COMPENDIUM

ASSESSMENT (2017) FINDINGS AND TIPS FOR TEACHERS

CLASS II & V

DIRECTORATE OF CURRICULUM AND TEACHER EDUCATION (DCTE)
KHYBER PAKHTUNKHWA

CONTENTS

PREFACE

Government of Khyber Pakhtunkhwa is in the process of implementing education reforms, aimed at ensuring access to quality education for maximum number of school age children in the province. These reforms have positive impact on all aspects of the system including curriculum, textbooks, instruction, and assessments. Government of Khyber Pakhtunkhwa recognizes that the success of its reforms hinges on regular and accurate assessment of the learning achievements of children at various levels of schooling. In this connection, different initiatives have been taken place from early grade to higher secondary school level in order to assess students' learning and suggest remedial activities to improve their learning.

Directorate of Curriculum and Teacher Education (DCTE) and Boards of Intermediate and Secondary Education (BISEs) are responsible for assessment and examination within the province respectively. Since 2016, these organizations have been engaged in the following two types of assessments:

- Grade 2 - Sample based assessment by Assessment and Evaluation Wing of DCTE
- Grade 5 – Universal assessment by Bords of Intermediate and Secondary Education

On behalf of DCTE, I congratulate Mr. Muhammad Shafique – Additional Director Assessment and Evaluation and his team who worked day and night with Khyber Pakhtunkhwa Education Support Programme (KESP) assessments' advisory team in designing, orienting, conducting and analysing grade 2 assessments results. I am also thankful to Boards of Intermediate and Secondary Education, KP for the conduct of grade 5 assessments and reporting its results with analysis.

DCTE team analysed and shared the findings of assessments at provincial level with all relevant stakeholders to make them aware about students' achievement and identify ways that can improve teaching and learning process and assessment systems. To address the weak area of the content and pedagogy as reflected in the analyses of the assessments, a compendium was also compiled. This compendium was developed in 2016 and updated in 2017. The compendium consists of the common errors made by students during assessments and tips for teachers that can be helpful in improving students learning process. The compendium is the result of the collective efforts of the KESP project technical team and DCTE staff that put together their intellectual capacities and made valuable contribution in writing tips and mobile text messages for teachers.

We would also like to acknowledge the technical support provided by Adam Smith International through its KESP project officials; namely, Dr Irfan Muzaffar – Technical Director, Mr. Bilal Ahmad - Team Lead Teaching and Learning, Ms.Saima Khalid - Assessment Advisor and Mr. Kamran Iftikhar Lone – Deputy Team Lead Teaching and Learning. I believe this compendium will help teachers improve their practices, resulting in improved quality education, the ultimate goal of Elementry and Secondary Education Department, Khyber Pakhtunkhwa.

Gohar Ali Khan
Director
Curriculum and Teacher Education
Khyber Pakhtunkhwa at Abbottabad

INTRODUCTION

The purpose of this compendium is to assist you in teaching better. As you know well, your students find some concepts difficult and others easy. You also know from your classroom experience that the only way to find what students find difficult is by assessing their learning. In your classroom you assess their learning by asking them questions. When you notice that some students have not developed a good understanding of the topic, you make an extra effort with those students. You also give your students periodic tests (we also call such tests assessments). These tests inform your students about their performance and give you information about the areas where they are experiencing difficulties.

The compendium in your hands will provide you information about the mistakes made by the students. It will also give you some tips to help your students overcome their learning difficulties. You will also be getting text messages on your mobile devices containing tips for you to use in your classroom in different school subjects. Please note that DCTE will publish an updated version of this compendium every year after the scheduled assessments of class 2 and 5.

ABOUT COMPENDIUM 2017

It is based entirely on the results of class2 and 5 assessments, held in 2016and 2017. Each item on the assessment corresponds to a *Student Learning Outcome (SLO)* from the National Curriculum 2006, also given in the textbooks. The analysed data of assessment results identified common errors made by students in differnet subjects.

To help you learn about common errors and improve your teaching, some tips have been shared with you in this document. This compendium refers to two main documents:

1. National Curriculum 2006
2. Khyber Pakhtunhwa Textbooks 2017-18

Following subjects are included in the document:

S.No	Subjects	Classes
1.	Math	2 and 5
2.	English	2 and 5
3	Urdu	2 and 5
4	Science	5
5	Social Studies	5

The compendium will provide references to the location of the SLO under consideration in both the curriculum and the textbook.

The assessment findings are given to help youunderstand the type of question asked in the assessment and percentage of studentsresponded correctly.

Based on the findings, some tips are also suggested that can help you in improving students learning in the classroom. You can adapt the given tips according to your context, classroom environment and students' abilities.

Some of these tips will also be shared through mobile messages, which will give you a quick access to these teaching tips.

You can share any feedback that can improve this documentto Additional Director Assessment and Evauation, DCTE through 0992-382634 & 384278or email at dcte-kpk@hotmail.com.

Mathematics

Class 2

MATHEMATICS

CLASS 2

CONCEPT 1: ADDITION

Curricular reference	Addition of two-digit and three-digit numbers with carrying (p.14) Solve real life problems, involving addition of: two-digit numbers with carrying, and three-digit numbers with and without carrying (p.14)
Textbook reference	Pp. 42 - 52; 57, 62
What does the assessment data tell us?	• Two-digit addition without carrying: 81% answered correctly • Two-digit or three-digit addition with carrying: Only 44% on average answered correctly. • Performance on addition in the tens and hundreds place, where carrying is required, was poorer (43% answered correctly) than addition in the units place (58% answered correctly) • Only 43% used the correct operation and 55% were able to calculate the correct answer in word problems

Tips for the teachers

1. Before beginning any new concept, conduct *Mental Math*(oral questions) activity daily. Small sums like 2+3, 5+7, 9+8 can be asked to help them add bigger numbers later on.

2. Use easily available materials such as money, bottle caps, leaves, pebbles etc. when teaching the concept of addition or subtraction. Note: these should be used more in teaching the concept and not for practice to develop mastery in addition and subtraction.

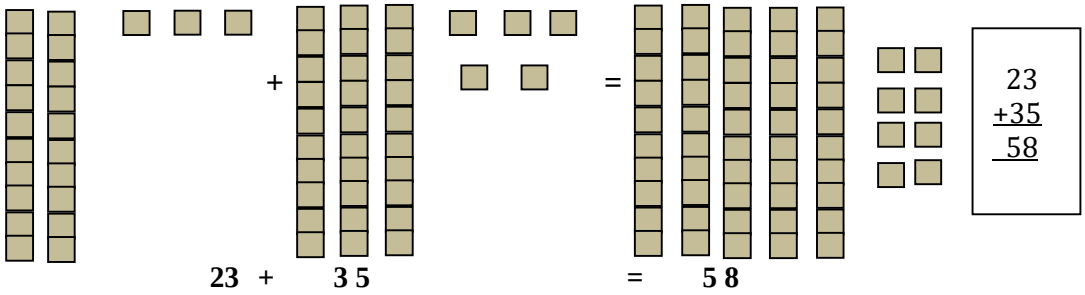
3. To improve the vocabulary related to addition write add, altogether, many, more, how many on card sheet strips and place around the blackboard and reinforce daily with examples.

4. Take a square paper and cut many squares and call them one Unit.

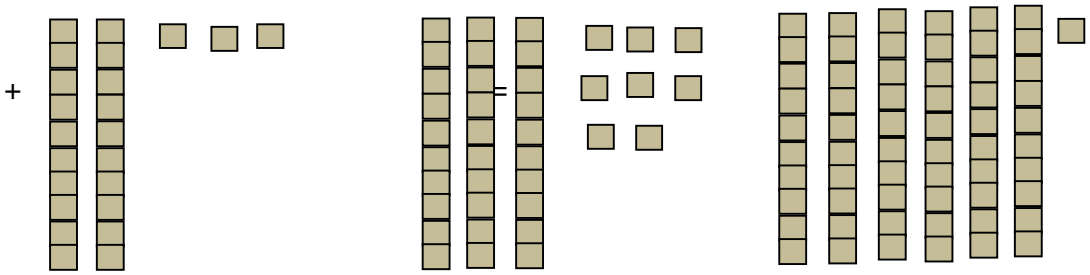
4.1 Now cut strips of 10 squares and call it as 1 ten.

4.2 Now demonstrate the process of addition with the help of these Tens and Units.

4.3 For adding 23+35, take 2 tens and 3 units for 23 and 3 tens and 5 Units for 35. Now ask the students; how many tens and units are there in all. Let the students count and inform 5 tens and 8 units.

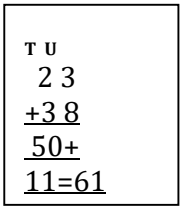


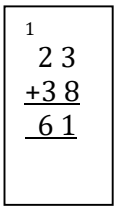
4.4 Now give example of 23 and 38. Explain them that when you add 23 and 38, then you have to regroup the units. You should let students decide how many tens and how many units are there in all. As the units are coming more than 10 i.e.11 so one new Ten will be added to Tens family and one unit will be left.



4.5 When we manually add Units on finger tips 8+3=11 , Here you would tell students that 11 is a two-digit number so cannot come under Unit place so 1 unit will come at Unit Place and the other, which is 1 ten, will become carry and will be added with tens. It is written as small 1 on the top of ten's digit.

Please refer to the example below.





4.6 Have the students repeat the entire process with different examples.

CONCEPT 2: SUBTRACTION

Curricular reference	Subtraction of two-digit and three-digit numbers with borrowing (p.15) Solve real life problems of subtraction involving subtraction of: two-digit numbers with borrowing, and three-digit numbers with and without borrowing (p. 15)
Textbook reference	Pp. 63 – 69
What does the assessment data tell us?	• Two-digit subtraction without borrowing: 64% answered correctly • Two-digit or three-digit subtraction with borrowing: Only 29% on average answered correctly. • Performance on subtraction in the tens and hundreds place, where borrowing is required, was poorer (29% answered correctly) than subtraction in the units place (34% answered correctly) • When asked to solve a word problem using subtractions: Only 37% used the correct operation and 44% were able to calculate the correct answer

Tips for the teachers

1. Place flash cards of vocabulary for subtraction like subtract, left, less, how many, operation sign etc around the black board.

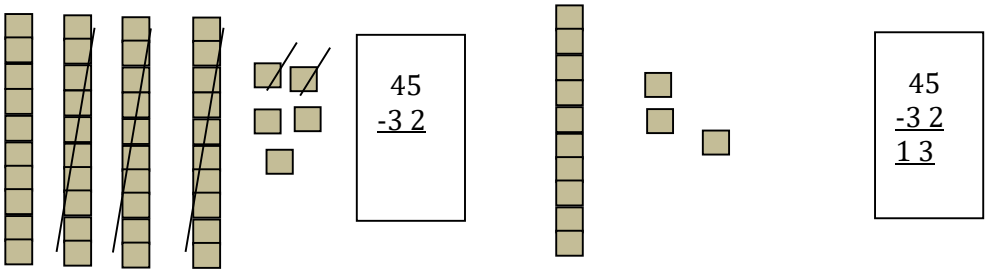
2. Use real objects available in school to teach subtraction. Start with students' belongings, how many pencils are in your pencil box? If you give 2 to your friend, how many pencils will be left with you? How many chairs are missing in the class?

3. Use square paper : squares as units and strip of ten squares as tens.

3.1 For subtraction of 45-32, you need four strips of tens and five unit squares.

3.2 First subtract units i.e. take away 2 Units from 5 Units;3 units are left and will be written in unit's place.

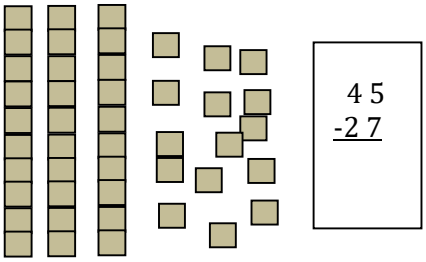
3.3 Now from 4 tens; take away 3 tens; and one ten will be left. The answer will be 1 ten and 3 units.



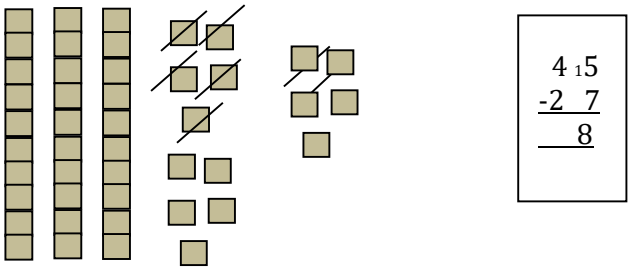
3.4 Do the same example numerically as shown above.

3.5 Now subtract 27 from 45. Take same 4 strips of tens and 5 squares for units. Ask the students how they would subtract 7 units from 5 units.

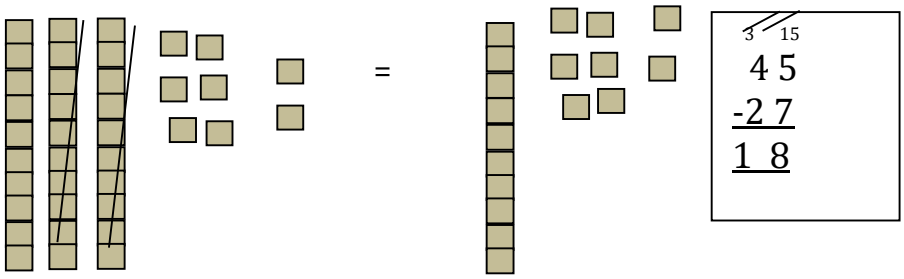
3.6 Let thestudentsthink and give you different options. Listen to their responses carefully. Explain them that since we need to subtract 7 units which is more than 5, therefore, we will borrow one ten and convert it into units.



3.7 Now we have 15 units and 3 tens. Take away 7 units from 15 units; 8 units will be left.



3.8 Now we will subtract 2 tens from 3 tens;1 ten will be left. Hence the answer is 18.



4. To solve 53 – 17, do the following steps:

a. Subtract units first;

b. Borrow 1 ten from tens if needed and convert it into units. Since 3 is smaller than 7, so borrow 1 ten (10 units) so units will become 13 and tens will become 4.

c. Subtract units from units and tens from tens i.e. 7 from 13 units and 1 from 4 tens. The difference is 36.

5. Word problems are generally difficult for your students. Understanding a word problem is the first step in solving it. Help your students understand the word problems in detail.

6. Practice problem solving daily by simply asking more questions. For example: How many students are enrolled? How many are absent? So how many are present? We had 10 marbles, but now we only have 3. How many did we take away? How many birds in this picture?

CONCEPT 3: MULTIPLICATION

Curricular reference	Multiply numbers within multiplication table (p. 16)
Textbook reference	Pp. 71 – 82
What does the assessment data tell us?	Multiplication of one-digit numbers: 54% answeredcorrectly.

Tips for the teachers

1. Use repeated addition with real objects to introduce the concept of multiplication,for example:

   - Ask: how many shoes are in there in a pair? (2)
   - Ask: how many shoes are there in five pair of shoes?
     Then have one of the students come up on the board and write 2+2+2+2+2= 10
   - Ask other students: Is this correct? If yes, why?
   - Tell them that this could also be written as 2 times 5 = 10, gradually replace *times* with the sign for multiplication.
   - Repeat similar examples to reinforce the concept of multiplication as repeated addition

2. To help students solve multiplication problems, make them learn the multiplication tables by heart. Please remember that the multiplication tables should not be committed to memory before clarifying the concepts.

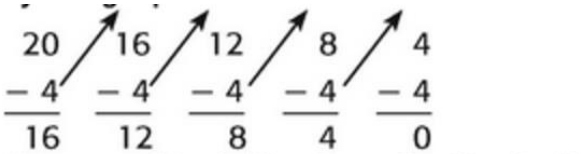
CONCEPT 4: DIVISION

Curricular reference	Divide numbers within multiplication table with remainder zero (p. 16)
Textbook reference	Pp. 86 – 88
What does the assessment data tell us?	Division of one-digit numbers: 48% answered correctly.

Tips for the teachers

1. For teaching the concept of division, explain the students that division means 'sharing equally', practice by sharing pencils/papers/sweets equally among students.

2. Help students understand that division is repeated subtractioni.e. how many times we can subtract a number from another larger number. For example, how many times can you take away4from 20? (see the illustration below)



Four was subtracted five times. So, 20 ÷ 4 = 5.

3. To reinforce division, make students practice the concept of repeated subtraction and introduce division sign. For example, How many sets of 3 can we subtract from 12 to get 0 or12÷3=4.

CONCEPT 5: FRACTIONS:

Curricular reference	Recognize proper fractions and represent in numerical form (p. 14)
Textbook reference	Pp. 31 – 39
What does the assessment data tell us?	• Identification of fractional number that matches the shaded • Portion:52%answered correctly.

Tips for the teachers

1. To help students understandfractions,show them a paper, fold it and cut into halves. Show them the half of it and introduce term half.

2. Show an apple to your students. Tell them you have only one apple; ask them how much of it you should eat today, *half* (*one of two equal parts*) or *fourth* (*one of four equal* parts).

   - Now ask them how you should you divide it in half (*cut in the middle*).
   - Then ask them how to divide it in four equal parts.
   - After this ask them to draw a circle and divide it in half now by drawing a line. Now divide it in four equal parts by drawing another line.
   - Reinforce the idea that:
     - Each *half* is one out of *two equal parts.* Write it as ½
     - Each *fourth* is one out of *three equal parts.* Write it as ¼
   - Introduce and practice other simple fractions.

3. Reinforce the concept of half. Draw circle/square/triangle on board, colour half of each shape and say that this is ½ (half).

4. Inform the students that fraction is written as 2 numbers , separated by a line segment. The number written below the line segment shows total number of equal parts and called denominator. The number written above the line segment represents parts taken and called numerator.

5. Repeat the terms numerator and denominator to make students learn.

CONCEPT 6: GEOMETRY:

Curricular reference	Identify the figures like square, rectangle, triangle, circle, semi-circle and quarter-circle (p. 17)
Textbook reference	Pp. 111 – 116
What does the assessment data tell us?	Identification of shape: 57% answered correctly.

Tips for the teachers

1. Recall basic shapes learnt in earlier classes. Provide cut outs of different shapes in groups and ask students to identify shapes on the basis of sides, corners and shape.Ask them to group similar shapes and paste them on a chart paper.

    - A triangle has 3 corners and three sides.
    - A square and rectangle have four corners and four sides.
    - A circle has no corners.

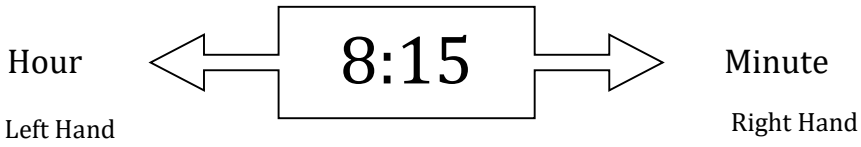
2. Always relate Math with the real life situation. Ask students to identify things in the classroom or at home which have different shapes like rectangle, triangle and square.

CONCEPT 7: TIME

Curricular reference	Read and write the time from a clock in hours and minutes (with 5 minutes interval) e.g; 8:15 as eight fifteen and 8:50 as eight fifty. Page # 17
Textbook reference	Pp. 101 - 106
What does the assessment data tell us?	Identification of half past: 51% answered correctly.

Tips for the teachers

1. Ask the students to identify the two arms of the clock (big and small).
2. Tell them the functions of big and small arm of the clock.
   Big arm is used for hour and small is used for minutes.
3. Recall the table of 5.
4. Practice reading the clock with different time by using the table of 5.
5. Draw the format of writing time on the board and make them practice.



CONCEPT 8: MEASUREMENT (LENGTH, WEIGHT, CAPACITY)

Curricular reference	Solve real life problem involving measurement (length, weight, capacity). Page No. 16-17
Textbook reference	Pp. No 97 – 99
What does the assessment data tell us?	Identification of scale for length correctly attempted by 67% of students, 63% students attempted weight correctly and only 37% students correctly attempted capacity.

Tips for the teachers

1. Recall the units for the following measurement with the students:
    a. For length we used meter, centimetre
    b. For weight we used kilogram, gram
    c. For capacity we used litre, millilitre
2. Give different things. e.g: Book, copy, pencil, sharpener and ask thestudents to measure its length by using ruler or measuring tape. Note different readings. Help during the measurement, if required.
3. Bring two bags (one light and other heavy) infront of class and ask thestudents which bag has more weight. Let the students lift the bags and compare their weights to identify heavy and light. Repeat the same with other objects.
4. Show different objects e.g; jug, cup, glass and then ask them to compare which has more capacity. Take different opinions from the class. Now fill one of the containers with water/sand/rice and compare the capacity of other containers. Repeat it with different containers to clear the concept.

Mathematics

Class 5

CLASS 5

CONCEPT 1: ORDER OF OPERATIONS

Curricular reference	Carryout combined operations using BODMAS rule (p.32)
Textbook reference	Pp. 21 – 24, 56 - 57
What does the assessment data tell us?	• Solving an equation using order of operations only 29% answered correctly • Identify the order of operations: 43% answered correctly

Tips for the teachers

1. For simplification, begin with two operations only ($3 \times 4 + 5$).
2. Let the studentssolve the given sum themselves independently. Some may multiply first then add the number whereas some may add first then multiply. In both cases, the answer will be different.
3. Inform the students that in order to bring uniformity in the process, we perform operation in a specific direction.
4. Introduce the method to solve problems with multiple operations; DMAS i.e. Divide, Multiply, Addition and Subtraction.
5. Application of DMAS requires practice. Give your students more practice.
6. Introduce brackets and inform the students that when brackets are given, then they will be solved first. Use BODMAS to help them learn the method.

