thinking skills. They performed better in questions that tested repetition and memorization of rules, such as formal and lexical aspects of language, grammar and structure.	Extra reading material should be developed by PCTB for teachers to improve the reading ability of students. More practice of writing in English is required in the classroom. Students should be alerted to how language changes according to the writer's intention. They should recognise the difference between a story, a scientific report, and an attempt to persuade.
11 Information handling, questions on distance, time and temperature required strong analytical skills, and students were consistently weak in these areas.	Within each subject, teacher should focus on SLOs in which student performance is below 40%, as shown in the Annexes 1 & 2.



ANNEX 1: STUDENT PERFORMANCE AGAINST SLOs - GRADE 5

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
ENGLISH		57.28%	56.18%	56.44%	
FORMAL AND LEXICAL ASPECTS OF LANGUAGE		65.24%	59.43%	61.01%	11
Apply spelling change in plural form of regular and irregular nouns and regular and irregular verb forms.			58.69%	58.69%	2
Identify use of correct spellings in writing.		69.11%	59.66%	64.38%	4
Recognize, find out, create and use more rhyming words.		57.50%	59.68%	59.24%	5
GRAMMAR AND STRUCTURE		54.41%	54.45%	54.44%	73
Recognize varying position of adverbs according to its kind and importance.		62.48%		62.48%	1
Illustrate the use of tenses (Simple present and continuous, simple past and continuous, and simple future tense) previously learnt in their speech and writing.		63.64%	53.73%	55.71%	10
Articulate and use forms of some simple regular verbs including be, do and have.			49.80%	49.80%	4
Demonstrate the use of be, do and have as main or helping verbs in sentences.		67.69%	58.40%	60.72%	4
Demonstrate use of subject-verb agreement according to person and number.			53.10%	53.10%	1
Identify and make sentences to show instructions, commands and strong feelings.		63.06%		63.06%	1
Illustrate use of can / cannot, may / may not, and should / should not to express permission, prohibition, doubt, and obligation.		35.84%		35.84%	1
Knowledge, and apply the rules for the use of a and an. Choose between a or an before words that start with mute consonant letters. Identify and use the definite article the. Differentiate between use of definite and indefinite articles.			48.02%	48.02%	4
Knowledge of the rules of punctuation learnt earlier.		53.78%	58.31%	56.05%	4
Knowledge, and demonstrate use of more common, countable and uncountable, collective nouns from immediate and extended environment.		52.40%	64.26%	61.29%	4
Recognize and use more action verbs from extended environment including other subjects in speech and writing.		48.35%	66.47%	55.60%	5

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
Recognize and use nouns with no change in number.		43.46%		43.46%	1
Recognize and use simple SVO pattern sentences with direct and indirect objects.		53.77%	64.59%	57.37%	3
Recognize that pronouns agree with their nouns in gender and number.		50.78%		50.78%	3
Show possession by using the pronouns my, your, his, her, its, our, and their before nouns.		50.35%	48.33%	49.34%	2
Use capitalization according to rules learnt earlier.			55.22%	55.22%	4
Classify more nouns as common and proper nouns (names of people, pets, places, mountains, lakes, rivers, etc.).			53.38%	53.38%	3
Demonstrate use of words showing position, time and movement and direction.			63.95%	63.95%	4
Identify and illustrate extended use of words that point to something.			59.25%	59.25%	3
Illustrate use of pronouns learnt earlier. Use the personal pronouns myself, yourself/ves, himself, herself, ourselves, themselves and itself.		61.64%	58.75%	60.19%	4
Recognize function of wh forms used in questions.			42.08%	42.08%	3
Respond to, and ask wh questions.		58.73%	38.09%	43.25%	4
ORAL COMMUNICATION		67.81%	54.81%	57.41%	5
Identify and use previously learnt and more formulaic expressions for greetings and routine social courtesies according to the age, gender and status of addressee.		67.81%	54.81%	57.41%	5
READING AND THINKING SKILLS		60.14%	57.51%	57.94%	61
Describe the characters in a story.			51.85%	51.85%	3
Guess the meaning of difficult words from context. Use context to infer missing words.			37.70%	37.70%	5
Guess the meaning of difficult words through context.			62.26%	62.26%	3
Locate an opinion.		79.51%	43.78%	61.65%	2
predict the content of a text from topic/ picture, title/headings, by using prior knowledge.		58.82%	63.00%	60.61%	7
Recognise specific parts of words including common inflectional endings and compound words.			69.67%	69.67%	1
Recognize and describe briefly story elements.			64.07%	64.07%	3
Tell when and where the story is set.			72.27%	72.27%	2
Use critical thinking to respond to the text (post-reading): Apply world knowledge and own opinion to the text read. Relate what is read to their own feelings and experiences.			66.62%	66.62%	3
Use summary skills to provide the missing words in gapped summary.		49.74%	74.93%	62.34%	2

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
Apply critical thinking to interact with text using intensive reading strategies (while-reading) to locate specific information to answer short questions; make simple inference using contexts of the text and prior knowledge.			59.91%	59.91%	3
Factual		57.40%	62.42%	61.58%	6
Inferential			54.93%	54.93%	5
Interpretive			58.20%	58.20%	7
Personal response		65.21%	52.52%	56.15%	7
The main idea in a paragraph is carried in a sentence, called a topic sentence.		49.00%	51.52%	50.26%	2
MATHEMATICS	60.16%	54.99%	64.69%	61.28%	
DECIMALS AND PERCENTAGES	57.50%	38.73%	61.73%	56.29%	30
Add and subtract decimals			70.55%	70.55%	7
Divide a decimal with a whole number			59.65%	59.65%	4
Divide decimals by 10, 100 and 1000.			37.21%	37.21%	1
Multiply a decimal by a decimal (in the same way as for whole numbers and then put in the decimal point accordingly).			50.06%	50.06%	1
Multiply a decimal by tenths and hundredths only		39.05%		39.05%	1
Multiply a decimal with a whole number			40.64%	40.64%	2
Multiply decimals by 10, 100 and 1000			70.06%	70.06%	3
Recognize like and unlike decimals.	58.49%	40.93%		46.78%	3
Round off decimals up to specified number of decimal place		37.16%		37.16%	3
Solve real life problems involving decimals	57.30%			57.30%	5
DISTANCE, TIME AND TEMPERATURE		60.05%		60.05%	11
Convert hours to minutes, minutes to seconds and vice versa		63.82%		63.82%	5
Convert measures given in 1) kilometres into metres 2) metres into centimetres 3) centimetres to millimetres and vice versa.		60.18%		60.18%	4
Convert years to months, months to days, weeks to days and vice versa.		49.85%		49.85%	1
Solve real life problems involving addition and subtraction of distances		50.89%		50.89%	1
DIVISION			56.99%	56.99%	5
Divide a fraction by a number.			58.34%	58.34%	4
Divide a fraction by another fraction (proper, improper and mixed)			51.60%	51.60%	1
FRACTIONS			65.36%	65.36%	13
Add and subtract two and more fractions with different denominators.			61.33%	61.33%	7
Multiply a fraction by a number and demonstrate with the help of diagrams.			72.79%	72.79%	1
Multiply a fraction by another fraction.			69.50%	69.50%	5
GEOMETRY		58.43%		58.43%	17
Define hypotenuse of a right angled triangle.		26.84%		26.84%	1
Define triangles with respect to their sides (i.e., equilateral, isosceles and scalene triangle).		42.79%		42.79%	1

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
Describe adjacent, complementary and supplementary angles.		60.22%		60.22%	2
Knowledge of an angle and recognize acute, right, obtuse, straight and reflex angle.		55.10%		55.10%	7
Recognize the kinds of quadrilateral (square, rectangle, rhombus, Parallelogram, trapezium and kite).		69.58%		69.58%	6
HCF AND LCM			57.92%	57.92%	12
Find HCF of three numbers, up to 2 digits, using.			55.21%	55.21%	6
Find LCM of four numbers, up to 2 digits, using prime factorization method.			63.57%	63.57%	4
Solve real life problems involving HCF&LCM.			54.75%	54.75%	2
INFORMATION HANDLING			61.72%	61.72%	12
Find an average of given numbers.			54.41%	54.41%	4
Interpret a simple bar graph given in horizontal and vertical form.			68.03%	68.03%	5
Read a simple bar graph given in horizontal and vertical form.			74.04%	74.04%	1
Solve real life problems involving average.			54.42%	54.42%	2
NUMBERS AND ARITHMETIC OPERATIONS	63.84%		75.81%	72.82%	24
Add numbers of complexity and of arbitrary size.			82.06%	82.06%	4
Divide numbers, up to 6 digits, by 2 digits and 3 digits numbers.	75.03%			75.03%	1
Multiply numbers, up to 6 digits, by 10, 100 and 1000.			85.28%	85.28%	2
Multiply numbers, up to 6 digits, by 2 digits and 3 digits numbers.			69.91%	69.91%	2
Recognize BODMAS rule, using only parentheses ().	58.40%			58.40%	1
Solve real life problems involving mixed operations of addition, subtraction, multiplication and division.	62.40%			62.40%	4
Subtract numbers of complexity and of arbitrary size.			70.52%	70.52%	6
Verify distributive laws.			76.27%	76.27%	3
PERIMETER AND AREA	49.11%	46.73%		48.93%	13
Apply formulas to find perimeter and area of a square and rectangular region.	49.14%			49.14%	7
Differentiate between perimeter and area of a region.		46.73%		46.73%	1
Identify the units for measurement of perimeter and area.	41.39%			41.39%	2
Solve appropriate problems of perimeter and area.	41.83%			41.83%	1
Write the formulas for perimeter and area of a square and rectangle.	60.40%			60.40%	2
UNITARY METHOD	70.71%	46.64%		68.86%	13