CONCEPT 2: WORD PROBLEMS/ UNITARY METHOD

Curricular reference	Calculate the value of a number of same type of objects when the value of another of the same type is given (unitary method) (p. 35)
Textbook reference	Pp. 111 – 120
What does the assessment data tell us?	Calculating the price of a set of items using unitary method: 48% answered correctly

Tips for the teachers

1. To introduce the concept of unitary method, help students use real life examples to calculate unit cost of different objects verbally like 5 pencils cost 60,what is the cost of 1 pencil?

2. In Unitary method finding cost of many is always solved by multiplication and cost of one is always calculated by division. If question says cost of 6 books is 450 what is the cost of 20 books? Here students will first find the cost of one book by division 450/6=75. For cost of 20 books, students will multiply 75×20=1500.

3. Ask students to create word problem of their own and ask each other to solve.

CONCEPT 3: PRIME AND COMPOSITE NUMBERS

Curricular reference	Define and differentiate between prime and composite numbers (p. 25)
Textbook reference	Pp. n/a
What does the assessment data tell us?	Characteristics of prime and composite numbers: 27% answered correctly

Tips for the teachers

1. Introduce prime numbers to the students as the numbers that are divisible by the same number only and composite numbers as the numbers that can be divided by other numbers also.

2. Recall divisibility rules of 2, 3,4, 5, 6, 8, 10,11 and 12 and ask students to use the rule and identify prime and composite numbers.

3. Reinforce the concept of prime and composite numbers, ask students to write numbers 1-100 in square line paper; circle the prime numbers and shade the composite numbers. Ask them to justify the prime numbers circled by them.

4. Pick a number like 81 and ask why this number is not a prime number. Let the students recall times tables to give justification for various numbers.

CONCEPT 4: HIGHEST COMMON FACTOR (HCF) AND LEAST COMMON MULTIPLE (LCM)

Curricular reference	Find HCF of three numbers, up to 2 digits, using prime factorization and division methods; Find LCM of four numbers, up to 2 digits, using prime factorization and division methods (pp. 32-33)
Textbook reference	Pp. 25 – 38
What does the assessment data tell us?	• Identification of LCM of given numbers: 56% answered correctly • Identification of HCF of given numbers: 29% answered correctly

Tips for the teachers

1. Introduce the concept of factor and multiple by explaining that multiple is the product of two numbers and factor is a divisor, hence 6 is the multiple of 2 and 3 whereas 2 and 3 are factors of 6.

2. To reinforce the concept of factors and multiples, provide different numbers and ask the students to find their factors and multiples.

3. Write anytwo numbers on the board, ask students to find multiples of both numbers. Circlecommon multiples and introduce LCM byidentifyingLeast Common Multiple of both the numbers.

4. Write any two numbers on the board, ask students to find factors of both numbers, circle common factors and introduce HCF by identifying Highest Common Factor of both the numbers.

5. Write vocabulary related to HCF and LCM on flash cards and place them around the blackboard to reinforce the concept such as multiple, least common multiple, factors and highest common factors.

CONCEPT 5: EQUIVALENT FRACTIONS AND SIMPLIFICATION OF FRACTIONS

Curricular reference	Compare two unlike fractions by converting them to equivalent fractions with the same denominator; Simplify fractions to their lowest form (p. 25-26)
Textbook reference	Pp. 40 – 45
What does the assessment data tell us?	• Finding fractions in simplest form: 45% answered correctly • Making equivalent fractions: 34% answered correctly

Tips for the teachers

1. Concept of 1 whole is to be given thoroughly. 1 whole is equal to 2 halves, 3 thirds, 4 quarters and so on.

1 whole			
1/2		1/2	
1/3	1/3		1/3
1/4	1/4	1/4	1/4

2. Students should know that a person eating 4 quarters of a '**Naan'** and1 '**Naan'** is eating the same quantity.

3. Students can convert simple fraction to equivalent just by multiplying the numerator and denominator with same number. Equivalent fraction of $\frac{2\times 4}{3\times 4}=\frac{8}{12}$.

4. Fraction can be simplified if you divide the numerator and denominator with the same factor. $\frac{24\div 12}{36\div 12}=\frac{2}{3}$ ~~Practice makes students perfect.~~ Encourage students to take the HCF of the given fraction to divide and simplify.

5. Vocabulary related to fractions should be placed around the board.

CONCEPT 6: TYPES OF FRACTIONS

Curricular reference	Identify unit, proper, improper and mixed fractions; Convert improper fraction to mixed fraction and vice-versa (p. 27)
Textbook reference	Pp. 40– 50
What does the assessment data tell us?	• Recognition of improper fraction: 45% answered correctly • Drawing fractions (proper, mixed and improper): 24% answered correctly

Tips for the teachers

1. Before teaching the types of fractions, reinforce the concept of fraction by giving different fractional numbers to students and ask them to represent them by drawing pictures.

2. Explain the three types of fractions; proper fraction (with greater denominator), improper fraction (with greater numerator) and mixed fraction (with whole number and proper fraction).

3. Emphasize that the numerator in proper fractions is less than the denominator such as ¼, 3/8,and 4/5. Use papers to make different proper fractions or show pictorially.

4. To represent improper fraction graphically in which numerator is greater than a denominator e.g. 5/4, make 2 wholes with 4 quarters each. Take 4 quarters from one whole and 5^{th} quarter from other whole.

5. To represent mixed fractions graphically (2 ¼), askstudentstodraw2 whole number first and then the given proper fraction ¼.The total parts remain same as given in the denominator of proper fraction.

CONCEPT 7: ADDITION AND SUBTRACTION OF FRACTION

Curricular reference	Add and subtract two and more fractions with different denominators (p.33)
Textbook reference	Pp. 40 – 46
What does the assessment data tell us?	• Addition of fractions: 46% answered correctly • Subtraction of fractions: 51% answered correctly

Tips for the teachers

1. Always teach addition of fractions with same denominators through material or pictures.

2. To add 1/5 and 2/5, make 2 fractions on 2 different papers and place them together, let the students count how many fifths are there altogether? (3 fifths)Explain them 1/5 + 2/5 = 3/5

3. For teaching addition of mixed fraction, add whole numbers first and then proper fraction. For2 ¼ + 1 ¼, add whole numbers 2 + 1 = 3; then proper fraction¼ + ¼ = 2/4.Add them together 3 2/4 or 3 ½.

4. To teach addition of fraction with different denominators, use equivalent fraction to make denominator same. Here $\frac{1}{3}+\frac{3}{4}$ will become $\frac{1\times4}{3\times4}+\frac{3\times3}{4\times3}=\frac{4}{12}+\frac{9}{12}=\frac{4+9}{12}=\frac{13}{12}$

5. Repeat the following steps:
   - Find the denominator of the fraction.
   - Find the least common multiple (LCM) of the denominator.
   - Make the numerator of the fraction match their new denominators.
   - Write the new numerator over the lowest common denominator.
   - Add the numerator.
   - Simplify your answer.

6. For mixed fraction with different denominators, add whole numbers and proper fractions separately. For $2\frac{2}{3}+3\frac{1}{5}$, add wholes 2+3=5 then proper fractions using

equivalent fraction; $\frac{2\times5}{3\times5}+\frac{1\times3}{5\times3}=\frac{10+3}{15}=\frac{13}{15}$ then add whole numbers to it, so it will be $5\frac{13}{15}$.

7. For adding/subtractingmixedfractions, follow the steps given below:
   a) Convert to improper fraction.
   b) Take LCM.
   c) Make equivalent fractions.
   d) Solve numerators.
   e) Write as simplified form.
8. To add mixed fractions, follow the steps given below:
   a) Add whole numbers
   b) Make equivalent fractions of proper fraction.
   c) Solve numerators.
   d) Make its simplified form
   e) Add whole numbers with fractions.

CONCEPT 8: MULTIPLICATION AND DIVISION OF FRACTION

Curricular reference	Multiply a fraction by another fraction; Divide a fraction by a number; Divide a fraction by another fraction (proper, improper and mixed) (p. 33)
Textbook reference	Pp. 47 – 59
What does the assessment data tell us?	• Multiplication of fractions: 25% answered correctly • Division in fractions: 41% answered correctly

Tips for the teachers

1. Explain multiplication of fraction by using the term "of". Ask students to show you half of half (½ of ½) of a paper. This is one quarter. Replace word "of" with sign of multiplication, ½ x ½ = ¼

2. For teaching multiplication of fraction, tell students to multiply numerator by numerators and denominators with denominators. The last fraction should always be in simplified form.

3. To teach division of fraction, first introduce pictorial representation with the concept of how many. After this introduce conventional method of using reciprocal and multiplication.

4. To teach division of fraction, help students to understand the concept of how many. Use example of how many halves are there in a whole? (2) How many quarters are there in 2 wholes? (8). So 1 ÷ ½ = 2 and 2 ÷ ¼ = 8

5. Explain that in conventional method of division in fraction,weuse reciprocal of the fraction after the division sign and change division into multiplication. The sum 2 ÷ ¼ , will be solved as 2 x 4/1 = 8.

6. To simplify a given fraction, fractions, explain that numerators and denominators can be divided by same number both vertically and diagonally. And to multiply, we use either numerators or denominators.

CONCEPT 9: DECIMAL FRACTIONS

Curricular reference	Add and subtract decimals (p. 33)
Textbook reference	Pp. 61– 69
What does the assessment data tell us?	• Conversion of fraction to decimal: 42% answered correctly • Adding decimal fractions: 30% answered correctly • Subtracting decimal fractions: 45% answered correctly

Tips for the teachers

1. For teaching the concept of decimals, introduce decimal place values to the students i.e. ones, tenth, hundredths, thousandth.

2. To reinforce the concept of place value in decimal, tell students place value of a number in a jumbled form and ask them to make a decimal number. Example: 4 units, 0 hundredth, 5 tenth and 1 thousandth is 4.501.

3. Explain students that in addition or subtraction of decimal numbers, alignment of writing numbers under the fixed place value positions is essential.

CONCEPT 10: MULTIPLICATION OF DECIMALS

Curricular reference	Multiply a decimal by a decimal (p. 34)
Textbook reference	Pp. 71
What does the assessment data tell us?	Finding product of two numbers with decimals: 29% answeredcorrectly

Tip for the teachers

1. While teaching multiplication of decimals, inform students that we first multiply the digits by using tables, then count the decimal places in the question and place the decimal accordingly.

2. Line up the numbers on the right, do not align the decimal point,

Example: 0.2×1.04

Consider both numbers as whole numbers so it will be 2x104=208

Now count total number of decimal (0.2 x 1.04, three places)

From right hand side, count 3 places and insert decimal. The final answer will be 0.208

Now give them the following and ask them to multiply using the same method.

a. 0.4 × 0.8

b. 0.7× 1.1

c. 0.02 × 0.9

d. 0.02× 0.05

e. 0.002×9

f. 1.1×0.3

g. 2.1× 0.2×05

h. 0.4× 4×0.2

i. 6×0.06×02

CONCEPT 11: TYPES OF ANGLES

Curricular reference	Recall an angle and recognize acute, right, obtuse, straight and reflex angle; (p. 36)
Textbook reference	Pp. 124 – 126
What does the assessment data tell us?	Identification of acute and obtuse angles: 33% answered correctly

Tips for the teachers

1. Before teaching types of angles, explain that an angle is formed when two lines share a common point.
2. For teaching angles, cut 2 strips of papers, join them at one point with thumb pin to place it on a table. Move one arm to show acute angle, right angle, obtuse angle.
3. The vocabulary for 'types of angles' can be retained byplacing the important terms around the board.
4. To help students understand angles, ask them to find angle around the school or home. (For example, angles between the fan's blades, angles in the door frame.)
5. Explain the concept of angles to the students by telling them that angle means "turn". Show students examples of angles in the real life objects, such as the right angles in the corner of the rooms and on the blackboard.

CONCEPT 12: PERIMETER AND AREA

Curricular reference	Differentiate between perimeter and area of a region; Identify the units for measurement of perimeter and area; Solve appropriate problems of perimeter and area (p. 37)
Textbook reference	Pp. 151 – 159
What does the assessment data tell us?	Calculate area/perimeter: 28% answered correctly

Tips for the teachers

1. Explain the concept of 'Area'as the covered surface and'Perimeter'as the boundary.
2. Draw any shape on the board, divide it into small equal size squares and ask students to count the squares that have covered the surface area. Let the students count and tell you the number of squares.
3. Explain that each square is of 1 centimetre in length and we measure area in square centimetre.
4. Provide square line papers or use students' square line copies; ask the students to draw any shape on the paper and then count the number of squares in it. They can also trace their hand span and count the area.
5. Draw a rectangle with a length of 6 cm and breadth 2 cm. Ask students to estimate its area. Note their responses. Now draw the squares (1 cm each) in the rectangle by using ruler. There will be 12 square centimetre. Appreciate the students with closer estimation.
6. Now measure the length and breadth of the rectangle in front of the students, which is 6cm and 2 cm.Explain tothe students that area of a rectangle can also be measured by multiplying length and breadth. The unit of area is square centimetre, but it can also be measures in metre, feet or yards.
7. Provide them different measurement (length and breadth) to calculate area.
8. Teach students that for perimeter, we need to add the length of all sides (boundary) of a shape. Take the example of rectangle with length of 6 cm and breadth of 2 cm; add all the lengths i.e. 6 + 2 + 6 + 2 = 16 cm. The unit of perimeter is centimetre.
9. This is also equal to 6 + 6 + 2 + 2 or 2 length + 2 breadth or 2 (length + breadth).
10. Provide them different measurement (length and breadth) to calculate perimeter.
11. To reinforce the concept, encourage students to find area and perimeter in their surrounding like perimeter of tables or area covered by the cover page of their math book.

CONCEPT 13: HCF

Curricular reference	Find HCF of three numbers, up to 2 digits, using + prime factorization method, + division method (Pg# 32)
Textbook reference	Pp. 26 - 35
What does the assessment data tell us?	Finding HCF of 3 numbers by division method: 23% answered correctly

Tips for the teachers

1. Review times tables and concept of prime and composite numbers given as Concept 3 on page number 22.
2. Recall concept of factors and multiples given in concept 4 (HCF and LCM) on page 23.
3. Introduce methods of finding HCF as given below:

Method 1.

1. Ask students to find all factors of following numbers:
2. 18 and 12
3. Factors of 12= 1,2,3,4,6,12
4. Factors of 18= 1,2,3,6,9,18
5. Make loops to find common factors:
6. Common factors: 1.2.3.6
7. Now find highest common factor:

   HCF=6

Method 2:

Factorize 12 and 18 together using prime factorization till the common factors are available.

HCF = 2x3=6

2	12,18
3	6, 9
	2, 3

Method3

1. Write following 2-digit numbers on writing board:

   6, 12, 20

2. Find the greatest number.

   (20)

3. Divide the greatest number by the smallest one.

   6) 20 (

4. Then divide the third number with the remainder of first division, till you get zero as remainder.

   6) 20 (3

   18

   2) 12 (6

   12

   0

   The highest common factor is 2.

CONCEPT 14: PERIMETER AND AREA

Curricular reference	Identify the units for measurement of perimeter and area (Pg# 3)
Textbook reference	Pp. 151- 159
What does the assessment data tell us?	Identification of perimeter and sauare : 26% answered correctly

Tips for the teachers

1. Recall student prior knowledge about unit of length.
2. Recall concept of area and perimeter given in Concept 12, page number 32.
3. Explain thanperimeter is one dimensional and is measured in linear units such as centimetre, feet or meter. Area is two dimensional it has a length and a width.Area is measured in square units like square feet or square meter".

Example:

i. If Length is in Meter ➔ then perimeter is in meter.

ii. If Length is in Centimetre ➔ then perimeter is in centimetre.

iii. If Length is in Centimetre ➔ then area is in square centimetre.

iv. If Length is in Meter ➔ then area is in square meter

4. Practice on different value to find its unit in perimeter and area

i. 4m , 6m

ii. 10cm, 14cm

iii. 2mm, 4mm

5. To improve the vocabulary related to perimeter and area, the teachers should ask the students to repeat their unit in full whenever they are measured.

CONCEPT 15: BODMAS

Curricular reference	Recognize BODMAS rule, using only parentheses ( ) (Pg#. 32)
Textbook reference	Pp. 22 - 23
What does the assessment data tell us?	BODMAS rule: 32% answered correctly

Tips for the teachers

1. Write the abbreviation of BODMAS on the side of board. Explain students to use the same sequence.

2. Recall the BODMAS rule, if an expression contains bracket. $\left(( ), \{ \}, [ ]\right)$, we haveto first solve or simplify the bracket followed bydivision, multiplication, addition and subtraction from left to right – wrong order will result in a wrong answer.

3. Give this sum to students to solve. 2+(6÷3)×5-2. Now compare students answers.Students who use the correct order will get the correct answer.

   2+(6 ÷ 3) × 5-2

   Solve the bracket first:

   2 + 2 x 5 – 2

   Recall DMAS; so solve Multiplication first:

   2 + 10 – 2

   Then Addition

   12 – 2

   Then subtraction

   10

4. Write this table on writing board and assign every student to complete the following task in which they will explain process that How L.H.S = R.H.S.

Condition	Explain process L.H.S = R.H.S
$x+\left(y+z\right)=x+y+z$	
$x-\left(y+z\right)=x-y-z$	
$x\left(y+z\right)=xy+xz$	

CONCEPT 16: MULTIPLICATION IN FRACTION USING BRACKETS

Curricular reference	Multiply two or more fraction involving brackets (proper, improper, and mixed fractions) (Pg#. 33)
Textbook reference	Pp. 47 - 53
What does the assessment data tell us?	31% answered correctly the concept

Tips for the teachers

1. Recall BODMAS rule
2. Now write the sum and ask what strategy they might use to solve. $2\left(\frac{5}{2}\times\frac{8}{16}\right)$
3. Inform that we divide denominators and numerators by same number. Once it cannot be divided further, multiplity numerator with numerator and denominator with denominator.
4. Reinforce the concept of order of operation. For solving bracket first, method of simplification will be used. As 2 and 8 have common factor 2 so it will be simplified first.
5. The remaining numerators and denominators will be multiplied together, then multiplied by 2 which is outside the bracket.
6. Solve the given sum step by step: $2\left(\frac{5}{2}\times\frac{8}{16}\right)$.
7. Multiply the two improper fractions with condition of bracket placement.

$$2(\frac{5}{4})$$

- Multiply the answer (5/4) with number given outside the bracket (2)
- Convert your answer to a mixed number.

$$\frac{5}{2} = 2\frac{1}{2}$$

CONCEPT 17: PERCENTAGE

Curricular reference	Convert percentage to fraction and to decimal and vice versaPg#. 34
Textbook reference	Pp. 61 - 72
What does the assessment data tell us?	31.9% answered the concept correctly

Tips for the teachers

1. Ask students how many decimal places are in 0.75 (2)
2. How can you convert it in percentage (Multiply by 100 i.e. 0.75 x 100=75%) Practice for more sums of similar type.
3. How can you write in fraction 75/100 as simplified fraction (3/4). Practice for more sums of similar type.
4. How can you convert fraction into decimal e.g.2/5 (by dividing =0.4) Practice for more sums of similar type.
5. How can you convert fraction into percentage (x by 100 so 2/5 x 100=40%) Practice for more sums of similar type.
6. Draw the following table on board.

6.1. Solve the missing value in the table

Fraction	Decimal	Percentage
	0.7	
		26%
$\frac{3}{4}$		
	0.90	
		65%

6.2. Help the students to complete this task.

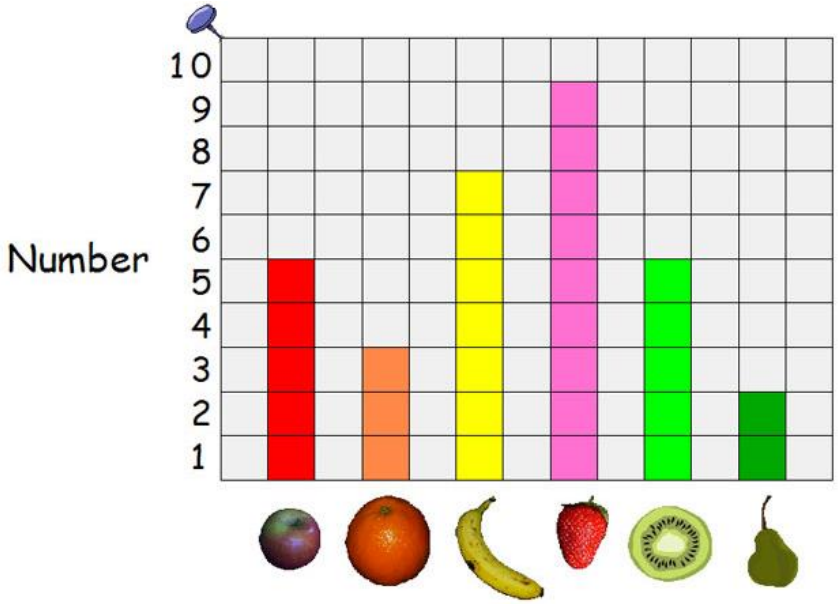
6.3. While completing the task teacher should facilitate putting the formula on the writing board.

CONCEPT 18: BAR GRAPH

Curricular reference	Interpret a simple bar graph given in horizontal and vertical form (Pg#. 37).
Textbook reference	Pp. 168 - 171
What does the assessment data tell us?	31% answered correctly the concept of

Tips for the teachers

1. Ask students about the name of their favourite fruit.
2. List their names against each fruit as shown in the picture.
3. Plot bar graph and ask the questions that help students interpret the graph such as:
    - How many students like banana?
    - Which fruit is liked by most of the students?
    - How many more students like apple than pear?