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
Calculate the value of a number of same type of objects when the value of another of the same type is given (unitary method).	64.58%			64.58%	6
Calculate the value of many objects of the same kind when the value of one of these objects is given.	76.83%			76.83%	6
Solve real life problems involving direct and inverse proportion (by unitary method).		46.64%		46.64%	1
SCIENCE	51.02%	52.57%	53.42%	52.98%	
CLASSIFICATION OF LIVING THINGS	43.14%	54.74%	57.58%	55.43%	28
Classify the flowering plants into two major groups and give examples of each group.	44.52%		48.55%	46.54%	2
Classify vertebrates into mammals, reptiles, fish, birds and amphibians on the basis of their characteristics.	41.75%	58.14%	58.09%	55.39%	6
Compare flowering and non-flowering plants.			55.18%	55.18%	1
Compare the structure of a monocot and a dicot seed.		31.65%	36.33%	33.52%	5
Define classification.		81.37%	78.14%	80.29%	3
Differentiate between vertebrates and invertebrates according to key characteristics.		47.98%	66.30%	60.19%	3
Explain the need and importance of Classification.			74.60%	74.60%	2
Identify key characteristics of worms and insects.		39.23%	54.83%	50.93%	4
Identify vertebrates and invertebrates from their surroundings.		82.87%	46.70%	64.79%	2
ELECTRICITY AND MAGNETISM		50.28%	48.73%	49.33%	18
Conduct an experiment to show the magnetic field of a bar magnet.		45.65%	53.90%	49.77%	2
Describe flow of electric current in an electrical circuit.		57.97%	40.10%	49.03%	4
Describe fuse and its importance in any electric circuit.		55.68%	58.94%	58.13%	4
Explain the phenomenon of lightning.		56.91%	47.64%	49.96%	4
Explain the production of static electrical charges in some common materials.		38.89%	43.00%	40.26%	3
Explore different electromagnetic devices used in their daily life.			39.16%	39.16%	1
ENVIRONMENTAL POLLUTION	67.07%	48.99%	55.50%	54.19%	16
Describe different kinds of pollution.			73.57%	73.57%	2
Differentiate between biodegradable and non-biodegradable materials.	67.07%	53.39%	35.96%	48.09%	4
Explain main causes of water, air and land pollution.		46.09%	62.31%	55.82%	5
Explain the effects of water, air and land pollution on environment and suggest ways to reduce them.		40.12%	53.23%	48.86%	3
Plan and conduct a campaign to bring awareness to a problem of environmental pollution in their surroundings.		59.24%		59.24%	1

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
Suggest ways to reduce the impact of non-biodegradable materials.			42.59%	42.59%	1
FORCES AND MACHINES	39.61%	47.26%	58.02%	51.87%	24
Compare the three kinds of levers using examples.		39.13%		39.13%	3
Describe friction and its causes.		49.98%	60.95%	55.47%	4
Describe how lever makes work easier by giving examples of its uses from daily life.			55.48%	55.48%	1
Describe the term inertia.		43.76%	58.25%	51.00%	2
Distinguish between mass and weight.	39.61%	47.04%		44.56%	3
Explain the advantages and disadvantages of friction.			55.05%	55.05%	4
Explain the gravitational force using different examples.			60.80%	60.80%	3
Suggest methods to reduce friction.		52.98%		52.98%	4
MATTER AND CHANGES IN ITS STATES		42.55%	42.20%	42.32%	12
Demonstrate and explain the processes that are involved in the change of states.		37.41%		37.41%	2
Demonstrate the arrangement of particles in the three states of matter through models.			29.10%	29.10%	1
Describe the properties of the three states of matter on the basis of arrangement of particles.		47.69%	40.22%	42.71%	6
Investigate the effect of heat on particle motion during a change in states.			49.21%	49.21%	3
MICROORGANISMS		65.21%	54.33%	59.77%	10
Define infection.		71.41%		71.41%	1
Describe the advantages and disadvantages of microorganisms in daily life.		52.75%		52.75%	1
Identify the main groups of microorganisms and give examples for each.		58.30%	51.89%	55.09%	4
Identify ways by which microorganisms can enter the human body.		85.28%	45.11%	65.19%	2
Suggest ways to avoid infections.			61.39%	61.39%	2
PROPERTIES AND BEHAVIOUR OF LIGHT	62.13%	63.20%	52.13%	57.58%	12
Differentiate between luminous and non-luminous objects.		70.41%	74.34%	72.38%	2
Explain the formation of shadows and eclipses.		78.32%	34.83%	56.57%	2
Explain the scientific principle that works in a pinhole camera.		73.68%	33.99%	53.83%	2
Identify and differentiate between transparent, opaque and translucent objects in their surroundings.	62.13%		56.55%	57.94%	4
Investigate that light travels in a straight line.		50.28%		50.28%	1
Predict the location, size and shape of a shadow from a light source relative to the position of objects.		43.32%		43.32%	1
SEEDS: STRUCTURE AND GERMINATION		59.73%	50.75%	53.74%	6