4. Reinforcethe scale and values on axis.
5. Ask the students to collect data about their favourite dish/ colour/ game from the class and plot bar graph on square paper.
6. Provide them some bar graphs and ask students to interpret it.

English

Class 2

ENGLISH

CLASS 2

CONCEPT 1: LETTER RECOGNITION AND ALPHABETICAL ORDER

Curricular reference	Competency 1, benchmark 1, standard IV (p. 25)
Textbook reference	Pp. 5 - 6
What does the assessment data tell us?	Recognition of capital and lower case letters: 72% on average answered correctly

Tips for the teachers

1. Reinforce letter names and sounds through words beginning with those letter and sounds such as A/a/apple, B/b ball. Use flashcards or write the capital and small letters on the black board. Point and say A /a/ -apple, B /b/ - ball.
2. Two letters or more a day can be reinforced depending upon the response of students and pace of curriculum.
3. For helping students recognize letters, make them practice writing the letters on the board, floor, wet or dry sand or paper.
4. Practice sequencing letters in alphabetical order by drilling the sequence using the letters from Aa-Zz written on the board or through the alphabet song 'ABC'.
5. Play letter sequencing games. Make flash cards of all 26 letters, ask students to hold one card each and stand in alphabetical order.

CONCEPT 2: SPELLING/PHONICS

Curricular reference	Competency 1, benchmark 1, standard I (p. 22) Competency 4, benchmark 1, standard I (pp. 31 - 32)
Textbook reference	Pp. 4-10, 21,36
What do students know well?	Spelling of three, four, five letter words: 64% on average answered incorrectly

Tips for the teachers

1. Reinforce letter names and sounds through a daily drill using flashcards e.g. say A/a/ arrow, B /b/ bag etc. Two letters or more a day can be reinforced depending upon the response of students and pace of curriculum.
2. To practice identification of sounds in a word, write a three letter word such as Rat and circle the beginning sound i.e. R (rrr). Once students have understood the concept repeat the same for the ending sound i.e. T and then middle sound i.e. A. Students can later be made to practice writing beginning/ending or middle sound in a word.
3. Practice breaking words into sounds (syllables). Instruct students to clap for each syllable e.g. Table: ta-ble (clap twice).
4. To help students recognize letters in a word, break words into segments showing a finger or a counter for each sound e.g. /b/ /a/ /g/ bag or /l/ /a/ /p/ lap etc..
5. Practice blending sounds to make words.
6. Assign a word for a day to learn the spelling (both for home and school). The word can be called 'Word of the day'. Tell the meaning of the word and use it in a sentence for better understanding. After five words take a spell drill.
7. Discover Spelling Patterns
   Tell the children that thinking about what a word looks like is a useful spelling strategy, so you are going to explore some common spelling patterns together. For example, look for and list words with ea, such as: bead, bread, dead, great, read, treat, break.
8. Play spelling games such Sad man – Guessing the word by suggesting 10 letters. Each incorrect letter will be marked by drawing a feature of a Sad man.

CONCEPT 3: COMPREHENSION

Curricular reference	Competency 1, benchmark 1, standard 2 (p. 23)
Textbook reference	Pp. 58, 68, 78, 96
What does the assessment data tell us?	Answering questions from a given paragraph: 57% answered correctly

Tips for the teachers

1. To improve reading comprehension, ensure that children have phonemic awareness, letter – sound relationship and vocabulary, phonics.
2. Motivate students through activities that may increase their interest (book talks, dramatic readings, or displays of art related to the text), making the text relevant to students in some way.
3. Stimulate students' background knowledge important to the content of the text by discussing what students will read and what they already know about its topic and about the text organization.
4. Introduce new vocabulary related to specific topics by asking students to find out meaning of difficult words and using them in sentences. This will help improve their understanding of the comprehension passage.
5. Let the students read the paragraph and make meaning for themselves.
6. Ask questions that keep students on track and focus their attention on main ideas and important points in the text.
7. Ask students to recall and tell in their own words important parts of the text.
8. Check understanding by paraphrasing or restating important and/or difficult sentences and paragraphs.
9. Offer students opportunities to respond to the reading in various ways, including through discussion, writing or dramatic play.
10. Practice comprehension on weekly basis.

CONCEPT 4: PRONOUNS

Curricular reference	Competency 4, benchmark 3, standard I (p. 35)
Textbook reference	pp. 28-29
What does the assessment data tell us?	Identify pronouns "he and she": 66% answered correctly

Tips for the teachers

1. Explain to the students that 'Pronouns' are the words which are used in place of nouns.
   E.g. Irum likes to read books. → She has many books.
   Here, Irum has been replaced by 'She' which is a pronoun.

2. *WRITE SENTENCES ON THE BLACKBOARD AND READ THEM OUT.*

   Irumbrings fruits to eat. → She likes apples.
   Akram is fond of cats. → Hehas many cats.

   EXPLAIN: IRUM IS REPLACED BY "SHE". AKRAM IS REPLACED BY "HE." HE AND SHE ARE PRONOUNS WE USE THEM IN PLACE OF NOUNS.

3. Write the sentences on the blackboard and ask students to circle the pronouns.
   Sairareads all the time → She loves reading.
   Now write the following sentences and ask students to fill in the blanks with the correct pronoun:
   Omar has a grey cat. → _____ plays with it every day.
   Repeat such examples for a week.

4. Explain the pronouns in which the students are facing difficulty such as 'it'. Explain: Pencil is replaced by "it." It is also a pronoun, used in place of things or animals.
   The pencil is very short. → It is blue in colour.

5. Make the students practice the use of pronoun'it'. Write sentences on the board and ask students to fill in the preposition 'it' replacing a noun.
   The book is heavy. → _____ has many pages.
   The dog is hungry. → _____needs food.
6. Give the students more sentence to fill in using pronouns he, she, it. Have them write the answers in their note books.

CONCEPT 5: MASCULINE / FEMININE

Curricular reference	Competency 4, benchmark 3, standard I (p. 34)
Textbook reference	Pp. 24- 25
What does the assessment data tell us?	Writing feminine word for masculine word: 41% answered correctly

Tips for the teachers

1. Explain the term masculine / feminine. Masculine means having characteristics/qualities that are traditionally thought to be typical of or suitable for men, while feminine is having characteristics/qualities that are traditionally thought to be typical of or suitable for a woman. Give examples of masculine/ feminine words from the children's family e.g. father - mother, brother – sister , Uncle – Aunt etc.
2. To improve students' concept and vocabulary for masculine/ feminine words give examples of masculine / feminine animals such as lion- lioness, as part of gradual learning, examples from different profession can also be given such as policeman-policewoman etc. Pictures at this stage would prove as a good learning source for students of this grade.
3. Write masculine/ feminine words on the board and make students practice it.
4. Tell students to bring pairs of masculine/ feminine words from home and add those in the word bank. Play vocabulary games – such as finding and / or matching masculine/ feminine words from that word bank.
5. Prepare a family tree with a list of masculine/ feminine nouns e.g. mother – father

CONCEPT 6: PREPOSITIONS

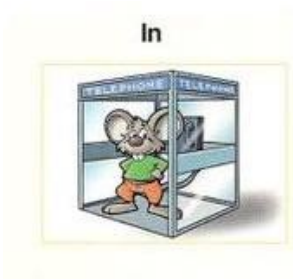
Curricular reference	Competency 4, benchmark 3, standard I (p. 35)
Textbook reference	Pp. 94 – 96
What does the assessment data tell us?	For some prepositions only 27% answered correctly

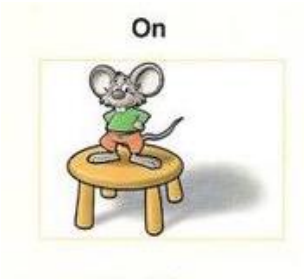
Tips for the teachers

1. Check understanding of the prepositions by asking students to describe the positions of objects kept in the classroom such as "Bag on the desk", "Books in the bag." Tell students that 'Prepositions are words that describe the position of an object/ animal or person'.
2. Guide students to find objects kept on specific positions or using pictures of objects kept in specific positions. e.g. The bottle is under the table.
3. Give instructions using the prepositions and ask students to follow them e.g. Keep the bag on the desk. Write with colour pencil.
4. Play games like treasure hunt hiding objects and ask students to follow written instructions with prepositions leading to the treasure .e.g. look for the next clue under the table.
5. Lead the students towards practice and ask them to make sentences using pictures like the ones below:

The mouse is ____ the booth.

The mouse is ____ the stool.





CONCEPT 7: VERBS – PRESENT CONTINUOUS TENSE

Curricular reference	Competency 4, benchmark 3, standard I (p. 35)
Textbook reference	Pp. 15 – 21
What does the assessment data tell us?	Identifying correct present continuous verb in the textbook: 68% answered correctly

Tips for the teachers

1. Introduce the term verbs as action words by doing some actions and asking the students to name them.
2. The concept and definition of verb as action word is a primal and basic definition to learn at first. The progressive/continuous form of verb should then be taught by linking it with the current time of speaking.
3. Perform some simple actions (clap, read, speak, and throw) and ask the students: What am I doing? Reinforce that the actions which are happening at time of speaking are present continuous tense such as clapping, running etc.
4. Show pictures from magazines/ calendars or newspapers and ask the students to describe them using present continuous tense. Give examples such as the girl is sitting, the boy is running etc.
5. Paste a picture on the board. Write a sentence describing the action in the picture but leave a blank space for the present continuous tense verb. Ask the students to write the correct verb to fill in the blanks.

CONCEPT 8: PICTURE DESCRIPTION

Curricular reference	Competency 2, benchmark 1, standard I (p. 27)
Textbook reference	Pp. 68, 75
What does the assessment data tell us?	Describing picture: 27% were able to write relevant sentences and 22% used appropriate sentence structure

Tips for the teachers

1. Fix 5 minutes for Show and Tell activity.Assign one student each day to bring any object or picture in the class and describe in front of the whole class.
2. Example: If a student brings a plate; he may describe as
   - This is a plate.
3. Let the students start by using "This is……" sentence. Gradually add more sentences in their description such as:
   - This is a plate.
   - Its colour is green.
   - We serve food in it.
4. Do a daily drill of the sentence structures. Add new structures as soon as the previous is understood and learnt.
5. Make the students practice arranging jumbled up words to form sentences.
   Example : is a This ball
   This is a ball.
6. Give guided practice of forming sentence, by choosing words from a table to form sentences e.g.

	Writes		pen.
He	Draws	with the	pencil.

7. Picture description can be stated as a visual representation of something, such as a person or scene, as shown in a photograph or painting,
8. Show a picture to the students and instruct them to name the objects as shown in the picture, hence enhancing students' vocabulary and word bank.

9. Make a vocabulary web around objects/ pictures, as shown in the image below, to be described on the board with the help of the students.

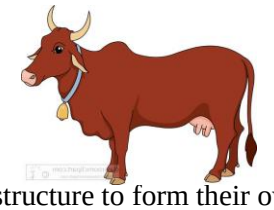
cow brown

milk legs

farm field

tail

10. Provide students with the sentence structures to be used for describing the pictures such as



This is a _____.
It has _____
Its colour is _____.
It gives _____.
Students can initially copy, later use the sentence structure to form their own sentences.

CONCEPT 9: SINGULAR AND PLURAL

Curricular reference	Competency 4, Standard 3; identify and change the number of naming words by adding or removing s and es. (Page No 34)
Textbook reference	Page No 39
What do students know well?	51% students were able to make plurals of the given words.

Tips for the teachers

1. Ask students to touch different parts of their body and ask questions like;
   - How many eyes / ears / hands / legs / nose / fingers do you have? Write their responses on the board.
2. Point to different objects in the classroom and ask questions like;
   - How many chairs / tables / boys / girls / fans etc are there in the class? Write their responses on the board.
3. Explain that a single (one) object / person / place is called singular noun and more than one (1) object / persons / places are called plural noun.
4. One can change singular noun into plural by adding (s) or (es) at the end of most nouns. Such as ear, ears, bed, bed, glass, glasses etc…..

English

Class 5

CLASS 5

CONCEPT 1: TYPES OF NOUNS

Curricular reference	Competency 4, benchmark 3, standard I (p. 56)
Textbook reference	Pp. 6 - 12
What does the assessment data tell us?	Type of noun : only 44% answered correctly

Tips for the teachers

1. Point out different objects in the classroom and ask students to name these objects.
    a. Explain themthatevery object, place and animal has a name. These naming words are called nouns.
2. On the board write people, place, thing and animal in four sections and ask students to name as many as they can.
3. Show pictures such as that of a kitchen, shopping mall etc. and instruct students to name the people , things and animals etc. they see in them.
4. Once students have understood the concept of nouns, introduce the concept of common and proper nouns by calling a student by the name and say,this is Ahmed. He is a boy.
5. Tell students that there are many boys in the class but the special name of this boy is Ahmed. Boy is a common noun, Ahmed is a proper noun.
    a. Emphasize that common nouns are general names e.g. the name of the place where children study is school.
    b. Proper nouns are special nouns e.g. the name of this particular school where you study is 'KPK Government Primary School Number 1, Peshawar'.
6. Make the students practice common and proper nouns by guiding them to write common nouns on the board and then think of their proper nouns. This can be a group activity as other students can help the one writing on the boardand asking students to tell their Proper nouns.

	Common	Proper
Person	Girl, boy, woman, man, teacher,	Iqra, Zaid
Place	School, home, market,	Peshawar, DI Khan, Pakistan
Thing	Book	Little Red Riding Hood

7. Moving further, introduce the students with the concept of countable and uncountable nouns.
   Countable nouns:

   These nouns refer to something which can be counted. They have both singular and plural forms (e.g. cat/cats; woman/women; country/countries).

Uncountable Nouns:

A smaller number of nouns do not typically refer to things that can be counted and so they do not regularly have a plural form: these are known as uncountable nouns (or mass nouns). Examples include: rain, flour, earth, water or wood. Many abstract nouns are typically uncountable, e.g. happiness, truth, darkness, humour.

Examples:

I have a lot of money. (Not 1000 money)

I drink a lot of milk. (Not 5 milk)

Tell students that of course you can count money (when it's mentioned as rupees), milk (mentioned in measuring quantity such as Kilos or grams), meat (same as milk); but then you would use the currency, units for measurement such as liter, kilo, glass,...and say that you have got:

5 Rupees... (but not 5 money).

2 liters, glasses... of milk (but not 2 milk)

Would you like some coffee?

Uncountable because it's referring to coffee as'drink' in general

He ordered a coffee. Countable, because it's referring to a cup of coffee

CONCEPT 2: SIMPLE TENSES

Curricular reference	Competency 4, benchmark 1, standard III(p. 59)
Textbook reference	Pp. 159 - 167
What does the assessment data tell us?	Identify simple tenses: only 36% & 41% answered correctly.

Tips for the teachers

1. Refresh students' memory by referring to verb as action words and how they represent timeframe of the action with its different forms.
2. Explain to the students that in a sentence, **verb tense** tells us when an action takes place.
    a. The **past tense** tells what has already happened
    b. The simple **present tense** tells about routines, habits, daily activities, and universal truths, and
    c. The **future tense** tells what will happen next.

3. Make the students practice the tenses through the following discussion
    a. Past tense: Talk about what students did the day earlier. Ask 'What did you do at home yesterday?' e.g. I ate sandwich, I changed my clothes etc.
    b. Present tense: Talk about the things students do daily e.g. I come to school. I brush my teeth.
    c. Future tense: Talk about the things students will do when they get back home. e.g. I will watch television. I will eat lunch.

4. Practice each tense for a week.
5. Practice changing the verb in the three tenses e.g. say eat, ate, will eat. Make a list of these verbs on a chart paper, put it in the classroom and reinforce daily.
6. Practice the tenses by making children read a unit from the textbook and circle the verb with labels as P for past, Pr for present and F for future.
7. Divide the class into three teams i.e. Present, Past and Future. Give them a verb and ask each team to use that in a sentence. Continue this practice unless you are sure that all the students have practiced all the tenses.

CONCEPT 3: PARTS OF SPEECH

Curricular reference	Competency 4, benchmark 1, standard III(p. 56 – 60)
Textbook reference	Pp. 66 – 72, 68 – 75
What does the assessment data tell us?	Identify what part of speech a word is: only 51% answered correctly when it was a verb. Many chose adverb and adjective instead.

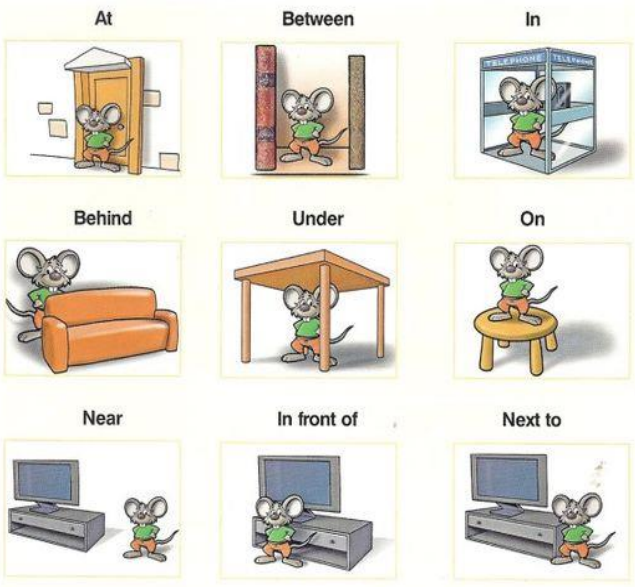
1. Explain to the students that "Parts of speech" are the basic types of words that English languagehas.It is important to be able to recognize and identify the different types of words in English, so that you can understand grammar explanations and use the right word form at the right place.
2. Explain eight basic part of speech to the students.
   a. Noun: Words that are used to name persons, things, animals, places, ideas, or events.
   b. Pronoun: Words that are used as replacement for a noun such as I, it, he, she, mine, his, hers, we, they, theirs, and ours.
   c. Adjective: Words that are used to describe a noun or a pronoun. Adjectives can specify the quality, the size, and the number of nouns or pronouns.
   d. Verb: Word that shows an action (physical or mental) or state of being of the subject in a sentence.
   e. Adverb: Used to describe words, but the difference is that adverbs describe adjectives, verbs, or another adverb.
   f. Preposition: Words that specifyphysical location or a location in time such as on, in, inside, with, above, below, throughout, outside, before,near, and since.
   g. Conjunction: Words which join two words, phrases, or clauses such as and, yet, but, for, nor, or, and so.
   h. Interjection: Refers to words which express emotions and are usually followed by an exclamation point. Examples are:
   Ouch! That must have hurt. Hurray, we won!
3. Make the students practice each part of a speech for a week.
4. Practice identifying and circling one part of a speech at a time in a sentence. Extend the practice to identification of two, three and gradually as many parts of speech as required. Each word when identified and circled can be labelled as N- noun, P- pronoun, V – verb, Adj- Adjective ,Adv- Adverb, Pr- pronoun, Pre- preposition, Con – Conjunction and Int – Interjection.

CONCEPT 4: PREPOSITIONS

Curricular reference	Competency 4, benchmark 1, standard III(p. 60)
Textbook reference	Pp. 106 – 110
What does the assessment data tell us?	Preposition to complete a sentence 27% answered correctly

Tips for the teachers

1. Check understanding of the prepositions by asking students to describe the positions of objects kept in the classroom.
2. Tell students that prepositions are words that describe the position of an object/ animal or person. *They explain where things are in relation to each other.*
3. Give instructions using the prepositions and ask students to follow them e.g. keep the bag on the desk.
4. *Make the students identify and circle prepositions in a sentence.*
5. Direct students to make sentences using some pictures provided. Let them share their ideas first and then write a few sentences in their copies.
6. Instruct students to draw a picture and write sentences using prepositions.



CONCEPT 5: SENTENCE STRUCTURE.

Curricular reference	Competency 4, benchmark 3, standard III(p. 62)
Textbook reference	Pp 72, 128
What does the assessment data tell us?	In story writing 16% used appropriate grammar and sentence structure

Tips for the teachers

1. Explain the parts of a sentence to the students. A sentence can be divided into two parts: the naming part (subject) and the action part (predicate).
   a. Subject: of a sentence is the person, place, thing or idea that is doing or being something.
   b. Predicate: is the part of a sentence that tells something about the subject. The predicate always includes a verb. e.g.

"Asad **is a good boy**."
'Asad' is subject
'is a good boy' is predicate

2. Introduce types of sentences and the relevant punctuation marks for that type of sentences.
   a. Statements (affirmative) – sentenceswhich begin with a capital letter and end with a period or full stop (.) e.g. The elephant is big.
   b. Questions (interrogative) – are asking sentences which end with a question mark. (?) e.g. Where is the man?
   c. Exclamatory- are sentences showing sudden and strong feelings. The exclamatory sentence always ends with an exclamation mark. The huge elephant sat on the man!
3. Practice each kind of sentence for two to three weeks. Practice the required punctuation as well.
4. Practice identifying and labelling the three kinds of sentences with symbols like S for statement, Q for questions and E for exclamatory.
5. Make a sentence train on the soft board. Label its carriages as statements, questions and exclamations. Instruct students to write the three types of sentences with correct punctuation on strips of paper and put them in the correct carriage. Practice this exercise daily

CONCEPT 6: CREATIVE WRITING

Curricular reference	Competency 2, benchmark 2, standard I (p. 46 – 47)
Textbook reference	Pg125, 131
What does the assessment data tell us?	Story writing: approximately 14% were able to write a beginning, identify a problem and write the ending

Tips for the teachers

1. To improve student's creative writing skill, describe the elements of a story to the children i.e. the characters, settings – where the story took place, the beginning, the problem or the middle and the solution or the end of the story.
2. Tell students that a story usually has a problem and the characters of the story try to solve it.
3. To improve identification of the elements of the story (characters, setting, beginning, problem and solution/end), read a story and make the students identify these elements in it.
4. Make group of students and ask them to write a story in groups first deciding the title, characters, beginning, problem/middle and solution/ending.
5. Provide students with a story writing worksheet or let them make it in their note books.

TITLE / NAME:	
CHARACTERS	**SETTING**
Beginning: What happened first?	
PROBLEM/MIDDLE:WHAT WILL HAPPEN NEXT?	
CONCLUSION/END:HOW WILL THIS STORY END?	

CONCEPT 7: VERBS

Curricular reference	Recognize and use more action verbs from extended environment including other subjects in speech and writing. P.G# 58
Textbook reference	Pp. 64 – 76
What does the assessment data tell us?	24% answered correctly the concept of identifying action verb from the given picture

Tips for the teachers

- To improve students' recognition of action verbs from the extended environment, refresh students' memory by doing simple actions like jumping, running, singing etc. and ask the students to name them.
- To reinforce the term action verbs,explain that action verbs show an action. Some actions can be seen clearly like jump, run while some actions cannot be seen like think, understand etc.
- To improve students' vocabulary, show pictures of some other common action words. Ask them to name the actions. Now invite volunteer students one by one to perform the learnt action verbs before the class.
- To practice identifying action verbs, paste/pin/display a picture of a "park" and invite students to tell simple sentences about the picture and try to focus their attention on the use of action verbs.

CONCEPT 8: NOUNS

Curricular reference	Change the number of regular and irregular nouns, and nouns with no change in number (Pg# 56)
Textbook reference	Pp. 12 - 22
What does the assessment data tell us?	30% answer correctly the concept of making plurals.

Tips for the teachers

- To clarify the concept of plural nouns, first reinforce the concept of nouns by pointing out the different objects in the class and asking students to name them . Remind them about the naming words (Nouns) and its kinds.
- Show them an object such a cap/pen/chalk/mango/potato/tomato/box.
  Ask them to name the object. Also ask whether it is one, two or more. Write the above nouns on the board.
    a. Now add one or more objects to increase the numbers , and ask students to name them.Write the plural nouns and ask for the difference.
    b. Explain the we can change the number of nouns by adding “s” or “es” at the end of most nouns. Tell the students that such nouns are called regular nouns.
- Explain the rules of changing the number of irregular nouns for each category i.e. baby, leaf, mouse, goose etc. with the help of pictures/flash cards.
- Tell the students that few nouns have no change in number whether they are single or more i.e. sheep, deer etc.

CONCEPT 9: VERB (MODALS)

Curricular reference	Illustrate the use of can / cannot and, may/may not and should/should not to express permission prohibition, doubt, and obligation. (Pg# 58)
Textbook reference	Pp. 65 – 72
What does the assessment data tell us?	21% answered correctly the concept of the use of can/cannot

Tips for the teachers

1. Explain the use of modals *(can/ cannot)* by playing a game. Explain that you use *can or cannot*to show ability or inability to do something. Ask the students to make two columnson a sheet of paper and write what they can and cannot do separately. Ask them to share their responses with the class.
2. Further explain that can / cannot , may / may not are also used to ask for permission.

   Do a role play with the students and assign them the roles of teachers and students . Students will have to ask for permission to do different tasks in the school or class, for example, student says ‘ Can I sit on the chair’.

   Teacher says, ’Yes , you can sit on the chair’ or ‘No, you cannot sit on the chair’.

   Do the same role play using may/ may not.

3. Explain that we use should or shouldn’t to give advice or to talk about what we think is right or wrong. Have a brainstorming session in the class and talk about what the students should or shouldn’t do to keep their city or environment clean.Write their responses on the board separately in two columns.

CONCEPT 10: MAKE INFERENCES

Curricular reference	Make simple inferences using context of the text and prior knowledge (Pg# 40)
Textbook reference	Pp. 54 - 63
What does the assessment data tell us?	31% answer correctly the concept of making inferences

Tips for the teachers

1. To explain students the concept of inference, askyour head teacher or any other teacher to come to your classroom at a time that looks unexpected to your students. Have a short, whispered conversation off to the side, during which you point at one of the student and then look at your watch, school's bell or gate (or any other scenario that makes sense).
   After the person leaves , ask the students what they think the two of you have discussed. Explain that the way the students have used their observation and facts to come to a conclusion is their inference..

2. To reinforce the concept of inference use picture book, comics with speech bubbles blocked out and have the students discuss and infer. Explain that to infer is not to state what is obvious (stating the obvious: that woman is wearing a teaching gown and holding a chalk. inference: that women is a teacher at a school)

3. To practice the concept display a text on the board and ask the students to answer the inferential questions.

Example:
Once upon a time the birds wanted a king. They had a meeting. The eagle, the crow, the owl, the robin and many more birds came to the meeting. One very tiny bird with brown feathers and a short tail was there too. He was so small that the other birds did not notice him. He was the sparrow.

1. The wren was ignored because of his :
   i. Colour
   ii. Size
   iii. Strength
   iv. Voice

   Answer: (b) Size
2. "Tiny" means:
   a) Beautiful
   b) Big
   c) Little
   d) Different

   Answer: (c) little

CONCEPT 11: EXTENDED USE OF WORDS TO POINT SOMETHING

Curricular reference	Identify and illustrate extended use of words that point to something (Pg# 57)
Textbook reference	Pp. 95 – 100
What does the assessment data tell us?	30% answer correctly the concept of demonstrative pronouns.

Tips for the teachers

- A demonstrative pronoun is a pronoun that is used to point to something specific within a sentence: this, that, these, and those, as in "This is an apple," "Those are boys," or "Take these to the clerk.These pronouns can indicate items in space or time, and they can be either singular or plural.
- To explain the use of demonstrative pronouns,hold a book in your hand and ask the students, what is this? (place stress on 'this'), write the response on the board.
- Now point at an object placed 'far' (chair, table, fan) and ask the students what that is .. (place stress on 'that).
- Explain the students that we use 'this' for singular and 'these' for plural things near us. While, we use 'that' for singular and 'those' for plural things far/away from us.
- Remember 'this'/'that' can be used without identifying nouns. For example, I cannot believe this. Another example, 'Who did this?'
- To practice the concept of demonstrative pronouns, divide the students in pairs and ask them to practice using this/ these and that/ those.
- For further reinforcement of the concept ask the students to write sentences using 'this' and 'that ' and draw pictures of objects far / near accordingly.

CONCEPT 12: SCAN A SIMPLE TEXT FOR SPECIFIC INFORMATION

Curricular reference	Scan a simple text for specific information (Pg# 40)
Textbook reference	Pp. 132 – 135
What does the assessment data tell us?	30% answer correctly the concept of scanning the text.

Tips for the teachers

- To improve students' scanning skills, display/write/share through a worksheet a model text and ask the students to study it carefully.
    a. After they have finished studying the text, ask them few questions about the dates, places, persons etc.
- Make sure that your questions are about specific information.
- Explain to the students that while studying a text they should:
    (i) First let their eyes move quickly across the whole text and mark key information such as dates, days, people, places etc.
    (ii) Read the comprehension questions asked at the end and mark key information asked.
    (iii) Scan the text again and underline the key information and respond to the questions.

اُردو

جماعت دوم

جماعت دوم

تصور 1: حروفِ تہجی کی ترتیب

قومی نصاب	مہارت: پڑھائی (1) معیار: 1، حاصل تعلم: 1 برائے جماعت اول مہارت: زبان شناسی معیار: 1 حاصل تعلم: 5 برائے جماعت دوم
ٹیکسٹ بک	جماعت دوم–صفحہ نمبر ، ،
جانچ کے نتائج	36% طلبہ نے درست جواب دیے

تجاویز

جماعت دوم میں بھی بچوں کو حروف تہجی کی مشق بار بار کروائیں۔

1. بچوں کو حروف تہجی سکھاتے ہوئے ہر حرف کے خاندان سے واقف کرنا بہت ضروری ہے۔ جیسے ب کے خاندان میں ب پ ت ٹ ث اور ج کے خاندان میں ج چ ح خ شامل ہیں۔
2. حروف تہجی کی نظم کی بار بار دہرائی سے بچے حروف کی ترتیب یاد رکھنے کے قابل ہو سکتے ہیں۔
3. حروف تہجی کی مشق خالی جگہوں کی صورت میں کروائی جائے جیسے ا۔۔۔۔۔۔۔ پ۔۔۔۔۔۔۔ ٹ۔۔۔۔۔۔۔ وغیرہ
4. کمرہ جماعت میں حروف تہجی کی ترتیب سے مختلف تصاویر لگائی جائیں۔ انگور۔ بلی۔ پان۔ تتلی۔ ٹوپی۔ ثمر وغیرہ۔ اس طریقہ کار کے ذریعے بچے روزانہ ان تصاویر کو دیکھیں گے اور ان کے ذہن میں ان کی ترتیب نقش ہو جائے گی۔
5. مختلف ورک شیٹ دی جائیں جن میں مختلف نام لکھے ہوں، بچے ان کو حروفِ تہجی کی ترتیب سے لکھیں۔
6. بولنے کی سرگرمی کروائیے۔ ہر بچے کو ایک حرف دے دیں کہ یہ اس بچے کا نام ہے۔ اب پوری جماعت اپنا نمبر آنے پر دیے گئے حرف سے لفظ بولے۔

تصور 2: حروف کی پہچان

قومی نصاب	مہارت: پڑھائی (1) معیار: 1، حاصل تعلم: 1 برائے جماعت اول مہارت: زبان شناسی معیار: 1 حاصل تعلم: 5 برائے جماعت دوم
ٹیکسٹ بک	جماعت دوم—صفحہ نمبر ، ، ، ، ، ، ، ، ، ، ، ، ، ،
جانچ کے نتائج	62% طلبہ نے درست جواب دیے

تجاویز:

1. بچوں کو روزانہ ایک بار حروف تہجی کی آوازوں سے آشنا کیا جائے تاکہ بچے اعادہ کرتے رہیں۔
2. مختلف تصاویر دکھا کر پہلا حرف دریافت کیجیے۔
3. نئے الفاظ لکھوانے کی سرگرمی کروایئے، بچے آوازیں پہچان کر لفظ لکھنے کی مشق کریں۔
4. املا لیں۔
5. حروف کی توڑ جوڑ کی بار بار مشق کروائیں۔

تصور 3: تفہیم

قومی نصاب	مہارت: پڑھائی (1) معیار: 1، حاصل تعلم: 1
ٹیکسٹ بک	جماعت دوم— صفحہ نمبر، ، ، ، ، ، ،
جانچ کے نتائج	60% طلبہ نے درست جواب دیے

تجاویز:

1. بچوں کو مختلف تصاویر دکھائی جائیں اور ان سے متعلق سوالات کریں۔ جوابات ہمیشہ مکمل جملوں میں لیا کریں اسی طرح عبارت کی پڑھائی کے وقت تسلسل سے پڑھنے کی عادت ڈلوائیں۔
2. بچوں کو آسان عبارت کی پڑھائی بار بار کروایئے تاکہ ان کی پڑھنے کی صلاحیت پختہ ہو سکے۔
3. بچوں سے پڑھائی گئی عبارت کے بارے میں تفصیل سے گفتگو کی جائے اور مختلف سوالات کے ذریعے عبارت کی سمجھ کو جانچا جائے۔ گفتگو کے دوران خیال رکھیں کہ اساتذہ صرف اردو زبان میں بات چیت کریں تاکہ بچے اردو کے درست تلفظ اور اندازِ بیان سے آگاہ ہو سکیں۔
4. سوالات کرتے ہوئے ایسے سوالات ضرور کیے جائیں جن سے ان کی سوچنے کی عادت بھی پختہ ہو سکے۔ تفہیم کروانے کا مقصد صرف پڑھنا، سمجھنا، اور لکھنا نہیں ہے بلکہ سوچنا اور عمل کرنا بھی ہے۔ اس لیے ان کے سوچنے کی صلاحیت کو بچپن ہی سے فروغ دیا جائے تاکہ کسی بھی مواد کو پڑھنے کے بعد وہ اسے اپنی عملی زندگی سے بھی منسلک کر سکیں۔
5. عبارت میں موجود اہم نکات کو خط کشید کروائیں اور لکھوائیں۔ پہلے یک لفظی جوابات لکھوائیں، پھر بتدریج جملے اور تفصیلی جوابات کروائیں۔
6. تفہیمی سوالات کرواتے وقت بچوں سے پہلے سوالات کے جوابات لیے جائیں، جوابات لکھنے کا طریقہ کار سمجھایا جائے اور پھر تحریری کام کروائیں۔

قومی نصاب	مہارت: لکھائی(1) معیار: 1، حاصل تعلم: 2اور 5
ٹیکسٹ بک	جماعت دوم– صفحہ نمبر ، ، ، ، ، ،
جانچ کے نتائج	42% طلبہ نے درست جواب دیے

تجاویز:

1. تختہ سیاہ پر جو بھی لفظ یا حرف لکھا جائے اسے لکھتے وقت اس کی بناوٹ بچوں کے سامنے دکھائی جائے کہ کس طرح پنسل کو پکڑا جائے اور کسی بھی لفظ کو لکھتے ہوئے ابتداء کس طرح کی جائے۔
2. ہجے اور الفاظ کی درست لکھائی کے لیے بچوں کو عادت ڈلوائیں کہ وہ الفاظ کی بار بار مشق کریں۔ مثلاً ہر نیا لفظ سکھانے کے بعد اس کی تکرار کروائیں اور لکھوائیں۔ اس کے ساتھ ساتھ اس لفظ کی توڑ جوڑ بھی کروائیں تاکہ بچے اس لفظ میں موجود حروف کو پہچان سکیں۔
3. تصاویر دکھا کر ان کے نام لکھوانے کی مشق کروائیں۔
4. کلیدی الفاظ اور کثیر الاستعمال الفاظ کے فلیش کارڈز بنائیں اور تختہ سیاہ یا تختہ نرم پر مستقلاً لگا کر رکھیں۔ اس طرح بچے انھیں روزانہ دیکھیں گے اور ان کے ذہنوں پر وہ الفاظ نقش ہو جائیں گے۔ (کا۔ کی۔ کے۔ ہے۔ میں۔ انھیں۔ تمھیں۔ یہاں۔ مجھے۔ ہمیں۔ پر۔ ہیں۔ تمہارے۔ ہمارے۔ اسے وغیرہ) اس کے علاوہ ہر نئے عنوان کے نئے الفاظ کے فلیش کارڈز بورڈ پر اس وقت تک لگا کر رکھیں جب تک وہ سبق مکمل نہ ہو جائے۔ اس طرح ان کے ذہنوں میں نئے الفاظ نقش ہو جائیں گے۔

تصور 5: عبارت کی لکھائی

قومی نصاب	مہارت: لکھائی (1) معیار: 1، حاصل تعلم: 1 اور 5
ٹیکسٹ بک	جماعت دوم۔ صفحہ نمبر ۲۱، ۳٤، ۹٦، ۵۸
جانچ کے نتائج	49% طلبہ نے درست جواب دیے

تجاویز:

1. بچوں کو عبارت سازی کی جانب راغب کرنے کے لیے دلچسپ سرگرمیاں کروائی جائیں، مثلاً کوئی چیز دکھائی جائے اور مختلف سوالات کیے جائیں جیسے پینسل دکھا کر پوچھا جائے کہ یہ کیا ہے؟ یہ کس چیز سے بنی ہوئی ہے؟ ہم اس سے کیا کرتے ہیں؟ اسے کہاں رکھتے ہیں؟ اسے کہاں سے خریدا جاتا ہے؟ یہ کہاں بنتی ہے؟ یہ کتنی شکلوں یا رنگوں میں پائی جاتی ہے؟ وغیرہ۔ بچوں کے جوابات کو جملوں کی صورت میں بورڈ پر لکھیں اور ان سے لکھوائیں۔ اسی طرح مختلف مشقیں کروائی جائیں۔
2. بچوں کو مختلف تصاویر دکھائیں اور اس سے متعلق جملے لکھوائیں۔
3. ممکن ہو تو کوئی ویڈیو دکھائی جاسکتی ہے، ورنہ اسکول کے میدان میں بچوں کو لایا جائے اور ان کے مشاہدات کو قلم بند کروائیں۔
4. اسی طرح ذخیرہ الفاظ میں اضافے کے لیے روز کا ایک نیا لفظ بورڈ پر لکھیں اور بچوں کو اس کا استعمال سمجھائیں۔

تصور 6 : متعلقہ ذخیرہ الفاظ کا استعمال

قومی نصاب	مہارت: لکھائی(1) معیار: 1، حاصل تعلم: 1 اور 5
ٹیکسٹ بک	جماعت دوم- صفحہ نمبر ، ، ، ، ،
جانچ کے نتائج	25% طلبہ نے درست جواب دیے

تجاویز:

1. ذخیرہ الفاظ بڑھانے کے لیے پہلا کام یہ کیا جائے کہ بچوں سے اچھی اور شستہ اردو میں گفتگو کی جائے
2. بچوں سے مختلف موضوعات پر بات کی جائے اور استاد ان کی اصلاح کریں اور نئے الفاظ سے آگاہ کریں
3. نئے الفاظ کو لکھوانے کی مشق کروائی جائے اور ان الفاظ کا جملوں میں بار بار استعمال کروایا جائے۔
4. مختلف سرگرمیاں کروائی جائیں جن کے ذریعے بچوں کی سننے اور بولنے کی صلاحیت کو بڑھایا جاسکے، جیسے انھیں کئی آوازیں سنوائی جائیں، جن کو وہ پہچانیں۔ جیسے گھنٹی کی آواز، کوے کی آواز، چڑیا کی چہچہاہٹ، ہل چلانے کی آواز۔ اسی طرح کوئی بھی چیز دکھائی جائے اور اس کے بارے میں جملے کہلوائے جائیں۔
5. بچوں سے چھوٹے چھوٹے سوالات کیے جائیں اور ان کے مکمل جوابات لیے جائیں اور لکھوائے جائیں۔

تصور 7: واحد جمع

قومی نصاب	مہارت: زبان شناسی معیار: 1 حاصل تعلم: 5 برائے جماعت اول
ٹیکسٹ بک	جماعت دوم—صفحہ نمبر
جانچ کے نتائج	35% طلبہ نے درست جواب دیے

تجاویز:

1. ہر نئے تصور سے آگاہ کرنے سے پہلے اس تصور کے نام سے طلباء کو ضرور آگاہ کیا جائے۔ جیسے اسم، اسمِ ضمیر، فعل، واحد جمع، مذکر مئونث وغیرہ
2. بچوں کو روزمرہ استعمال آنے والی اشیاء اور مشاہداتی اشیاء جیسے پتھر، پنسل، کرسیاں، ستارے، روٹیاں، کی مثالیں دی جائیں اور ہر لفظ کو بورڈ پر لکھا جائے تاکہ بچوں کی بصری صلاحیت میں بھی اضافہ ہو سکے۔
3. یہ تصور واضح کیا جائے کہ واحد اور جمع میں کیا فرق ہے، پہلے تصاویر یا جماعت میں موجود اشیاء کی مثالوں کے ذریعے واحد اور جمع سمجھائیے اور تمام الفاظ بورڈ پر لکھیں۔ پہلے (ے) والے الفاظ بنوائیں جیسے لڑکا، لڑکے۔ اس کے بعد (اں) والے الفاظ جیسے لڑکی، لڑکیاں، کاپی، کاپیاں، اس کے بعد جملوں میں واحد جمع کی مشق کروائیے۔
4. واحد جمع کی مختلف تصاویر بنا کر بچوں سے ورک شیٹ حل کروائی جائیں۔

تصور 8 : منفی اور سوالیہ جملے

قومی نصاب	مہارت: زبان شناسی معیار: 1 حاصل تعلم: 7
ٹیکسٹ بک	جماعت دوم– صفحہ نمبر-
جانچ کے نتائج	53% طلبہ نے درست جواب دیے

تجاویز:

1. منفی اور سوالیہ جملے سکھانے سے پہلے بچوں کو سمجھایا جائے کہ لفظ منفی، مثبت یا سوالیہ کے معنی کیا ہیں۔ بچوں کی گفتگو میں ان الفاظ کا استعمال نہایت ضروری ہے۔ بچوں سے سرگرمی کرواتے ہوئے ان سے بار بار پوچھا جائے کہ وہ کون سے جملے بنا رہے ہیں۔
2. جملوں کی مشق بار بار کروانی چاہیے۔ مثلاً منفی جملے سکھائے جائیں تو جماعت کے ہر بچے سے سے اس کی ایک مثال لی جائے اور لکھواتے وقت ہر بچے سے انفرادی کام کروائیں تاکہ یہ اندازہ ہو سکے کہ کس بچے نے اس تصور کو سیکھنے میں مشکل کا سامنا کیا۔
3. دورانِ مشق مثبت سے منفی، منفی سے مثبت یا سوالیہ جملے بنوائیں۔
4. تینوں اقسام کے جملوں کا فرق لازمی واضح کریں۔ (نہیں، نہ) کے استعمال کی مشق کروائیں۔
5. جماعت میں منفی اور مثبت جملوں کی زبانی مشق کروائیں اور بورڈ پر بھی لکھوائیں۔ پہلے بچوں سے جی ہاں اور جی نہیں والے سوالات کیجیے پھر ان سے پورے جملوں میں جواب لیں۔
6. جماعت میں منفی اور مثبت جملوں کی لکھوانے کی مشق بھی کروائیں۔ منفی اور مثبت جملوں کا فرق واضح کیا جائے اور ہر جملے پر بچوں سے پوچھیں کہ یہ کون سا جملہ ہے تاکہ وہ ان کے ناموں سے آگاہ ہو جائیں۔