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
Compare the structure and function of French bean and Maize seed.			44.76%	44.76%	1
Identify the conditions necessary for germination.		59.73%	52.74%	55.54%	5
SOILS		51.01%	47.93%	49.47%	12
Compare the absorption of water by different soils.		52.49%		52.49%	1
Describe the characteristics of soil.		60.36%	34.19%	47.27%	2
Identify similarities and differences among the different types of soil.		62.10%	42.60%	49.10%	3
Investigate and describe how living things affect and are affected by soils.		62.66%	58.61%	59.96%	3
Investigate and describe soil components.		21.93%		21.93%	1
Observe and describe the effects of moving water on different soils.		46.54%	51.00%	48.77%	2
SOLAR SYSTEM		51.51%	64.20%	56.80%	12
Compare the sizes of Earth, sun and moon.		54.69%		54.69%	2
Describe the solar system and its planetary arrangement showing position of Earth in our solar system.		56.20%	59.84%	58.62%	3
Differentiate between a star and a planet.		63.99%	70.95%	67.47%	2
Explain that the Sun is a star.		41.29%	71.88%	51.49%	3
Explain the relative size of the planets and their distance from the sun using a model.			58.50%	58.50%	1
Investigate the moons of different planets of the solar system.		48.46%		48.46%	1
URDU					
READING	69.99	84.65	75.35	78.31	54
Can read the kid's stories in newspaper, pamphlets with result and purpose.	83.65	80.40	81.67	81.91	34
Can read Jokes and puzzles with fun.		93.39	78.08	85.74	5
Can read newspaper , pamphlets , reports , letters by understanding them.	56.32	83.04	75.45	71.60	15
WRITING	44.29		43.97	44.13	8
Can write poems and narration in his own words.			36.31	36.31	4
Can complete story with the help of pictures and symbols.			41.82	41.82	4
CREATIVE WRITING	35.93			35.93	2
GRAMMAR	73.16	78.21	67.07	69.66	40
Fill in the blanks in simple sentence.		77.01	75.40	76.20	8
Can find the tense in writing and change it into other tense.	69.79		69.02	69.40	6
Can find the meaning of the words with the help of dictionary (Lughat).		75.71	72.21	73.96	6
Can correct the wrong sentence.			81.92	81.92	5
Can make sentence according to tense and change it into other tenses.			56.32	56.32	1

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
Can make subject of verb and relate subject with verb and object.			60.20	60.20	3
can use words used for calling, showing sorrow and wonder (Harooof Nada , Istajab ,and Afsoos).	85.50	81.90	58.77	75.39	3
Can identify the meaning by changing the punctuation marks (Eraab).	85.64		53.55	69.60	4
Can identify the different kinds of Proper Noun in different sentences.	51.71		76.25	63.98	4
LIFE SKILLS					16
Can participate in explaining some area or travel.			53.77	53.77	2
Can read kid's journal and newspaper.		81.75	66.21	73.98	6
Can write letters to friends.	52.35			52.35	4
Can write simple application.	44.60			44.60	4
ISLAMIAT					
FAITHS AND PRAYERS (EMANIAT AND IBADAAT)	67.05	64.29	60.28	64.99	22
This World Is For Hereafter (Duniya Akhirat Ki Kheti Hai).	67.05	88.96	55.54	70.51	4
Obedience of Hazrat Muhammad PBUH.		33.30	69.82	51.56	6
Introduction and Social Importance Of Jumah and Eids.		49.54	55.47	52.51	11
Introduction and Social Importance Of Fast.		85.36		85.36	2
LIFE OF PROPHET MUHAMMAD PBUH (SEERAT E TAYYABA)	36.10	51.14	40.64	49.64	33
Brotherhood.		60.56	63.11	61.84	9
Construction of Masjid e Nabvi PBUH.		65.16		65.16	4
Charter of Madina.		23.59	18.17	20.88	3
Battle of Badr.		70.26		70.26	5
Battle of Uhad.	40.34	43.73		42.03	7
Battle of Trench (Khundak).	31.87	43.52		37.69	5
ETHICS AND MANNERS (AKHLAQ AUR ADAAB)	73.13	42.24	55.29	56.38	29
Fulfillment of promise.	55.65	12.78	61.96	43.46	7
Tolerance.	67.75		41.16	54.46	8
Leniency (Reham Dili).	95.98		80.51	88.25	4
Frugality (Kafait Shuari).		58.89	63.28	61.08	2
Islamic Brotherhood.		27.08	32.81	29.95	3
Manners of Recitation of Holy Quran.		70.22	51.99	61.10	5
SOURCES OF GUIDANCE (MASHAHEER E ISLAM/ISLAMIC HEROES)	56.06	57.17	60.69	61.13	11
Hazrat Essa A.S.		66.24		66.24	1
Hazrat Usman R.A.		65.91	71.52	68.71	3
Hazrat Khalid Bin Waleed R.A.	56.06	39.37	49.87	48.44	7

ANNEX 2: STUDENT PERFORMANCE AGAINST SLOs - GRADE 8

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
ENGLISH	58.57%	62.41%	61.51%	61.67%	
FORMAL AND LEXICAL ASPECTS OF LANGUAGE (VOCABULARY)		88.45%		88.45%	1
Build and use appropriate vocabulary and correct spelling for effective communication.		88.45%		88.45%	1
GRAMMAR AND STRUCTURE		60.89%	58.69%	59.58%	79
1-Convert present participles 2-Convert past participles 3-Make use of present participles 4-Make use of past participles.		66.23%	66.45%	66.34%	4
1-Demonstrate use of pronouns as subject and object 2-Recognize function of, and use possessive, reflexive and emphatic pronouns.		64.18%	70.92%	67.55%	2
1-Identify relative pronouns 2-demonstrate functions of relative pronouns 3- make use of relative pronouns which, who, and that.		55.36%	55.93%	55.79%	4
1-Recognize infinitives 2-demonstrate function and use of infinitives.		61.57%	65.30%	63.43%	4
1-Recognize punctuation in given passages.		66.63%	53.95%	58.18%	3
Apply rules of a, an, and the wherever applicable in speech and writing.		71.83%	78.24%	73.43%	4
Apply rules of capitalization wherever applicable.		72.54%		72.54%	1
Classify adjectives into different types change and use degrees of adjectives with reference to than and the.		58.98%		58.98%	5
Classify, use, convert and make declarative (affirmative and negative), interrogative, exclamatory, and imperative sentences.			55.94%	55.94%	2
Demonstrate extended use of question words.		67.44%	67.77%	67.60%	2
Demonstrate use of more common and proper, collective nouns.		65.87%	68.85%	67.15%	7
Direct & Indirect narration (Simple Present & Past).		46.85%	41.48%	43.63%	5
Form adjectives from nouns and verbs.		20.44%		20.44%	2
Identify active and passive voice in sentences.			66.59%	66.59%	4
Illustrate use of helping verbs in writing.		67.99%	56.05%	65.00%	4
Illustrate use of linking verbs.			55.00%	55.00%	2
Illustrate use of prepositions of position, time, movement and direction.		53.58%	77.86%	61.67%	3
Illustrate use of regular and irregular verbs in writing.			59.21%	59.21%	4

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
Illustrate use of “since” and “for”.		68.95%	56.87%	59.29%	5
Illustrate use of tenses learnt earlier(Present indefinite,Past indefinite,Future indefinite).			46.34%	46.34%	2
Locate the varying position of adjectives in sentences.			54.45%	54.45%	3
Recognize the form and various functions, and illustrate use of Past Perfect Tense.			51.46%	51.46%	3
Recognize varying positions of adverbs in sentences according to their kinds and importance.			58.13%	58.13%	3
Use more indefinite pronouns.		78.24%		78.24%	1
READING AND THINKING SKILLS	58.57%	63.92%	66.83%	64.54%	48
Apply world knowledge and own feelings/ opinion to the text read.	51.04%		72.41%	68.14%	5
Have a general idea of the text.		88.13%	85.79%	86.37%	4
Identify a topic sentence.		76.29%	51.31%	63.80%	4
Scan to answer short questions.	43.86%	60.81%	59.10%	57.70%	6
Explore causes and consequences of a problem or an issue and propose various solutions.	85.78%	53.32%	75.75%	72.65%	4
Identify sentences carrying supporting details.		64.56%	73.80%	69.18%	2
Infer theme/ main idea.	53.73%		55.02%	54.59%	3
Make simple inferences using context of the text and prior knowledge.	75.86%		73.97%	74.60%	3
Distinguish between what is clearly stated and what is implied.		68.74%	66.84%	67.79%	4
Deduce meaning of difficult words from context.	54.91%	57.01%	59.66%	57.72%	9
Read silently with comprehension and extract main idea and supporting detail.		48.48%		48.48%	1
Read a story to summarize.	48.46%		53.17%	51.60%	3
MATHEMATICS	49.03%	57.00%	60.52%	56.07%	
ALGEBRA	55.32%	55.08%	52.01%	53.70%	48
Add, subtract and multiply polynomials of degree up to 4.	49.50%		48.74%	49.25%	3
Convert an equation equivalent to a linear equation in two variables.		35.39%	40.80%	38.99%	3
Divide a polynomial of degree up to 4 by a polynomial of degree up to 2.	48.15%			48.15%	1
Establishing the formula $(a+b)^2 = a^2 + 2ab + b^2$	58.99%		58.21%	58.89%	8
Establishing the formula $a^2 - b^2 = (a+b)(a-b)$	50.73%			50.73%	3
Establishing the formula $(x+a)(x+b) = x^2 + (a+b)x + ab$	43.15%		61.71%	52.43%	2
Evaluating algebraic expressions.		58.64%	49.48%	51.01%	6
Factorize the expression of the type.	59.26%		53.59%	55.86%	10
Recognize linear equations in one and two variables.		59.11%	61.61%	59.94%	6
Recognize simultaneous linear equations in two variables.			55.80%	55.80%	1