تصور 9: جملے کی بناوٹ

قومی نصاب	مہارت: زبان شناسی معیار: 1 حاصل تعلم: 1
ٹیکسٹ بک	جماعت دوم–صفحہ نمبر ، ، ،
جانچ کے نتائج	50% طلبہ نے درست جواب دیے

تجاویز:

1. بچوں سے ہمیشہ اردو زبان میں گفتگو کریں۔
2. دورانِ گفتگو کوشش کیجیے کہ بچے مکمل جملوں میں جواب دیں۔اس دوران جہاں ضرورت ہو ان کی اصلاح کرتے رہیں۔
3. بچوں کو جملوں کی ترتیب سکھایئے جس میں فعل، فاعل اور مفعول کی مدد سے جملہ سازی کی تحریری مشق کروائیں۔
4. چھوٹی چھوٹی عبارات لکھوائیں، تاکہ جملوں میں ربط رکھنے کی مشق ہو سکے۔
5. مختلف ورک شیٹ جس میں خالی جگہوں، کہانی اور گڈمڈ جملوں کی صورت میں عبارت دیجیے جسے بچے پُر کریں گے اور گڈمڈ جملوں کی ترتیب درست کریں گے۔

تصور 10: حرفِ جار

قومی نصاب	مہارت: زبان شناسی معیار: 1 حاصل تعلم: 1
ٹیکسٹ بک	جماعت دوم—صفحہ نمبر
جانچ کے نتائج	50% طلبہ نے درست جواب دیے

تجاویز:

1. کلیدی الفاظ (کا، کی، کے، سے، پر، میں، نے، کو) کے فلیش کارڈز سوفٹ بورڈ پر لگا کر رکھیں تاکہ بچے ان الفاظ سے آشنا ہو جائیں
2. بچوں کو مختلف ورک شیٹ میں خالی جگہیں دیں جنھیں حرفِ جار سے پُر کیا جائے۔ جیسے کتاب میز کے اندر ہے۔
3. گلاس میں پانی ہے۔
4. بچوں کو حرفِ جار کا کھیل کھلائیں۔ سرگرمی کروانے کے لیے جماعت میں مختلف چیزیں مختلف مقامات پر رکھیں اور ان سے متعلق سوال کریں جیسے یہ کس کی کتاب ہے؟ علی کہاں بیٹھا ہوا ہے؟ جہاز کہاں اڑ رہا ہے؟ بلی کہاں بیٹھی ہوئی ہے؟
5. کسی گھر یا جگہ کی تصویر دکھائیں اور بچوں اس کے متعلق سوالات کریں۔

اُردو

جماعت پنجم

تصور 1: حروفِ تہجی کی ترتیب

قومی نصاب	مہارت: زبان شناسی معیار: 1 حاصل تعلم: 2 برائے جماعت دوم مہارت: زبان شناسی معیار: 1 حاصل تعلم: 3 برائے جماعت پنجم
ٹیکسٹ بک	جماعت پنجم–صفحہ نمبر اور
جانچ کے نتائج	43% طلبہ نے درست جواب دیے

تجاویز:

1. جماعت کے سوفٹ بورڈ پر حروفِ تہجی کے فلیش کارڈز یا حروفِ تہجی کا چارٹ آویزاں کریں
2. روزانہ جماعت میں حروف تہجی کا اعادہ کروائیں
3. حروف تہجی کی ورک شیٹ بنائیں جس میں بے ترتیب حروف تہجی کو ترتیب میں لکھنے کی مشق کروائیں
4. بچوں کو حروف تہجی کی ترتیب سے قطار میں کھڑا کرایا جائے
5. مختلف الفاظ کی فہرست بنائیں اور بچوں سے ان کی ترتیب حروف تہجی کے مطابق کروائیں۔

قومی نصاب	مہارت: انشاپردازی معیار: 1 حاصل تعلم: 1 برائے جماعت پنجم مہارت: زبان شناسی معیار: 1 حاصل تعلم: 4 برائے جماعت پنجم
ٹیکسٹ بک	جماعت پنجم-اردو (لازمی)-صفحہ نمبر -
جانچ کے نتائج	42% طلبہ نے درست جواب دیے

تجاویز:

1. بچوں کو روزمرہ کے موضوعات پر تبادلہ خیال کا موقع دیں اور ان کے خیالات کو بورڈ پر نکات کی صورت میں لکھیں۔ جیسے کسی جگہ کی سیر کا حال، تو بچوں سے پوچھیں کہ موسم کیسا تھا؟ پھر ان کے جوابات کو بورڈ پر لکھیں۔
2. مختصر کہانیوں کے واقعات کی ترتیب بدل دیں جیسے اختتام پہلے، آغاز درمیان میں اور کلائمکس آخر میں کر دیں۔ پھر بچوں سے کہیں کہ اسے ترتیب سے لکھیں۔
3. طلبہ سے گفت وشنید کے دوران مختلف سوالات کیجیے جیسے آپ نے کل کیا کیا تھا؟ اتوار کو آپ کہاں جائیں گے؟ آپ کا اچھا دوست کون ہے اور اس کی کون سی عادت آپ کو پسند ہے؟ وغیرہ۔ کوشش کیجیے کہ بچے مکمل جملوں کی صورت میں جوابات دیں اور جہاں غلطی کریں وہاں ان کی اصلاح کی جائے۔
4. کسی بھی چیز یا موضوع پر گفتگو کروائیں تاکہ بچے اپنے خیالات کا اظہار کریں۔ خیالات کی تحریری مشق بھی ضروری ہے۔ طلبہ کے لیے ذخیرہ الفاظ کی فہرست بھی بورڈ پر لگائیں خاص طور پر کثیر الاستعمال الفاظ کے فلیش کارڈز بورڈ پر نمایاں ہوں ۔
5. بچوں سے مختلف موضوعات پر عبارت لکھوائی جائے۔ شراکت دار لکھائی کی مدد سے عبارت لکھوانے کی ابتداء کی جائے، انھیں کاٹ چھانٹ کرنا جملوں کو ترتیب دینا اور حتمی شکل دینا سکھایا جائے۔
6. لکھتے اور بولتے ہوئے قواعد کی غلطیاں لازمی درست کی جائیں تاکہ بچے اپنی اغلاط کی اصلاح کر کے اسی جملے کو دوبارہ لکھ اور پڑھ سکیں۔ بچوں کو عبارات میں محاورات کے استعمال کی بھی مشق کروائیں۔

قومی نصاب	مہارت: زبان شناسی معیار: 1 حاصل تعلم: 4 برائے جماعت چہارم
ٹیکسٹ بک	جماعت پنجم اردو (لازمی)- صفحہ نمبر ۹، ۳۰ اور ٦٦
جانچ کے نتائج	53% طلبہ نے درست جواب دیے

تجاویز:

1. سبق کے متن میں سے بچوں سے کہیں کہ ایسے الفاظ تلاش کریں جن کی ضد بنائی جا سکے
2. انھیں ان الفاظ کی ضد فراہم کریں جو سبق کے متن میں موجود ہوں اور بچے ان الفاظ کی شناخت کریں۔
3. بچوں کو الفاظ اور ضد کے معنی واضح طور پر سمجھائیں۔
4. روزمرہ کی زندگی سے لیے گئے الفاظ کی ضد بنانا سکھائیں۔ مثلاً اوپر، نیچے، اندر، باہر، کالا، سفید، میٹھا، کڑوا، دائیں، بائیں، بہترین، بدترین، موٹا، پتلا
5. الفاظ کی ضد بنانے کے ساتھ ساتھ انھیں جملوں میں بھی استعمال کرنا سکھائیں۔ جیسے اسلم ایک موٹا لڑکا ہے جبکہ عالی ایک پتلا لڑکا ہے۔ سورج مشرق سے نکلتا ہے اور مغرب میں ڈوبتا ہے۔
6. بچوں کو ایک پیرا گراف دیں اور وہ اس میں موجود الفاظ کی ضد بنا کر عبارت کو دوبارہ لکھیں۔

تصور 4: واحد کی جمع

قومی نصاب	مہارت: زبان شناسی معیار: 1 حاصل تعلم: 5 برائے جماعت چہارم
ٹیکسٹ بک	مختلف اسباق میں زیرِ استعمال
جانچ کے نتائج	53% طلبہ نے درست جواب دیے

تجاویز:

1. سبق کے متن میں سے بچوں سے کہیں کہ ایسے الفاظ تلاش کریں جن کی جمع بنائی جا سکے
2. آپ انھیں ان الفاظ کی جمع/واحد فراہم کریں جو سبق کے متن میں موجود ہوں اور بچے ان الفاظ کی شناخت کریں
3. بچوں کا یہ تصور واضح کریں کہ واحد اور جمع میں کیا فرق ہے، پہلے تصاویر یا جماعت میں موجود اشیاء کی مثالوں کے ذریعے واحد اور جمع سمجھایئے اور تمام الفاظ بورڈ پر لکھیں۔ پہلے (ے) والے الفاظ بنوائیں جیسے لڑکا، لڑکے۔ اس کے بعد (اں) والے الفاظ جیسے لڑکی، لڑکیاں، کاپی، کاپیاں، اس کے بعد جملوں میں واحد جمع کی مشق کروائیں۔ اس کے ساتھ ساتھ (وں) اور (ے) والی جمع میں جملے کے لحاظ سے فرق سمجھایا جائے۔
4. بچوں کو زبانی مشق دینے کے بعد لکھوانے کی مشق لازمی کروائیں۔
5. ہر سبق میں موجود جمع الفاظ کی نشاندہی ضرور کیجیے۔
6. اسمِ جمع کی پہچان بھی ضرور کروائیں

جیسے پاکستان کی فوج، لوگوں کی بھیڑ، پرندوں کا غول، بکریوں کا غلہ، چابیوں کا گچھا وغیرہ

قومی نصاب	مہارت: زبان شناسی معیار: 1 حاصل تعلم: 1،2،5،6
ٹیکسٹ بک	جماعت پنجم-اردو (لازمی)-صفحہ نمبر ، ،
جانچ کے نتائج	30% طلبہ نے درست جواب دیے

تجاویز:

1. بچوں کو لفظ انکاریہ، سوالیہ، اقراریہ، حکمیہ، التجائیہ کے معنی سمجھاتے ہوئے جملوں کی مشق کروائیں۔
2. جملے دیتے ہوئے ہمیشہ اس بات کا خیال رکھیں کہ کوئی جملہ اخلاقیات کے خلاف نہ جاتا ہو جیسے ہمیں سچ نہیں بولنا چاہیے، یا چوری کرنا چاہیے۔ جملے کے مطابق یہ انکاریہ اور اقراریہ ضرور ہیں لیکن ان سے غلط پیغام جاتا ہے۔ اس لیے جملوں کے انتخاب میں خیال رکھنا ضروری ہے۔
3. مختلف اسباق کی پڑھائی کرواتے ہوئے اس طرح کے جملوں کو خط کشید کروائیں
4. جملوں کو گڈمڈ کر کے ان میں سے جملے الگ الگ کروائیں
5. جماعت میں رول پلے کروائیں جن میں ان جملوں کے مکالمے شامل کریں اور بچے اس کی شناخت کریں

تصور 6: جملے کی بناوٹ

قومی نصاب	مہارت: زبان شناسی معیار: 1 حاصل تعلم: 4
ٹیکسٹ بک	جماعت پنجم-اردو(لازمی)-صفحہ نمبر ، ، ، ،
جانچ کے نتائج	47% طلبہ نے درست جواب دیے

تجاویز

1. اساتذہ بچوں سے ہمیشہ اردو زبان میں گفتگو کریں۔
2. دورانِ گفتگو کوشش کریں کہ بچے مکمل جملوں میں جواب دیں۔اس دوران جہاں ضرورت ہو ان کی اصلاح کرتے رہیں۔
3. بچوں کو جملوں کی ترتیب سکھائیں جس میں فعل، فاعل اور مفعول کی مدد سے جملہ سازی کی تحریری مشق کروائیں۔
4. جملوں میں ربط رکھنے کی مشق کرنے کے لیے چھوٹی چھوٹی عبارات لکھوائیں۔
5. مختلف ورک شیٹ کے ذریعے بچوں سے جملے مکمل کروائیں جس میں خالی جگہوں، کہانی اور گڈمڈ جملوں کی صورت میں عبارت دیجیے جسے بچے پُر کریں اور گڈمڈ جملوں کی ترتیب درست کریں۔
6. ایسے جملے دیں جس میں تذکیر و تانیث / فعل، فاعل کی غلطیاں ہوں اور طلبہ سے کہیں کہ وہ غلطیوں کی نشاندہی کریں اور انھیں درست کریں
7. جماعت میں ہلکے پھلکے انداز میں رول پلے کروائیں جس میں بچے غلط جملے ادا کریں اور پھر اس کی اصلاح کریں

تصور 7: لغت کی تختی کا دُرست استعمال

قومی نصاب 2006	مہارت: زبان شناسی حاصل تعلم: 3 صفحہ نمبر 37
ٹیکسٹ بک	جماعت پنجم-اردو (لازمی)-صفحہ نمبر 1، 11 اور 27
جانچ کے نتائج	29% بچوں نے لغت کی تختی کا درست استعمال کیا۔

تجاویز:

1. جماعت میں لغت ضرور رکھیں
2. طلبہ کو لغت سے واقف کروائیں کہ یہ کس کام آتی ہے
3. لغت کی تختی کی مشق کے لیے حروف کی ترتیب کا اعادہ کروائیں مثلاً (اسے ی) تک پھر ہر حرف کے ساتھ ترتیب سے دیگر حروف لگائیں۔
4. چھوٹی، آسان فہم پانچ یا چھ لغت کلاس میں مہیا کر کے بچوں سے مختلف الفاظ کے معانی تلاش کرنے کی مشق کروائیں۔
5. طلبا کو 10 الفاظ کی فہرست دیں اور جماعت کے ہر دو بچوں کو جوڑے کی صورت میں ان الفاظ کو حروف تہجی کی ترتیب میں لکھنے کو کہیں۔
6. تختہ سیاہ پر پڑھائے گئے سبق کے مشکل الفاظ لکھ کر بچوں سے اِن کا جوڑ توڑ کروائیں۔ (مثلاً آمدنی کا توڑ: آ، م، د، ن، ی)
7. ہر ماہ یا پندرہ دِن میں جائزہ کے طور پر لغت کی تختی کے استعمال کے متعلق کثیر الانتخابی سوالنامہ دیں اور نتائج کا ریکارڈ رکھ کر بچوں کی کارکردگی جانچیں۔

قومی نصاب	مہارت: زبان شناسی حاصلات تعلم 6،5،2 معیار 1: صفحہ 37-38
ٹیکسٹ بک	جماعت پنجم-اردو(لازمی)-صفحہ نمبر: 52،60،88،99
جانچ کے نتائج	7% بچوں نے درست جواب تحریر کیے۔

تجاویز:

1. تقسیم کیے گئے خالی کارڈز پر پڑھائے گئے سبق میں سے فعل یا فاعل اور مفعول تلاش کر کے لکھنے کی مشق کروائیں۔
2. تصاویر کی مدد سے اخذ کردہ افعال سے جامع جملے بنوائیں۔(مثلاً کسی کو لکھتے ہوئے/کودتے ہوئے/سوتے ہوئے) دکھائیں۔
3. فعل، فاعل و مفعول میں مذکر، مونث اور واحد جمع کے فرق کو واضح کرنے کے لیے مختلف جملوں کی مشق کروائیں۔ مثلاً (وہ خط لکھتا ہے، وہ خطوط لکھتے ہیں، وہ کھانا کھاتی ہے) وغیرہ
4. جملے میں فعل و فاعل کی الٹ ترتیب کو درست کرنے کی مشق کروائیں۔(مثلاً: کھانا، ہیں، کھاتے ہم)
5. فعل سے فاعل اور فاعل سے فعل بنانے کے مشق کروائیں۔
6. آزمائش کے ذریعے اِن تصوارت کی سمجھ بوجھ کا اندازہ لگائیں۔
7. جماعت میں مختلف ایکشن کی مدد سے فعل، فاعل یا مفعول کی مشق کروائیں جیسے کسی بچے کے ہاتھ میں گیند، یا قلم دے کر پوچھیں کہ یہ کیا کر رہا ہے کس سے کھیل رہا ہے؟ کون کھیل رہا ہے وغیرہ
8. جملوں میں سے فعل، فاعل یا مفعول کو غائب کر کے طلبہ سے ممکنہ جوابات اخذ کروائیں۔

تصور 9: حروف کی اقسام

قومی نصاب	مہارت: زبان شناسی حاصلات تعلم 7 صفحہ 38
ٹیکسٹ بک	جماعت پنجم-اردو (لازمی)-صفحہ نمبر: 31 حاصلات تعلم: 3
جانچ کے نتائج	25% بچوں نے درست جواب دیے۔

تجاویز:

1. خاکوں کی مدد سے حروف کے استعمال کی تفہیم کروائیں۔
2. عام استعمال ہونے والے حروف کی فہرست مرتب کروا کر اُن کے استعمال کی مشق کروائیں اور حروف کی اقسام بھی بتائیں۔
3. بچوں سے ورک شیٹ / تختہ سیاہ پر اس طرح کہانی اخذ کروائیں کہ خالی جگہوں پر مناسب اور درست حروف خود لکھ سکیں۔ (کہانی میں خوشی، غم، افسوس اور حیرت کے تاثرات ہوں)۔
4. جانچنے کے لیے کثیر الانتخابی آزمائش دیں اور کارکردگی کی پیمائش ریکارڈ رکھیں۔
5. ایسے جملوں کی مشق کروائیں جس میں حروف کا استعمال تواتر سے ہو۔ طلبا ان کی شناخت کر کے انھیں تحریر کر سکیں۔

تصور 10: اسم معرفہ کی اقسام

قومی نصاب	مہارت: زبان شناسی حاصلات تعلم 9 معیار 1: صفحہ 38
ٹیکسٹ بک	جماعت پنجم-اردو (لازمی)-صفحہ نمبر: 92 حاصلات تعلم: 4
جانچ کے نتائج	26% بچوں نے صحیح جواب تحریر کیے۔

تجاویز:

1. جماعت میں موجود اسم کی فہرست بنائیں
2. بچوں سے عام موضوعات پر گفت وشنید کریں اور انھیں ہدایات دیں کہ گفتگو کو غور سے سنیں۔ پھر گفتگو کی اختتام پر ان سے پوچھیں کہ بات چیت کے دوران کون کون سے اسم سنے، انھیں تحریر کریں۔
3. دیے گئے پیرا گراف میں سے اسم معرفہ کی اقسام کو تلاش کرنے کی مشق کروائیں۔ (استاد خود پیرا بنائیں)
4. مختلف اوقات میں اسم کی مختلف اقسام دیے کر بچوں سے ان کے جملے بنوائیں۔ مثلاً اسم اشارہ دیں اور اس پر جملے بنوائیں اس طرح دیگر پر بھی مشق کروائیں۔
5. بچوں سے اسم معرفہ کی اقسام جملوں کے ذریعے اخذ کروا کر ان جملوں کے باہمی ربط سے پیرا گراف تشکیل دیں۔
6. آزمائش کے ذریعے بچوں کی سمجھ بوجھ کا جائزہ لے کر ریکارڈ رکھیں۔

قومی نصاب	مہارت: زبان شناسی حاصلات تعلم 2 معیار 1: صفحہ 17
ٹیکسٹ بک	جماعت پنجم-اردو (لازمی)-صفحہ نمبر: 42 حاصلات تعلم: 1
جانچ کے نتائج	16% بچوں نے درست جواب دیے۔

تجاویز:

1. ہر سبق میں موجود نئے الفاظ کے فلیش کارڈز بچوں کو روزانہ دکھا کر اس کی پڑھائی کروائیں
2. اخبار/رسائل میں سے منتخب پیرا/مضمون/کہانی پڑھنے کی مشق کروائیں۔(استاد خود بچے کی ذہنی سطح کے مطابق انتخاب کریں)
3. بچوں سے خاکوں کے ذریعے منتخب اقتباس/کہانی میں پوشیدہ سبق/نتیجہ/مقصد اخذ کروائیں۔
4. مختلف موضوعات/حالاتِ حاضرہ پر تبصرہ کروائیں۔
5. جائزہ کے لیے منتخب مضمون/کہانی کا مقصد، نتیجہ، متن اخذ کرنے کی مشق کروائیں۔

قومی نصاب	مہارت: زبان شناسی حاصلات تعلم 1: معیار 1: صفحہ 23
ٹیکسٹ بک	جماعت پنجم-اردو(لازمی)-صفحہ نمبر: 7، 18، 27، 75، 88
جانچ کے نتائج	4% بچوں نے درست جواب دیے۔

تجاویز:

1. آسان موضوعات سے آغاز کریں۔
2. ذخیرہ الفاظ ضرور دیں۔ اگر بچے کو کوئی لفظ لکھنے میں دقّت ہو رہی ہو تو اسے وہ لفظ لکھ کر دکھائیں۔
3. لکھنے کے کام کے دوران جماعت میں راؤنڈ لیتے رہیں اور کام کے دوران ہی بچے کی اصلاح کرتے رہیں۔
4. ڈرامہ/کہانی/مضمون کو آسان/مختصر الفاظ میں لکھنے کی مشق کروائیں (استاد عنوان خود منتخب کریں)۔
5. آسان نظموں کو پڑھوا کر انہیں سادہ نثر میں لکھوائیں، مارکنگ کریں اور انعام دیں (بچوں کو نظم کے انتخاب کی آزادی دیں)
6. مختلف شعراء کے آسان اشعار تختہ تحریر پر لکھ کر اس کی نثر لکھوانے کی مشق کروائیں۔ (علامہ اقبال، صوفی تبسم، حفیظ جالندھری اور محمد حسین آزاد)۔
7. بچوں سے اپنی پسند کے جملوں کو آسان/سادہ الفاظ میں لکھنے کی مشق کروائیں۔

Social Studies

Class 5

SOCIAL STUDIES

CLASS 5

CONCEPT 1: LATITUDE AND LONGITUDES

Tips for the teachers

Curricular reference	Understand there are 180 imaginary lines of latitude and 360 imaginary lines of longitude; Name the main lines of latitude and longitude; Use longitude and latitude to locate major cities of Pakistan and the world (p. 23)
Textbook reference	Pp. 1 – 5
What does the assessment data tell us?	• When asked whether latitude and longitude lines are real: 43% answered correctly • When asked how Equator divides the Earth: 36% answered correctly

Tips for the teachers

1. Before teaching the concept:
   - Make flash cards showing meaning of longitude and latitude. Latitude, means "breadth, width, and size. "Longitude means imaginary lines that divide the globe through the North and South Pole.
   - If possible, bring globe, atlases, world map and cardinal compass to the class.
2. Draw vertical and horizontal lines on a balloon. Begin your lesson with vertical and horizontal lines on the balloon and introduce longitude and latitude to the students as explained thorugh the flashcard earlier.
   a. Now use the map and identify the imaginary lines and its use.
   b. While teaching 'Latitude and Longitudes', revise all types of angles with the help of protractor by drawing a picture of big protractor on the board.
3. Now use a football/ball and draw degrees on the ball with board marker to explain the use of imaginary lines in identifying different places. .
4. Practice the concept of 'Latitude and Longitude', by asking students to locate different places on the map with the help of latitude and longitude. Example: Which country is 20^0North and 40^0 East?

CONCEPT 2: MAP SKILLS AND PAKISTAN'S LOCATION

Curricular reference	Identify the position of things on maps using the terms cardinal and intermediate directions (p.14 – Class 4); Identify the significance of the location of Pakistan (p. 23 – Class 5)
Textbook reference	Pp. 6
What does the assessment data tell us?	Countries located at north or west of Pakistan: 33% answered correctly

Tips for the teachers

1. Create a classroom display of cardinal directions (North, South, East and West) by using resources available in the classroom like using paper plates or by drawing on any paper.
2. Ask the students to share where they have seen and used these directions before. Take time to discuss these with the class. Explain that we need to know these directions in order to be able to use them. Place direction signs in your room, according to where they exist.
3. Take students outside the class and ask them simple questions like who is standing to their north, south, west or east.
4. For further practice, create a maze of desks in your classroom and have students give directions to a blindfolded classmate**.** Generally having friends guide each other through the maze has the most successful results.
5. Square line pages or graph paper can also be used to start an activity to locate things on the paper according to the cardinal directions given above. Students can stand in the school ground and locate places and its direction which will further help to clear the concept.
6. Ask students to draw a map of their house with step by step directions leading to their bedroom. The directions must include cardinal directions.
7. Give worksheets of Pakistan's map and flash cards of neighbouring countries. Give directions like east, west, south/north and ask students to place the flash card of that particular country in its specific direction.

CONCEPT 3: IMPACT OF HUMAN ACTIVITIES ON CLIMATE

Curricular reference	Explain various ways in which human activities affect climate; Identify individual and societal actions that can be taken to reduce adverse effects of human activities on climate (p.25)
Textbook reference	Pp. 39 – 42
What does the assessment data tell us?	• Impact of deforestation, industries, use of fossil fuels on climate: 40% answered correctly

Tips for the teachers

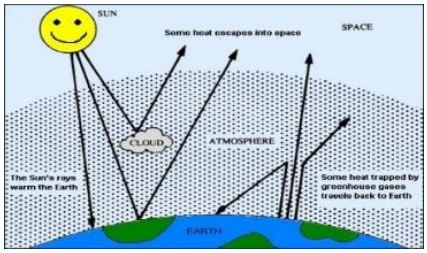
1. Display charts and vocabulary related to the topic like industrialization, farming, pollution, deforestation, etc. in the class.
2. Create fake visual untidy environment in the school to start class discussion or after break what kind of pollution student's observe in school ground.
3. Ask students about the shocking human activities from the surrounding.Help them create a Photo-story board in school by collecting photographs from magazines, newspapers and express how they can reduce pollution.
4. Organize Art competition exposing pollution or sketching to bring awareness in other class levels too.
5. Introduce the three R's project (Reduce, Reuse and Recycle) like Plastic bottles can be used to make garden pots, flowers, etc.

CONCEPT 4: GREENHOUSE GASES AND THEIR EFFECTS

Curricular reference	Explore how human activities are responsible for the greenhouse effect (p. 25)
Textbook reference	Pp. 40 – 43
What does the assessment data tell us?	Greenhouse gases effect climate: 33% answered correctly

Tips for the teachers

1. Discuss the relationship between the Earth and the Sun. Make a diagram on the board with the help of student's feedback. Talk about importance of Earth's atmosphere and introduce the vocabulary like greenhouse gases and greenhouse effects. (The gases in the atmosphere stop some of the heat from escaping into space. These gases are called greenhouse gases and the natural process between the sun, the atmosphere and the Earth is called the 'Greenhouse Effect', because it works the same way as a greenhouse)

a. 

2. Display key words like radiation, heat, trap, gases, carbon dioxide etc. in the classroom.

3. Make mini greenhouse in the classroom using plastic bottles, soil and a plant. Tell students why they are making greenhouse. (A greenhouse is a house made of glass. It has glass walls and a glass roof. People grow different plants in them. A greenhouse stays warm inside, even during winter. Sunlight shines in and warms the plants and air inside. But the heat is trapped by the glass and can't escape. So during the daylight hours, it gets warmer and warmer inside a greenhouse, and stays pretty warm at night too.)

4. Discuss the importance of various greenhouse gases, such as carbon dioxide, are very important to Earth's atmosphere and climate. Thus, the Earth naturally produces the right balance of gases needed to create the perfect climate to sustain life.

5. Ask students to draw what they understand in the end of the lesson and label what's happening in the picture.

CONCEPT 5: FEDERAL AND PROVINCIAL GOVERNMENT

Curricular reference	Compare the formation of the government and provincial and federal levels; Explain their relationships (p.28)
Textbook reference	Pp. 81 – 86
What does the assessment data tell us?	When asked who the heads of the country, government, provinceare: 38% answered correctly

Tips for the teachers

1. Display chart and vocabulary about Federal and Provincial Government in class for discussion and explanation.
2. Assign certain duties to the students in groups and explain how the federal and provincial governments work. Create a role play in the class.
3. Once the students grasp the concept, use coloured chart papers to write responsibilities of each government and display in the class. Assemble them together to understand role of each government.

CONCEPT 6: IMPORT AND EXPORT IN PAKISTAN

Curricular reference	Define the terms public goods, services, imports and exports; Identify the three largest exports and three largest imports (pp.31 – 32)
Textbook reference	Pp. 129 – 131
What does the assessment data tell us?	Benefits of exports: 35% answered correctly

Tips for the teachers

1. Explain the students; exchange of goods is called trade. This also caters buying and selling of goods or services.
2. Explain the term import (entry of good) and export (exit of goods) by giving examples of exchange of daily life goods with neighbourhood. Elaborate further with examples of exchange of goods such as oil, rice, surgical items with other countries.
3. Discuss the meaning of import and export first and then introduce appropriate vocabulary such as importer, import, exporter, export and trade etc. to the students.
4. Develop a concept map with student's feedback about the benefits of import and export in Pakistan separately on white board.
5. Ask the students to collect items (in small amount), wrappers and empty boxes in groups and prepare a small display for the class.
6. Make a list of products or resources imported by Pakistan that are most important.
7. Next to each import product, tell whether the import is a product (something created by people) or a natural resource (something that is found naturally).
8. Develop practical questioning session in the end to make students realize why Pakistan imports these products, what might happen if the import stops due to any reason like war.
9. Relate this topic with the previous one that governments establish imports and exports for country's benefit and help people.

قومی نصاب 2006	اُن ذرائع کو بیان کر سکیں جن پر پاکستان کے لوگ باہمی انحصار کرتے ہیں۔
ٹیکسٹ بک	جماعت پنجم - صفحہ 24 اور 25
جانچ کے نتائج	18% طلبہ نے اس سوال (خام مال اور زرعی پیداوار کے لئے جو علاقے دوسرے خطوں پر انحصار کرتے کا درست جواب دیا

تجاویز:

1. درج ذیل تصورات کی وضاحت Flash Card پر لکھیں اور کمرۂ جماعت میں سبق شروع کرنے سے 3 دن پہلے لگائیں۔

ذرائع: طریقے **باہمی:** ایک دوسرے پر انحصار کرنا

خام مال: ناپختہ، کچا مال **زرعی پیداوار:** مثلاً گندم، مکئی، چنا، گنا وغیرہ

2. باہمی انحصار کے موضوع پر رول پلے کروائیں جس میں ایک طالب علم شہری اور دوسرا کسان کا کردار ادا کرے۔

کسان اناج وغیرہ کو فروخت کرے گا اور شہری اس کی قیمت ادا کرے گا۔ جو باہمی انحصار پر مبنی ہو گا۔

3. طلبہ کے 4 گروپس بنا کر انھیں درج ذیل عنوان دیں۔

1. پہاڑی علاقہ۔ 2. میدانی علاقہ۔ 3. صحرائی علاقہ۔ 4. ساحلی علاقہ۔

طلبہ سے کہیں کہ وہ اپنے موضوع پر مواد جمع کر کے اپنا کردار کلاس روم میں پیش کرے۔

تصور 8: آب و ہوا کے مختلف خطے

قومی نصاب 2006	دنیا کے نقشے پر آب وہوا کے مختلف خطِوں کی شناخت کر سکیں۔ صفحہ نمبر: 25
ٹیکسٹ بک	جماعت پنجم - صفحہ 32-35
جانچ کے نتائج	21% طلبہ نے صحیح جواب دیے۔ (خطِ استوا سے انتہائی جنوب میں واقع ممالک)

تجاویز:

1. چارٹ پر نقشہ کی وضاحت کریں۔ اور کمرے میں لگالیں۔ ایک ایسا خاکہ جسمیں مادی خصوصیات پر مبنی کسی رقبے کی تصویر ہو۔ اور جسمیں سڑکوں اور شہروں کی وضاحت ہو۔ کو نقشہ کہا جاتا ہے۔
2. منطقہ حارہ، منطقہ معتدلہ اور منطقہ باردہ کو سمجھانے کے لیے ایک غبارہ/ گیند لیں اور اسمیں ترتیب سے فرضی لائنیں لگائیں۔ مختلف رنگوں کی مدد سے مختلف خطوں کی وضاحت کریں۔
3. طلبا کو تین گروپوں میں تقسیم کریں۔ منطقہ حارہ، منطقہ معتدلہ اور منطقہ باردہ دے کر ان کے متعلق معلومات کو باری باری پیش کروائیں۔ آخر میں استاد تینوں خطوں پر بحث کرنے کے بعد ان کا خلاصہ پیش کریں۔
4. ایک گلوب لے کر طلبہ کو مختلف خطّوں کے ہر سمت میں موجود ممالک کو تلاش کر کے اس کی فہرست بنوائیں۔

تصور 9: پاکستان یا عالمی تاریخ کے اہم مرد و خواتین کے مثالی کرداروں کی شناخت

قومی نصاب 2006	پاکستان یا عالمی تاریخ کے اہم مردوں و خواتین کے مثالی کرداروں کی شناخت کر سکیں۔ صفحہ نمبر: 26
ٹیکسٹ بک	جماعت پنجم - صفحہ 58، 59، 60
جانچ کے نتائج	22% فیصد طلبہ نے صحیح جواب دیا۔ (جنوبی افریقہ کے پہلے سیاہ فام صدر)

تجاویز:

1. بچوں سے سوالات کے ذریعے دنیا کے مختلف مشہور مرد و خواتین کے نام اور کارنامے پوچھیں۔ ان کو بورڈ پر لکھیں۔
2. نیلسن منڈیلا اور مولوی فضل حق کے مثالی کردار کے بارے میں کہانی کی طرز پر ان شخصیات کو اخذ کروائیں۔
3. ان شخصیات کے زندگی کے مختلف ادوار کی تصاویر طلبہ کو دکھائیں۔
4. طلبہ سے نیلسن منڈیلا اور مولوی فضل الحق کی مکمل زندگی کے بارے میں ٹائم لائن بنوائیں۔
5. طلبہ کو پاکستان اور عالمی تاریخ کی اہم شخصیات کے بارے میں معلومات اور تصاویر ڈھونڈنے کا ہوم ورک دیں۔
6. جماعت میں اس معلومات اور تصاویر کو چارٹ پیپر پر چسپاں کروائیں۔
7. طلبہ اس معلومات کو دوسرے طلبہ کے سامنے پیش کریں۔

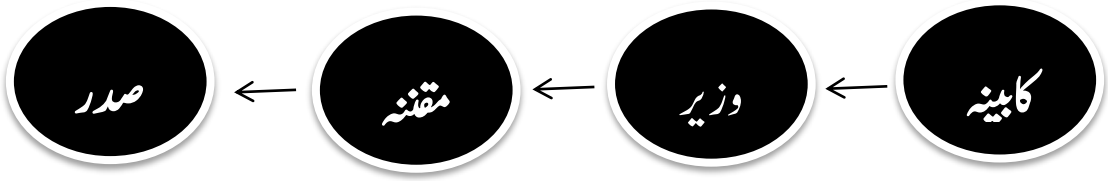
تصور 10: پاکستان میں قانون سازی کے مراحل

قومی نصاب 2006	پاکستان میں قانون سازی کے مراحل/اقدامات کی نشاندہی کر سکیں۔ صفحہ نمبر: 28
ٹیکسٹ بک	جماعت پنجم- صفحہ 84
جانچ کے نتائج	21 فیصد طلبہ نے صحیح جواب دیا۔ (قانون سازی کے مراحل میں قانون کا مسودہ مقننہ)

تجاویز:

رول پلے کے ذریعے کرانا:

1. طلبہ کو قانون سازی کے مختلف مراحل سے آگاہ کریں اور مختلف کرداروں کے ذمہ داریاں تفصیل سے بتائیں۔
2. رول پلے کے لیے مختلف کرداروں کو اپنے متعین کیے گئے رول کی ذمہ داریوں سے آگاہ ہو۔
3. کلاس روم کو قومی اسمبلی کے طرز پر تیار کریں۔
4. 3 سے 4 طلبہ کے دو گروپ بنائیں ایک کو کابینہ اور دوسرے کو مقننہ کے کردار کی ذمہ داری دیں۔
5. اس کے علاوہ ایک طالبعلم کو وزیر اور دوسرے طالبعلم کو صدر کا کردار دیں۔
6. ٹاسک (کام): کابینہ گروپ کو سکول کے متعلق ایک نئی تجویز بل کی شکل میں ترتیب دینے کو کہیں۔ اس تجویز کو مندرجہ ذیل مراحل سے گزاریں۔



تصور 11: پاکستان کے دستور میں شہریوں کو دیے گئے حقوق

قومی نصاب 2006	پاکستان کے دستور میں شہریوں کو دیے گئے کچھ حقوق بتا سکیں۔ صفحہ نمبر: 28
ٹیکسٹ بک	جماعت پنجم - صفحہ 93
جانچ کے نتائج	19 فیصد طلبہ نے صحیح جواب دیا۔ پاکستان کے آئین 1973 اظہارِ رائے کے حقوق)

تجاویز:

1. آئین یا دستور کا تصوّر دہرائیں کہ حکومت کو چلانے کے لیے قواعد وضوابط کے مجموعے کو آئین/دستور کہا جاتا ہے۔ اس کو فلیش کارڈ پر لکھ کر دیوار پر لگا دیں۔
2. حقوق پڑھانے کے لیے کمرۂ جماعت 14 طلبہ کا انتخاب کریں۔ ہر طالبعلم کو ایک بنیادی حق دے دیں۔ مثلاً ایک طالبعلم کہے گا ''**میں آزاد شہری ہوں۔ مجھے زندہ رہنے کا حق ہے**''
   a. دوسرا طالبعلم کہے گا ''**میں آزاد شہری ہوں کیونکہ مجھے غیر قانونی نظر بندی اور گرفتاری سے تحفظ کا حق حاصل ہے۔**''
   b. تمام حقوق کو مثالوں کے ذریعے سمجھائیں۔
3. طلبہ کو ایک بنیادی حق کا انتخاب کرنے کا موقع دیں۔ ان کو گھر کے لیے اس بنیادی حق سے متعلق اخبارات سے معلومات اور تصاویر ڈھونڈ کر لانے کا کام دیں اور دوسرے دن طلبہ کی پوری جماعت کے سامنے پیش کش کروائیں۔

قومی نصاب 2006	اطلاعات، معلومات کے مختلف ذرائع کے فوائد اور نقصانات کو سمجھ سکیں۔(صفحہ نمبر: 29
ٹیکسٹ بک	جماعت پنجم- صفحہ 98-102
جانچ کے نتائج	24 فیصد طلبہ نے صحیح جواب دیا۔(خبروں کو عوام تک پہنچانے کا سب سے سستا اور مؤثر ذریعہ)

تجاویز:

1. طلبہ کے دیے گئے چار گروپ بنائیں۔ ہر گروپ اپنے ذریعۂ ابلاغ کے فوائد اور دوسرے کے نقصانات کو بیان کریں۔
   - گروپ 1: ریڈیو
   - گروپ 2: ٹیلی ویژن
   - گروپ 3: اخبار
   - گروپ 4: انٹرنیٹ

مثلاً ایک گروپ ریڈیو کے فوائد اور ٹی وی کے نقصانات پر بحث کرے گا۔

دوسرا گروپ ٹی وی کے فوائد اور ریڈیو کے نقصانات پر بحث کرے گا۔

اسی طرح تیسرا اور چوتھا گروپ آپس میں اخبار اور انٹرنیٹ کے فوائد اور نقصانات پر بحث کرے گا۔

2. استاد اہم نکات بورڈ پر لکھیں۔ سب سے بہترین بحث کرنے والے گروپ کو کامیاب قرار دے کر حوصلہ افزائی کریں۔

نوٹ: مباحثی طریقہ تدریس سے کروائیں۔

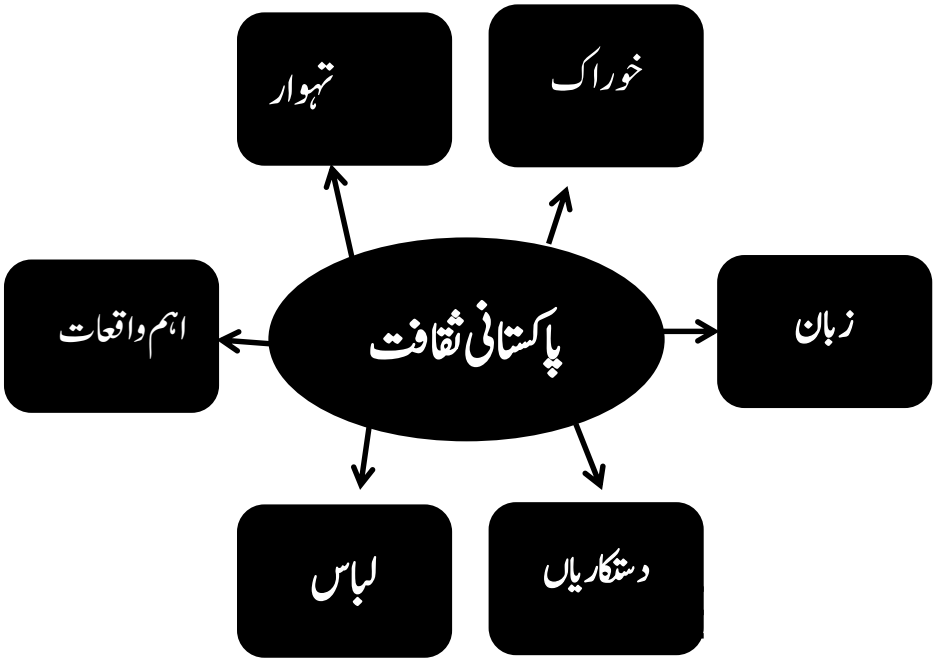
تصور 13: پاکستان کے مختلف علاقوں کی ثقافت

قومی نصاب 2006	پاکستان کی ثقافت کے تنوع و دستکاریاں، زبان تہوار، لباس، اہم واقعات اور خوراک وغیرہ کو بیان کر سکیں۔ صفحہ نمبر: 30
ٹیکسٹ بک	جماعت پنجم - صفحہ 109-110
جانچ کے نتائج	8 فیصد طلبہ نے صحیح جواب دیا۔ (پاکستان کے مختلف علاقوں کے ثقافتوں کے لیے درست بیان)

تجاویز:

1. طلبہ کے چھ گروپ بنائیں۔ اور ان کو گروپوں کے لحاظ سے درج ذیل عنوانات پر اخبارات، رسائل، انٹرنیٹ یا والدین سے پوچھ کر اس پر ایک پیرا گراف / مضمون پاکستانی ثقافت کے حوالے سے تحریر کروائیں۔
2. گروپ نمبر 1: دستکاریاں
3. گروپ نمبر 2: زبان
4. گروپ نمبر 3: تہوار
5. گروپ نمبر 4: لباس
6. گروپ نمبر 5: اہم واقعات
7. گروپ نمبر 6: خوراک

آخر میں خاکے کو بورڈ پر لکھ کر خلاصہ پیش کریں۔



تصور 14: پاکستان کا اقتصادی نظام

قومی نصاب 2006	پاکستان کا اقتصادی نظام بیان کریں۔ صفحہ نمبر: 32
ٹیکسٹ بک	جماعت پنجم - صفحہ 138
جانچ کے نتائج	12% طلبہ نے صحیح جواب دیے۔ (پاکستان کی اقتصادی نظام کی خصوصیات)

تجاویز:

1. طلبہ کو اقتصادی نظام کے بارے میں تفصیل سے سمجھائیں کہ اقتصادی نظام سے مراد وہ طریقہ کار ہے جس کے ذریعے ملک کی معیشت کو چلایا جاتا ہے۔

اقتصادی نظام کو فلیش کارڈ پر لکھ کر دیوار پر لگا دیں۔

2. استاد طلبہ کے جوڑے بنائیں اور اقتصادی نظام کی خصوصیات پر بحث کرائیں۔
3. صنعت کاری، بینکنگ سسٹم، عالمی تجارت اور ٹیکسوں کے نظام پر طلبہ سے پوری جماعت کے سامنے پیش کش کروائیں۔

Science

Class 5

SCIENCE

CLASS 5

CONCEPT 1: LIVING THINGS- VERTEBRATES AND INVERTEBRATE

Curricular reference	Differentiate between vertebrates and invertebrates according to key characteristics; Identify vertebrates and invertebrates from their surroundings (p. 32)
Textbook reference	p. 6-13
What does the assessment data tell us?	Identification of vertebrates: 44% answered correctly

Tips for the teachers

1. To teach students about vertebrates and invertebrates, introduce the key concept of backbone to the students. Draw backbone on the board. Point and introduce the terms backbone or spine or vertebral column. Explain them that animals with backbone are called vertebrates like cat, fish, cow. Also explain that invertebrates are animals that do not have a backbone such as spiders, insects, crabs, etc.