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
Simplifying algebraic expressions involving brackets.	58.67%		49.49%	51.33%	5
GEOMETRY	37.82%	56.44%	49.44%	45.68%	37
Define diagonal of a square and a rhombus.		44.45%		44.45%	1
Define regular pentagon, hexagon and octagon.		59.18%		59.18%	7
Find the surface area and volume of a cone.	39.86%	48.64%	49.44%	43.25%	8
Find the surface area and volume of a sphere.	23.86%	53.19%		35.59%	10
Solve real life problems involving surface area and volume of sphere and cone.	28.79%			28.79%	2
Solve right angled triangles using Pythagoras theorem.	49.28%			49.28%	8
State and apply Hero's formula to find the areas of triangular and quadrilateral regions.		77.76%		77.76%	1
INFORMATION HANDLING	56.03%		58.60%	57.96%	12
Construct and interpret a histogram.	67.83%			67.83%	1
Find mean, mode and median from the given data.	50.13%		58.60%	57.06%	11
NUMBER SYSTEMS WITH BASE 2 AND 5		52.59%	68.56%	66.96%	20
Add, subtract and multiply numbers with base 2 and base 5.		52.59%	67.86%	65.51%	13
Convert a number from decimal system to the systems with base 2 and 5 and vice versa.			72.35%	72.35%	4
Describe number system with base 5.			72.35%	72.35%	2
Describe significance of the number system with base 2 (binary system).			53.46%	53.46%	1
PERCENTAGES	51.22%	51.15%		51.21%	15
Find percentage profit and percentage loss when commission is allowed.	53.85%	51.15%		53.25%	9
Solve simple real life problems related to individual income tax assessee.	50.64%			50.64%	4
Understand the concept of gross, net and taxable income.	43.14%			43.14%	2
PROPORTION	48.94%	52.42%	44.28%	49.40%	5
Define direct, inverse and compound proportion.		52.42%	44.28%	49.71%	3
Solve real life problems involving direct, inverse and compound proportion.	48.94%			48.94%	2
RATIONAL NUMBERS		55.07%	45.05%	53.19%	16
Recognize rational numbers.		50.81%	59.14%	52.20%	6
State properties of equality of rational numbers (Reflexive, symmetric, transitive, additives and multiplicative property).		54.37%		54.37%	2
State properties of inequalities of rational numbers (Trichotomy, transitive, additive and multiplicative/division property).		50.75%	26.70%	38.73%	2
State the properties of rational numbers (Closure property, Identity element and inverse element w.r.t + and $\hat{1}$).		60.48%	49.31%	58.61%	6

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
SETS		66.60%	59.89%	61.50%	25
Define power set of a set, knowing the symbols used for power set.		61.52%	35.01%	48.26%	2
Describe and give examples of equality of two sets.		65.13%	56.36%	58.55%	4
Find all the subsets of a given set.		67.87%	83.74%	73.16%	3
Find power set P(A) of a set A.			46.90%	46.90%	4
Find Union and intersection of three Sets.		68.61%	66.33%	67.24%	5
Finding complement of a set relative to a universal set.			68.79%	68.79%	6
Identify subset of a given set.			50.87%	50.87%	1
SQUARE ROOTS	82.27%	74.09%	74.53%	75.61%	14
Define an irrational number.		74.09%		74.09%	1
Find square root of a natural number.			71.66%	71.66%	5
Find the Square root of decimal fractions which are perfect squares (e.g. 0.01, 1.21, 0.64).	77.49%			77.49%	1
Find the Square root of common fractions which are perfect squares.	87.05%		76.93%	78.38%	7
SCIENCE	43.09%	57.09%	57.12%	53.39%	
ACIDS, BASES AND SALTS	32.68%	54.09%	48.26%	48.55%	13
Describe the properties of acid, base and salts.	32.68%		48.26%	43.81%	7
Explain the uses of acid, alkali and salt in daily life.		54.09%		54.09%	6
ANIMAL KINGDOM	57.94%	49.48%	66.66%	61.87%	9
Describe the diagnostic characteristics and local examples of various invertebrate phyla.		49.48%	65.48%	60.91%	7
Describe the diagnostic characteristics and local examples of various vertebrate classes. Using simple keys classify animals into classes.	57.94%		72.58%	65.26%	2
CHEMICAL REACTIONS	43.35%	45.05%	55.41%	49.89%	15
Balancing of a chemical equation.	29.44%			29.44%	2
Define chemical reactions and give examples.	50.70%		51.27%	51.13%	4
Explain the law of constant proportions with an example.	38.82%		52.56%	45.69%	2
Explain the rearrangement of atoms in chemical reactions.	60.84%		58.88%	59.37%	4
Explain the types of chemical reactions with examples.	50.85%	45.05%		47.95%	2
Prove the law of conservation of mass by an example.			60.28%	60.28%	1
EARTH AND SPACE		51.24%	63.20%	54.56%	18
Describe characteristics and movement patterns of asteroids, comets and meteors in our solar system.		47.46%		47.46%	3
Describe the constituents of rocks and information contained in them.		68.47%		68.47%	2