2. To reinforce the concept of vertebrates and invertebrates. Instruct students to feel their backbone by running their hand down the back of their neck and between their shoulder blades. Show them the picture of their back bone. Show children pictures of some invertebrates and have them observe that these animals do not have backbone.

3. To have students experiment the structure of backbone, provide them thick wires and beads. Instruct them to sting the woodenbeads to form a backbone like the figure at point 6 below. Fasten both the ends. Have the students explore how the backbone of a vertebrate animal is made up of both bones which allow it to bend and move.

4. Provide practice to clarify the concept of vertebrates and invertebrates by having children paste pictures of vertebrates and invertebrates in the revenant columns made on board or chart paper.

Vertebrates	Invertebrates

5. Provide individual practice to reinforce the concept of vertebrates and invertebrates by instructing students to draw animals and insects under the heading of vertebrates

and invertebrates. Display their work. Appreciate the correct classification by students and make corrections where necessary.

6. To assess students' understanding of the concept of vertebrates and invertebrates arrange a competition. Divide the class into two groups. Ask them to write the names of as many vertebrates and invertebrates as they can. The team with the most correct answers wins.

CONCEPT 2: LIVING THINGS- CLASSIFICATION OF ANIMALS.

Curricular reference	Classify vertebrates into mammals, reptiles, fish, birds and amphibians on the basis of their characteristics (p. 32)
Textbook reference	p. 7 – 10
What does the assessment data tell us?	• Characteristics of mammals: 53% answered correctly • Characteristics of reptiles/ amphibians: 38% answered correctly

Tips for the teachers

1. Before teaching students about classification of vertebrates, revise the concept of vertebrates and invertebrates using pictures of animals.

2. Discuss basic characteristics of animals discussed in first lesson to retain core knowledge. Write the characteristics of animals individually on the board and develop a concept map. Assign students home work to draw and write properties of their favorite animal.

3. Explain that living things can be sorted into groups in many ways and are classified by similar characteristics. Explain the term classification as :

    a. *Classification or to classify means to put similar things in groups. Scientists use classification*

    b. Systems for grouping similar types of organisms

4. Introduce 5 groups of vertebrates; birds, fishes, amphibians, reptiles and mammals with the help of their pictures, showing vertebral column. Now ask students to give few examples of each group.

Groups of vertebrates
Warm-blooded: Body temperature stays the same regardless of temperature outside Cold- blooded: Body temperature depends on the temperature outside
Amphibians: Are born in the water. When they are young they breathe through gills. When they become adults they live on land and breathe through lungs. At this stage, they can only spend some time in the water. Birds: Many birds can fly but not all such as chickens and penguins

5. Introduce the characteristics of vertebrates make a table on chart paper. Write the names of the animal classes in table form (see below). Paste one picture or draw an example of each class.Put the chart paper up on the wall and point to the different groups. Say: *To classify we need to think of characteristics, for example what is the animal covered with?* If students cannot respond prompt them: *Mammals are covered in fur or hair, birds have feathers, fish and reptiles have scales and amphibians have moist skin.*

6. Keep writing what students say, have students assist in writing up. Fill in the gaps where needed. You should end up a chart as such:

	Mammals	Birds	Reptiles	Amphibians	Fish
Covered with?	Hair or fur	Feathers	Scales	Moist skin	Scales
Where does it live?	Mostly land, some water	Land only	Mostly land, some water	Land and partially water	Water only
Breathe with?	Lungs	Lungs	Lungs	Gills and lungs	Gills
Warm-blooded or cold-blooded?	Warm	Warm	Cold	Cold	Cold
Details of its young	Most young born alive. Feed milk to their babies.	Lay hard-shelled eggs	Lay leathery shelled eggs	Lay eggs in the water	Lay eggs without shells
Examples	Humans, bears, dogs, dolphins, bats	Chickens, pigeons, owls	Snakes, turtles, crocodiles	Frogs, salamanders	Fish, sharks, sea horses

7. Reinforce the information learnt about the classification of vertebrates, have students develop flashcards for each class of animals. On one side they can write the characteristics and on the other side paste or draw pictures of animals in that class. Have them use these to learn characteristics in pairs

8. Extend students' learning about the groups of vertebrates, assign students to draw 1 animal of each group and write key features of that group such as body parts, skin, habitat, food. Display their work and appreciate the correct work. Make corrections where necessary.

9. To have students further practice describing animals'characteristics, play Who am I? Instruct students to prepare hints for their friend, describing an animal's characteristics and other students have to guess the animal and its group such as:
   - An animal has scales, it is cold-blooded and lives in water?
   - Animals who have hair and feed milk to their babies. Who are they?

   Clarify the classification of some of the confusing animals, discuss the information and ask questions as given below :
   - Why is a turtle a reptile and not an amphibian?

Answer: Turtles have scales on their bodies. They do not transform the way amphibians do. They breathe through lungs throughout their life. They can live in water; whereas amphibians can only live in water for part of their life.

- Why is a dolphin a mammal? Even though it lives in the water It is warm-blooded, it breathes through lungs, feeds milk to its young and even has some hair particularly when it is young

.

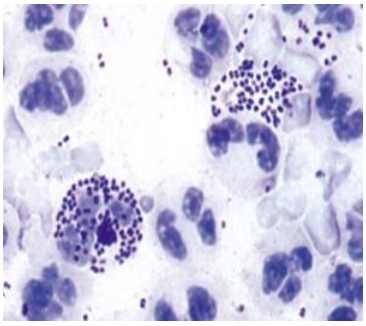
CONCEPT 3: MICRO-ORGANISM

Curricular reference	Define microorganisms; Identify the main groups of microorganisms and give examples for each; Describe the advantages and disadvantages of microorganisms in daily life; Define infection; Identify ways by which microorganisms can enter the human body (p. 32)
Textbook reference	Pp. 22 – 30; 25 - 31
What does the assessment data tell us?	• Characteristics of different microorganisms and infections caused bythem: 32% on average answered correctly

Tips for the teachers

1. Help students understand the difference between different microorganisms and their characteristics, clarify the concept by introducing the term microorganism as an extremely small living thing that can only be seen with a microscope

2. To give children a firsthand experience of observing a microorganism, show a picture or model or real organism through prepared slides and microscope to the students if possible.


3. Show pictures of microorganisms that have harmful effects; called germs and they cause illness and diseases. Inform students that microorganisms rot the cooked and uncooked food.
4. Divide children in groups and instruct them to list down ways in which a bacterial disease can enter the body (breathing in, drinking water, eating food, and cuts) and ways to prevent transmission.
5. Discuss the beneficial effects of microorganisms such as
    - Bread is made with the help of microorganisms called **yeast** which makes the bread dough rise
    - Bacteria thickens yoghurt and cheese
    - Bacteria helps in decomposition of dead material
    - We eat mushrooms (fungi) because of high nutritional value
    - Bacterias in our stomach help process the food and keep us healthy.

6. Reinforce the advantages and disadvantages of microorganisms by showing students the picture given at the right:

Ask them to identify and encircle the places where microorganisms would be at work.

Then put a 'star' on anything that is helpful and an '*x'* on anything that is harmful.

Assess students' understanding of microorganisms, prepare a chart shown below and instruct children to fill the information about the type, advantages and disadvantages in the given columns

Micro-organism	**Definition**	**Advantages**	**Disadvantages**
Virus	•	•	•
Bacteria	•	•	•
Fungi	•	•	•

CONCEPT 4: SEED STRUCTURE AND GERMINATION

Curricular reference	Compare the structure and function of French bean and Maize seed; List the functions of cotyledons (p. 33)
Textbook reference	Pp. 38 – 41
What does the assessment data tell us?	Identify monocotyledonous and dicotyledonous seeds: 32% answeredCorrectly

Tips for the teachers

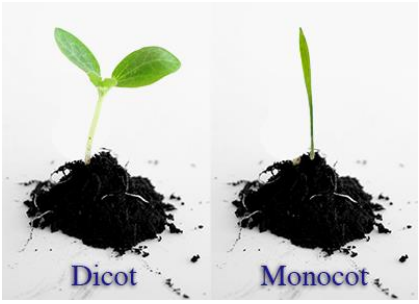
1. Help students understand the difference between monocotyledon and dicotyledonous seed, soak seeds a day earlier and show it to them. Tell students that these seeds will grow into plants as shown in the pictures below. Show students the pictures and:

   Point at the leafy part and say a **cotyledon** is the leafy part of the seed that will grow into the leaves.

   Point at the seed with one leaf and say that this is monocotyledon seed as "mono" means **one,** having one **cot**yledon.

   Point at the seed with two leaves and say that this is dicotyledonous seed as di" mean **two**. Having two **cot**yledons.

   Further inform the students that monocot seed cannot be separated into two pieces easily while dicot seeds can be divided into two parts.

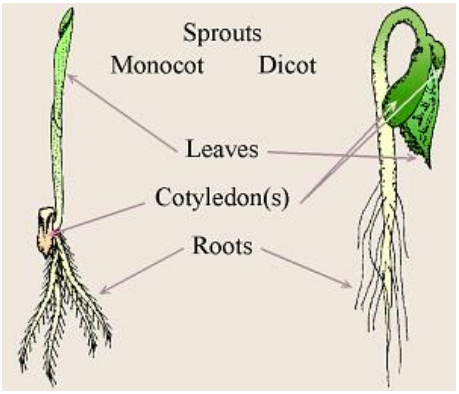


2. Help the student experiment how monocot and dicot seeds grow , divide the class in groups and provide them with monocot and dicot seeds of different plants like corn, beans, and peanuts etc. instruct children to soak the seeds in water.


Growth of embryo portion of the bean seed.


Growth of whole bean seed.

3. Instruct student to remove the upper cover of a seed gently and observe its internal structure. Point at the external structure of seeds and ask them to observe labeled diagram of monocots and dicots as shown in the picture below.



4. Show the pictures of monocot and dicot plants/ seeds. Instruct students to paste the pictures in the relevant column on the chart as follows:

Seeds/Plants	
Monocot	**Dicot**

CONCEPT 5: ENVIRONMENTAL POLLUTION- CAUSES AND EFFECTS

Curricular reference	Explain main causes and effects of water, air and land pollution on environment and suggest ways to reduce them (p. 33)
Textbook reference	Pp. 50 – 52
What does the assessment data tell us?	• Causes of pollution: 37% answered correctly • Effects of pollution: 34% answered correctly

Tips for the teachers

1. Help students understandthe causes and effects of pollution. Display pictures of water, air and land pollution. Let the students identify what is wrong with the pictures displayed and who is causing them.

2. Write students' responses underneath each picture. At the end of the activity, discuss the meaning of **pollution** (the presence of harmful or poisonous substances into the environment) and its kinds.

3. Reinforce that *Air pollution* is the bad air we breathe. Human activities can release substances into the air, some of which can cause problems for humans, plants, and animals. *Land pollution* is the trash and other material that seeps into the Earth's surface. *Water pollution* occurs when a body of water is affected due to the addition of large amounts of materials into the water.

4. To help students understand the causes and effects of pollution infer that people can't survive without clean water, air and land therefore pollution free environment is responsibility and concern of all people in every community. Relate pollution related diseases with students' own life and ask them about what kind of health problems they face due to air, water and land pollution. Write student responses on the board as a web. (Skin Rashes, Asthma, Coughing, Bronchitis, Headaches, Heart problems, Dizziness, Throat and Eye Irritation, Cancer).

5. To assess student's understanding about the causes and effects of pollution, instruct them to gather related information from the book that they have and fill in the chart as shown below.

Type	Causes	Effects
Air	•	•
Water	•	•
Land	•	•

Land pollution

Air Pollution

Water pollution

CONCEPT 6: MATTER AND STATES- PROPERTY OF STATES

Curricular reference	Describe the properties of the three states of matter on the basis of arrangement of particles (p. 33)
Textbook reference	Pp. 61 – 63
What does the assessment data tell us?	40% on average answered correctly

Tips for the teachers

1. Help students understand the properties of three states of matter, introduce the term matter as anything that takes up space and has mass.

2. Tell students that matter can be found in three states - solid, liquid and gas. Give some examples and then ask children to write some more in the form of web.

3. Collect different items (water, juice, book, helium gas balloons and Pepsi) to investigate their observable properties. For example:

    a. Show students a book or pencil and ask: *What state is this? Does it have fixed shape?Does it have fixed volume? How close are the molecules?*

    b. Explain: *Solids are fixed in shape because their molecules are very close together*

    c. Show students a bottle of water and ask students what state this is and why?

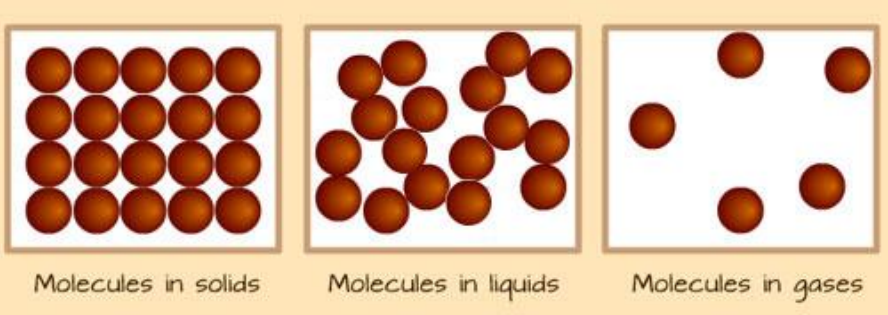
    d. Have students pour water into a glass and a pot and describe what they see (the water takes on the shape of each)

    e. Explain: *Liquids can flow from one place to another because their molecules are not as close as solid.*

4. Have students make this table on the chart and fill it in to explain the properties ofMatter.

Type	Solid	Liquid	Gas
Shape	Fixed	Not fixed	Not fixed
Volume	Definite	Definite	Indefinite
Space between molecules	Very close together	Enough space to move	Far apart

5. To help students understand the molecular arrangement of the three states of matter inform students that matter is made up of atoms which when put together form molecules. Show students a diagram of the molecules in solids, liquids and gases.



6. Divide the class into three groups, have students draw diagrams of the molecules in solids, liquids and gases on the chart. Have one person in each group explain the diagram to the class.

CONCEPT 7: MATTER AND STATES- CHANGE OF STATES

Curricular reference	Investigate the effect of heat on particle motion during a change in states; Demonstrate and explain the processes that are involved in the change of states (p. 33)
Textbook reference	Pp. 64 – 70
What does the assessment data tell us?	Change of states: 39% on average answered correctly

Tips for the teachers

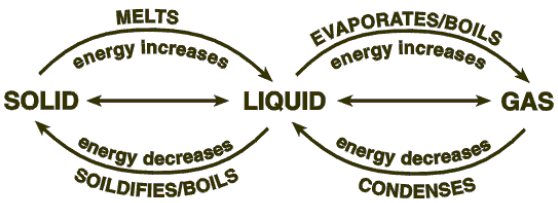
1. Introduce the changing state of matter through an experiment if possible, otherwise, explain the entire experiment through pictures. Heat ice infront of children and explain ice which is solid is turning into water which is a liquid. Point at the water is turning into steam which is a gas when heat is provided. Hold a lid over the steam to collect the water vapours and inform students that the water vapours turn into water after cooling. Keep the water collected in the freezer and let children observe how it turns into ice. Alternatively, you can use candle wax and show melting and freezing of wax.

2. After the experiment, introduce the terms melting and evaporation with the meanings in the class. Explain if the matter gains heat, its molecules start vibrating fast which changes the state of matter. Ice (solid) gains heat and become water (liquid). Water gains heat and become steam (gas).

3. Explain that if we reverse the process, the movement of molecules slows down and change of state takes place. Introduce the terms condensation and freezing with meanings and examples like Steam(gas) when lose heat/energy it turns into water(liquid) and when water lose heat/energy further it freeze into ice(solid).

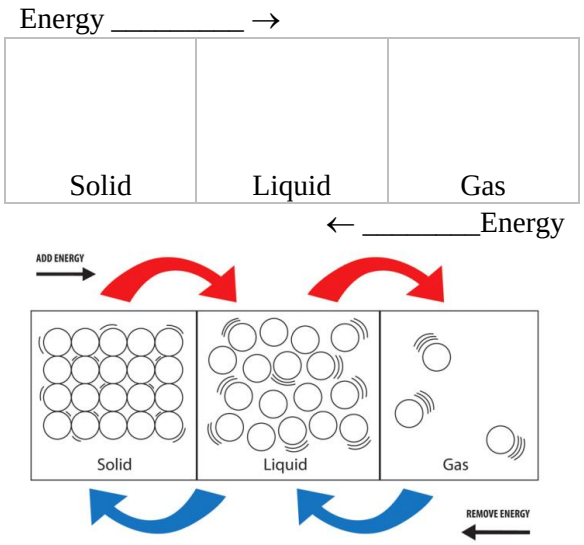
4. Draw this diagram on the board. Recap what you said about melting/freezing using diagram.

   Pointing at the diagram, say: *What happens when a liquid converts to a gas? What happens to the energy? And the vibration of molecules? What is this process called?*



5. Ask students some other examples from daily life like melting of chocolate and candle wax. Dew drops (liquid) are formed on grass in cool mornings when dense fog (water vapours) in the cool air condenses.

6. Draw the first diagram on the board. Ask the students to fill in the particles. Then have them fill in the blanks about whether the energy is increasing or decreasing. The end result should look somewhat like the second diagram below.

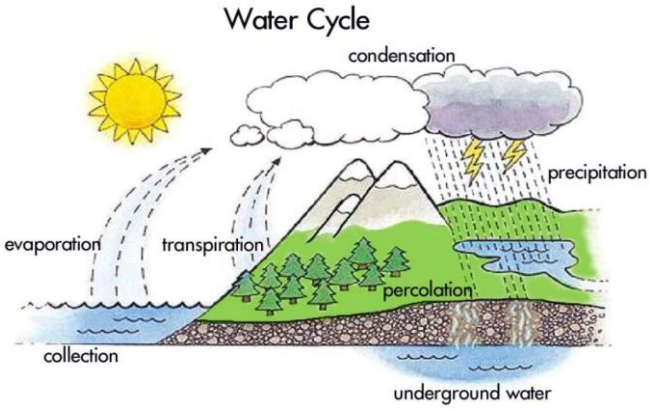


CONCEPT 8: MATTER AND STATES- CONDENSATION AND EVAPORATION IN NATURE.