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
Describe the salient features of stars and constellations.		49.73%		49.73%	3
Discuss that millions of galaxies and stars exist in the universe which are separated by incomprehensible distances.			61.12%	61.12%	2
Explain about the minerals found in Pakistan and their uses.		45.66%		45.66%	4
Explain how successive layers of sedimentary rocks and the fossils contained within them can be used to confirm the age, history and changing life forms of the earth.			81.39%	81.39%	1
List the three types of rocks according to the way in which they are formed.		55.03%	56.19%	55.80%	3
ELECTRICITY AND MAGNETISM	33.14%	58.56%	52.01%	43.23%	20
Describe how electric power determines the consumption of electric energy and Kwh is the unit used to estimate the cost of electricity being consumed.	26.59%			26.59%	6
Describe the introductory concept of electric potential and potential difference.		58.56%	46.29%	54.47%	3
Describe the various ways to produce electricity.			55.58%	55.58%	5
Explain induced current by relative motion of magnet and a coil.	47.84%		55.84%	50.50%	3
Explain that the electric current varies with a change in potential difference.	38.12%		36.06%	37.43%	3
ENVIRONMENT		60.07%	67.88%	64.66%	17
Define deforestation.		66.58%	66.91%	66.80%	3
Define population and community. Describe factors for increase and decrease of population. Determine the effects of over population on environment.		75.65%	74.18%	74.91%	2
Describe the causes and effects of ozone depletion.		58.65%	72.43%	65.54%	6
Explain the Greenhouse Effect.		51.14%		51.14%	2
Identify human activities that have long-term adverse consequences on the environment.			64.77%	64.77%	2
State the effects of deforestation on the environment.			47.44%	47.44%	1
Suggest ways in which individuals, organizations and government can help to make earth a better place to live.			76.47%	76.47%	1
HEREDITY IN ORGANISMS		62.39%	55.55%	58.74%	15
Define biotechnology.		78.47%		78.47%	1
Define heredity and recognize its importance in transferring of characteristics from parents to off springs.		66.39%	49.25%	53.54%	4
Describe the relationship between DNA, Genes and Chromosomes.		66.33%		66.33%	3
Explain how selective breeding can help in meeting the food needs of human population.			73.72%	73.72%	1
Identify the characteristics that can be transferred from parents to off-springs.			55.26%	55.26%	1

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
List general applications of biotechnology in various fields.		46.45%	55.88%	52.11%	5
LIGHT	41.19%	48.76%	51.04%	48.19%	17
Compare and contrast the working of a human eye with the lens camera.		34.98%	37.92%	37.19%	4
Define Lens.			86.89%	86.89%	1
Describe the image formation using a lens by ray diagram.	41.19%		48.58%	42.67%	5
Differentiate between the different types of lenses.		53.36%	50.77%	52.32%	5
Explain how eye focuses by altering the thickness of the eye lens.			54.29%	54.29%	2
LIQUID PRESSURE	65.74%	38.34%	77.66%	62.65%	5
Demonstrate liquids exert pressure in all directions.			77.66%	77.66%	1
Describe that the pressure in a liquid varies with depth.	65.74%	38.34%		58.89%	4
LIVING THINGS	30.97%	60.56%	49.53%	54.89%	13
Describe nature and occurrence of viruses. Name some important diseases caused by viruses.		57.71%	21.97%	50.57%	5
Describe the measure to prevent food spoilage and preservation.		64.19%		64.19%	2
Describe occurrence and shape of bacteria. Name some important diseases caused by bacteria.		64.83%	51.08%	55.67%	3
Discuss in what ways bacteria are important to men.	30.97%	60.42%	73.98%	55.12%	3
MANUFACTURE OF USEFUL PRODUCTS FROM RAW MATERIALS			63.44%	63.44%	2
Describe about the manufacture of useful products, description of soaps, detergents and fertilizers.			63.44%	63.44%	2
PLANT KINGDOM	52.82%	63.52%	36.96%	53.74%	6
Give diagnostic characters and local examples of non-flowering groups of plants (Algae, Fungi, Mosses, Ferns and Confers).	52.82%	63.52%	36.96%	53.74%	6
SYMBOL AND FORMULA	41.66%	59.70%	54.61%	51.13%	30
Describe occurrence, natural form and common properties of carbon.		60.75%		60.75%	2
Describe the importance of chemical bond in Chemistry.		57.05%		57.05%	1
Explain industrial preparation of carbon dioxide, properties and uses.		63.22%		63.22%	1
Illustrate the formation of ionic and covalent bond.	40.71%		55.47%	48.09%	6
Reproduce the formula of given compounds.	43.22%		53.20%	46.54%	12
Write the symbols of given elements.	32.03%	59.21%	57.69%	55.62%	8
THERMAL EXPANSION	47.95%	80.08%	65.79%	54.79%	12

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
Describe various temperature scales in use (F C K) and their inter-conversion.	46.12%	80.08%		52.91%	10
Explain thermal expansion of solids, liquids and gases.	62.59%		65.79%	64.19%	2
URDU					
READING	78.06	89.32	86.60	85.26	80
Can read sentence.	58.08518	89.50954	89.32339	78.9727	15
Can read theme of an essay by understanding it.	74.94	93.82716	85.70277	84.82	15
Can read Story, Drama and Essay keeping in mind the technique, purpose and way of elaborating of writer.	82.89242	90.5295	88.7326	87.38484	10
Can read newspaper, pamphlets, reports, letters by understanding them.	81.895	83.41905	82.64213	82.65206	35
Can read applications, reports, Orders etc. by understanding them.	92.5042			92.5042	5
WRITING	45.17			45.17	20
Can write poems and narrate in his own words.	40.07808			40.07808	4
Can write essay by using his own knowledge, thinking and experience. Can write at least three paragraphs.	66.00532			66.00532	4
Can write one third abstract of any writing.	31.73293			31.73293	4
Can write the report of an incident to any newspaper, police station or Officer. Can write the report on necessities of schools to upper or district government.	51.97782			51.97782	4
Can write Dialogue on any topic.	33.28464			33.28464	4
GRAMMAR	66.66		68.46	65.19	48
Can change sentence from Majhool to Maroof.	59.01959		66.17803	62.59881	7
Can differentiate between Tajnees Maanwi.	51.59347			51.59347	5
Can move towards words from meaning.	74.13394		77.2886	75.71127	12
Can use proverbs.	85.8355		71.87887	78.85719	9
Can correct the wrong sentences.			50.41289	50.41289	6
Can use sayings in his writings.	60.14109		78.14161	69.14135	5
Can make sentence by using Sabqa Lahqa.	69.2437		66.85007	68.04688	4
Skills of Life.	59.81428			59.81428	4
ISLAMIAT					
FAITHS AND PRAYERS (EMANIAT AND IBADAAT)	76.25	71.765	62.34	70.115	27
Islamic Theology of Hereafter (Aqeedah Akhirat) and its contribution towards character building.	84.16	94.15	61.73	80.01	16
Hajj and its globalization.	68.34	49.38	62.95	60.22	11
LIFE OF PROPHET MUHAMMAD PBUH (SEERAT E TAYYABA)	84.29	68.05	72.38	70.61	45
Great Morals of The Holy Prophet PBUH (Khulq e Azeem).		66.09	90.21	78.15	4

SLO	PERFORMANCE ON APPLICATION BASED QUESTIONS	PERFORMANCE ON KNOWLEDGE BASED QUESTIONS	PERFORMANCE ON UNDERSTANDING BASED QUESTIONS	OVERALL PERFORMANCE	NUMBER OF QUESTIONS
Patience and tolerance.		44.18	39.08	41.63	4
Fulfillment of Promise.			39.10	39.10	3
Perseverance (Istiqamat).		59.86	78.81	69.33	8
Beautiful Conduct (Husn e Muashrat).			92.14	92.14	1
Sincerity and Piety (Ikhlas aur Taqwa).	79.71	78.29	70.76	76.25	14
Justice and beneficent (Ehsaan).		80.35	94.11	87.23	3
Way of training and preaching.	88.87	79.52	74.86	81.08	8
ETHICS AND MANNERS (AKHLAQ AUR ADAAB)	89.72	83.07	63.49	70.95	32
Fear of Allah (Khashiat e Elahi).		80.00	79.39	79.70	3
Amer Bil Maroof Wa Nahi Anil Munkar.			61.96	61.96	5
Human Rights.		74.73	73.53	74.13	14
Honesty in Business.	84.00			84.00	1
Avoiding Hypocrisy in Relations.	95.43	94.48	48.77	79.56	6
Jihaad.			23.17	23.17	3
SOURCES OF GUIDANCE: MASHAHEER E ISLAM/ISLAMIC HEROES	76.91	39.86	69.99	76.91	12
Hazarat Essa (A.S.).		86.29		86.29	3
Hazarat Salman Farsi (R. A.).		67.53	39.86	53.69	9