Curricular reference	Describe the role of evaporation and condensation in the water cycle
Textbook reference	Pp. 67 – 70
What does the assessment data tell us?	Defining evaporation and condensation: 12% answered correctly

Tips for the teachers

1. Start your lesson by revising the definitions of condensation and evaporation.
2. Draw this diagram on the board.



3. Ask the following questions and encourage the students to give their responses

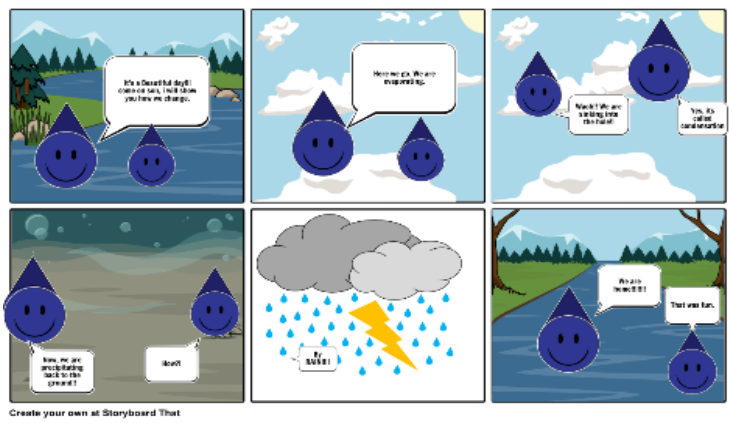
-Where is water found on earth? (Sea, lake, ponds, rivers, puddles)
-What happens when sun comes out? (Evaporation takes place)
-Where the water goes when something is drying? (Earth's atmosphere)
-How does water temporarily get stored in Earth's atmosphere? What is this process called?(By the process of condensation clouds are formed and store water in the form of water droplets)
-How does water fall from earth's atmosphere? What is the process called? (When clouds get heavy they release water droplets that fall on earth. This is called precipitation)

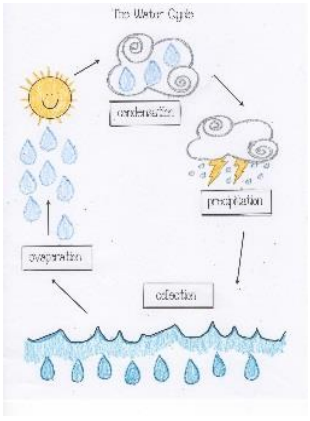
Explain: *Water exists on earth in solid, liquid and gas forms, as ice, water and water vapor. It is continuously moving between its different forms or states in the water cycle. The processes involved in the water cycle includes evaporation, condensation and precipitation.*

4. Conduct the experiment to make children observe the water cycle. Place the mug in the bottom of the bowl. Add water around the mug so that it comes up to 2/3rd of the mug. Mark at the amount of water to show the water level.

Place a thin plastic sheet to cover the mug and bowl and fasten it with a string. Place the mug and bowl in a sunny area. At the end of the experiment make the students observe the drops of water at the top of the cling film and that the water level has lowered proving that evaporation has taken place. The condensation droplets are the clouds. They will be dripping back into the bowl but you should find that some of the water is now in the cup (your mountains) demonstrating precipitation

5. Assign students to draw the water cycle on paper and label it. Display students work in the class.





6. Apply knowledge of water cycle by writing a creative story or autobiography of water droplets or make funny posters of water cycle

CONCEPT 9: FORCES & MACHINES – FRICTION

Curricular reference	Describe friction and its causes; Explain the advantages and disadvantages of friction; Suggest methods to reduce friction; Identify what cyclists; swimmers and parachutists do to reduce friction (p. 34)
Textbook reference	Pp. 76 – 80
What does the assessment data tell us?	• Friction on different surfaces: 46% answered correctly • Ways to reduce friction: 48% answered correctly

Tips for the teachers

1. Explain the concept of friction through an experiment;take 2 surfaces i.e. table top and carpet/piece of cloth and 2 marble balls. Draw a starting and ending line on both of the surfaces and place both of the marble balls on each surface starting line. Ask 2 students to push the balls to the ending line at the same time and then observe which ball crosses the end line first. Conclude the experiment, why the ball placed on the carpet reaches the end line late or stops in the middle? Because the surface was rough and friction is found on a rough surface and it opposes motion. However, table top was a smooth surface so there was no friction

   Explain: *The force of one surface or object rubbing against another is friction. It is the resistance that one surface or object encounters when moving over another.*
   Remind students: *Force is a push or pull that acts on an object.*
   Explain: *The amount of friction depends on the texture of the material, surface area, speed, weight, etc.*
2. Conduct another experiment to show that friction produces heat. Ask the students to observe their palm and back of their palm and their surfaces. (rough and smooth). Then ask the students to rub both of their palm together for 2 minutes and then tell what do they feel(heat). Now ask the students to rub the back of their palm with the other hand and observe the difference.
   Conclude the whole experiment that rubbing the both palms together produces heat, while rubbing one palm with other back of palm produces no heat. Moreover, it was easy to rub the back of the palm with the other hand because it is smooth.
   Friction produces heat. Rub your eraser on the desk and you will feel a warm eraser when you touch. Rubbing palms produces heat. Define friction with reference to this example i.e. surfaces and motion. Friction is found on a rough surface, and when something tries to move on it, it produces heat.

   Ask students, what will happen if they apply oil on their hand? Will the rubbing of palm still produces same amount of heat? (No) because friction is reduced.

3. To extend students' understanding of friction conduct this experiment.

   - Collect different objects with different types of surfaces (book, towel, mirror, etc)

- Make an inclined plane by stacking up several books and putting each of these objects against it.
- Take a block of wood and let it slide over different types of objects/surfaces
- On each surface ask the students to observe how much time it takes for the block to reach the bottom (they can use words like fast, medium, slow if they cannot time it)
- Conclude the observations with the students, for example: *On rougher surfaces the block moves slower (there is more friction) and smoother surfaces such as glass it moves faster (less friction).*

Modify the experiment

- Have the students make the plane steeper and repeat the steps.
- Conclude the observations with the students, for example: *When we increase the steepness of the plane, the ball moves faster (friction is reduced).*

Modify the experiment once more

- Use a ball in place of the block of wood and repeat the steps.
- Conclude the observations with the students, for example: *When we reduce the amount of contact area (or surface area), the ball moves faster (friction is reduced).*

Explain to the students that we need to reduce friction to increase the performance of machines, car engines so lubricants or oils are used. Otherwise machine parts would wear and tear because of friction. We need to have friction while writing on blackboard with chalk, lighting a match stick, marks on the tire and our joggers etc.

Divide students in groups. Instruct them list *some of the means of reducing friction?* Students should be able to recap what they learned.

Provide prompts such as Say: *If there is oil on the floor and you step on it, what will happen? Most likely you will slip, as the friction is reduced. So oil or lubricants are one way to reduce friction. Ask children to think of any other examples? Wheels to reduce friction, the shape of the car, etc.*

CONCEPT 10: FORCES & MACHINES –BALANCED / UNBALANCED FORCE & INERTIA

Curricular reference	Differentiate between and describe effects of balanced and unbalanced forces on the motion of an object; Describe the term inertia (p. 34)
Textbook reference	Pp. 81 – 83
What does the assessment data tell us?	• Identify situations where force is used: 54% answered correctly; • Concept of inertia: 35% answered correctly

Tips for the teachers

1. Clarify the term force through the following activity: Put a chair in front of you. First ask one student to push it. Then, ask another to pull it.

   Explain that *Force (Urdu) is a push or pull that acts on an object.*

2. To make students further understand the concept of force, teach about balanced and unbalanced force . Make 2 teams A (with 5 members) and B (with 3 members),organize a game of **tug of war (Rope pulling**) between the two teams. They will play "tug of war" (pulling the rope from both sides) and then see who wins. Ask the students, why a group of 5 students won the tug of war. Students would say that 5 students had more "***taqat***" or "**force**".

   Explain that when force is applied in opposite directions and is equal on both sides it is known as a balanced force (Urdu). When the force is not equal on both sides it is known as an unbalanced force (Urdu).

   `Explain that Force is Taqat in Urdu and it was not balanced, 5 students applied more force than three on the other side. What could have happened if we have 5 students on both the sides? No one will win because the forces are balanced.

   Call two students. Ask one student to grasp other student's hand firmly and place his elbow on a table or other flat surface. On the signal, try to force other student's hand to the table. The students will conclude why one student wins (who applied more force). Forces are not balanced. Why both arms stands still for some times? (Balanced force)

   Explain: *Force is a push or pull that acts on an object.*
   Explain*: When force is applied in opposite directions and is equal on both sides it is known as a balanced force. When the force is not equal on both sides it is known as an unbalanced force*

3. To make the student understand the concept of inertia conduct an experiment. Give one student a spoon and put a marble on it. Ask the student to walk through to a specific point and stop there suddenly. The marble will fall down from the spoon. Explain that *this*

happened because the marble wanted to remain in motion and dropped forward from the spoon

Explain INERTIA in relation to the conducted experiment.
Inertia is the resistance of any object to any change in its state of motion or rest." To resist the effect of any external force is known as inertia.

To explain the concept of inertia discusses an example with the children from daily life. Ask, how many of the students have travelled in a bus? How many of the students have fallen forward when the driver applied the brake? Why do they fall? It is because when the driver applies the brake, external force acts on us and we resist that force in order to maintain our balance by holding onto a handle with full force. The force we are applying to resist the brake effect is known as inertia.

Ask, who will face more inertia? A fat person or a skinny person? A fat person will face more inertia as he has more mass and inertia is directly proportional to mass. Greater the mass, greater the inertia.

CONCEPT 11: FORCES & MACHINES –SIMPLE MACHINES

Curricular reference	Demonstrate how wedge and inclined plane are used to move the objects; Compare the three kinds of levers using examples; Describe how lever makes work easier by giving examples of its uses from daily life
Textbook reference	Pp. 84 – 88
What does the assessment data tell us?	Identify simple machines: 8% answered correctly

Tips for the teachers

1. Before teaching about simple machine, reinforce the concept of force. Explain that 'Force is push or pull' and *machines help you do work by changing the amount of force required, the distance or direction of force. Certain machines are complex, i.e. they have many parts such as bicycle. While simple machines are made up of only one or two parts.*
2. **To teach students about the types of machines, show pictures or real machines and explain each.**

    - Wheel: the best invention which made the transportation of heavy objects such as rocks and boats easy using log rollers. As the object moved forward, rollers were taken from behind and replaced in front.
    - Lever: The lever consists of a long beam and a fulcrum, or pivot. The common lever used are wheelbarrow, seesaw, scissor etc
    - Screw: A screw can also act to hold things together in some cases. Some examples of the uses of a screw are in a jar lid,, meat grinder, door lock, machine screw.
    - Pulleys: A pulley is one of the original simple machines. The original primary use for pulleys was to make it easier to lift heavy items. The pulley is a simple machine made with a wheel and a rope, cord, or chain. Examples are elevators, bulldozers, rock climbers, cranes etc.
    - Inclined Planes: It is a plane surface where one end is higher than the other. Common examples are children's slide, a loading ramp, aircraft wings, windmills, and propeller blades.
    - Wedges: " Almost all cutting tools are wedges .e.g. shovel, a knife, an axe, a pick axe, a saw, a needle etc.

3. Divide students into groups and have each team write down one example of each type of machine. They should draw a picture of each as well. Have the students come up and explain what they have chosen and why. If there are any mistakes have them correct them and display the finished work on the wall.

4. Ask the students to make a model of any simple machine from junk material and bring it to the classroom next day. Provide them opportunity to display and explain their developed machine.

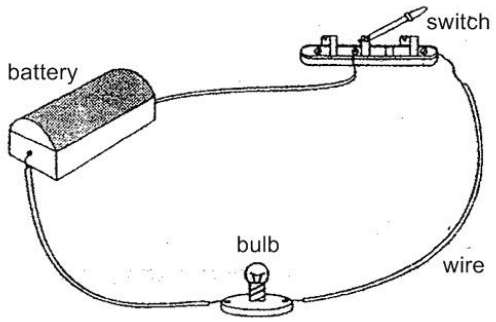
CONCEPT 12: ELECTRICITY AND MAGNETISM – ELECTRIC CURRENT & CHARGES

Curricular reference -	Describe flow of electric current in an electrical circuit; (p. 35)
Textbook reference	Pp. 109 – 110
What does the assessment data tell us?	Concept of electric current, charges and circuits: 33% on averageanswered correctly

Tips for the teachers

1. Ask the students to name some appliances used in their home.Explain that electrical energy is a form of energy from which we supply power to our appliances. *Electric current is the flow of electric charges. Charges come from electrons which are tiny particles we cannot see. When electrons flow through certain substances we get electricity.*

2. Demonstrate the workings of an electric circuit. Bring wire, small bulb and battery to the class and make the complete circuit. Explain that 'An electric circuit is an electrical device that provides a path for electrical current to flow'.



3. Draw the circuit consisting of a bulb, battery and wire on the board. Label battery of +ve and –ve terminals, and then show the flow of electron through wire till the other terminal. If the circuit wire could be broken, electrons will reach their original position, hence, the bulb will not light. Draw incomplete circuit as well.

4. To further explain the working of an electric circuit instruct students to make a circle with you. Tell them that you represent a battery, they represent a wire conductor and the circle represents a circuit. Distribute an object -- like a ball or an eraser -- to each member of the circle, including yourself. Ideally, everyone should have the same object. Tell students that these objects represent electrons inside a wire conductor.

    a. Remind students that you are playing the part of the battery in this circuit. Explain that all batteries have a positive end, represented by your left hand, and a negative end, represented by your right hand. Pass your "electron" (the object you are holding) to the student on your right. The student receiving your electron should in turn pass the one he or she is holding to the right. Have students continue passing on electrons to the person to their right. Tell

students that this represents the flow of electricity in the circuit, the like charges repel each other which keeps them moving.

b. Tell students that as long as the circle remains intact, the electrons continue to flow and their circuit is closed. Demonstrate this by creating a gap in the circle of students that is too wide across to pass electrons. Tell them in this way the current will stop.

CONCEPT 13: LIGHT PROPERTIES & BEHAVIOR – PROPERTIES OF OBJECTS

Curricular reference	Differentiate between luminous and non-luminous objects; Identify and differentiate between transparent, opaque and translucent objects in their surroundings (p.34)
Textbook reference	Pp. 95 – 98
What does the assessment data tell us?	• Identify luminous objects: 33% answered correctly • Indicate properties of opaque and transparent objects: 37% answeredCorrectly

Tips for the teachers

1. Explain the difference between luminous and non-luminous objects that

   Luminous objects are objects that give out light on their own. Torch, Sun and Stars are luminous object, they have their own light.

   Non-luminous objects are objects that do not give out light on their own. Book and our hand are non-luminous objects because they don't have their own light but can be seenbyus when light falls on them. We can see our hand in the light but not in the dark.

2. Reinforce the concept luminous objects and Non-luminous objects by making two columns on the board and ask students to fill in examples of each. (some examples have been provided)

Luminous objects	Non-luminous objects
sun, stars, candle, torch, light bulb	book, shoe, mirror, moon

3. To assess the students' understanding of the concept of luminous objects and Non-luminous objects ask questions such as

   a. *Is the moon a luminous object?*
   b. Answer: *It is not. The moon only shines because its surface reflects the light from the sun.*

4. Demonstrate the difference between opaque, transparent and translucent objects by showing one of each object: opaque (book), transparent (water glass) and one translucent (a colored plastic bottle or frosted glass) and shine the light from a torch on them. Have the students' note how the light behaves on each and write down their observations.

5. Explain the difference between opaque, transparent and translucent objects that:

   a. Opaque objects do not allow light to pass through at all.
   b. Transparent objects allow all light to pass through.
   c. Translucent objects allow some light to pass through.

6. To assess students' understanding of the opaque, transparent and translucent objects. Draw three columns on the board and ask the students to tell the things that can be listed in the opaque, transparent and translucent category.

CONCEPT 14: LIGHT PROPERTIES & BEHAVIOR – LUNAR ECLIPSE

Curricular reference	Explain the formation of shadows and eclipses (p. 34)
Textbook reference	Pp. 98 - 100
What does the assessment data tell us?	Position of the earth in a lunar eclipse: only 17% answered correctly

Tips for the teachers

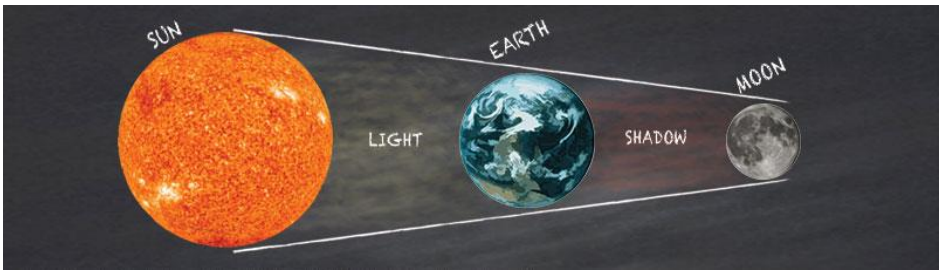
1. Draw the picture of earth, moon and sun on the board and clarify movement of planets and moon. Explain that earth rotates on its axis and also revolves (or moves) around the sun. And the moon revolves around the earth.

2. Perform an activity to demonstrate the movement of earth and moon:

   Ask three students to do a role play. Student 1 will play the role of the sun and stand still at the center. Have student 2 to play the role of the earth and revolve around student 1 (the sun). Have student 3 play the moon and revolve around student 2 (the earth).

3. Inform students that moon get its light from sun and its surface reflects the light from the sun.

4. To demonstrate a lunar eclipse make a diagram such as this on the board or on a chart. Explain: *Sometimes, the earth comes directly between the sun and the moon. This causes the shadow of earth to fall on the moon. The moon appears darkened as the earth's shadow is cast upon it. This is known as a lunar eclipse*.



5. Perform an activity to demonstrate the eclipse (see the picture to understand how to set it up):

   Give students two balls to hold. The larger ball will represent the earth and the smaller ball will represent the moon. You hold the torch which represents the sun.

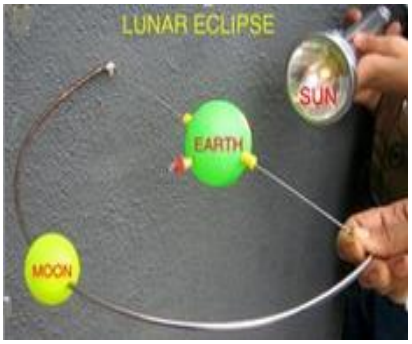
Stand in front with the torch. Have the students with the large ball stand behind you and the student with the small ball stand in the end.

Point the torch towards them. The light of the torch will fall on the large ball only. The large ball will block out the light to the smaller one.

Ask students to explain what just happened. Conclude: *The earth blocked the light of sun on moon and caused a lunar eclipse.* It is the partial or total blocking of light of one celestial object by another. An ECLIPSE of the Sun or Moon occurs when the Earth, Moon, and Sun are aligned. The solar eclipse occurs when the moon comes in between the sun and the earth and Lunar eclipse occurs when the earth comes between the sun and the moon.

6. A shadow is the dark area that is formed when light is blocked by an opaque or a translucent object because light travels in a straight line. Now, place a book in front of a torch and then ask the student, can they see light at the back of the book? No, because book blocks the light forming a darker area behind known as shadow.

7. Take a tennis ball, a football and a torch. Place them in a way that face of the torch, tennis ball and a football are in straight line. Switch on the light of the torch and then see that the shadow of the tennis ball falls on the football, and from the football side we can only see the outline of the tennis ball. Hence, tennis ball acts as a moon and football as an earth, that's why in solar eclipse we can only see the outline of the sun from the earth. However, in lunar eclipse earth comes in the middle of sun and moon, and the huge shadow of the earth falls on the moon, hence we cannot see the moon for some time in lunar eclipse.



CONCEPT 15: LIGHT PROPERTIES & BEHAVIOR – VISIBILITY OF STARS AT NIGHT

Curricular reference	Differentiate between luminous and non-luminous. (p.34)
Textbook reference	Pg 95
What does the assessment data tell us?	When asked to explain why the stars are visible at night: only 12%answered correctly

Tips for the teachers

1. Explain the visibility of stars through an experiment. Bring a torch and a small bulb. Explain to the students that in this experiment the torch represents the sun and the small bulb represents a star.

   Turn on both the torch and the bulb. Ask whether they can see the light of the bulb. The answer will be no.

   Turn off the torch, ask if they can see the light of the bulb. The answer will be yes.

   Ask the students why they couldn't see light of the bulb earlier. Listen to their responses carefully. Explain that it's because the light of sun is so strong that the light of bulb will provide diminished light. In the second situation, the same bulb provides ample of light to light up the whole room. This phenomenon happens as the brighter luminous object takes over the light of the less bright luminous object.

2. Explain that Stars are the luminous objects in our universe, they have their own light but they are very far from our earth. Sun is also a star but as it is near to our planet earth that's why in the day time we can only see the light of the sun but at night when the sun shifts to the other part of earth, then we can only see the light of the far apart stars in our universe.

CONCEPT 16: SOLAR SYSTEM- SATELLITE

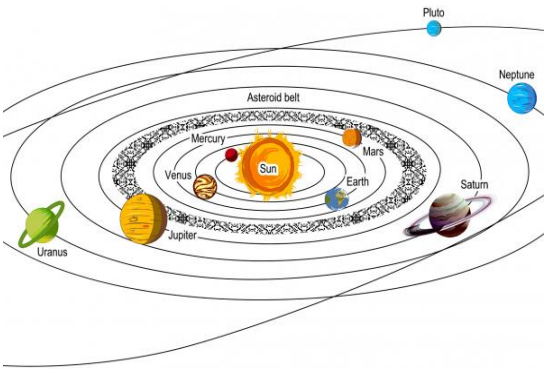
Curricular reference	Natural satellites in the solar system (p. 36)
Textbook reference	p. 132 - 135
What does the assessment data tell us?	Concept of natural satellites: 34% answered correctly

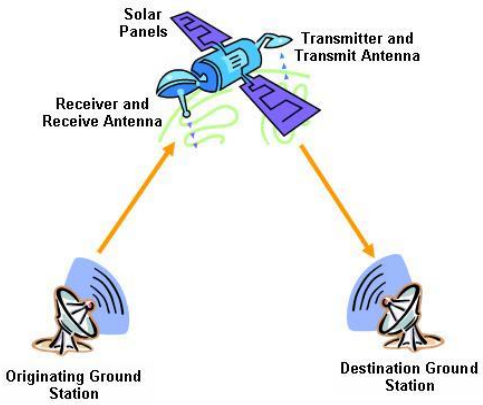
Tips for the teachers

1. Show the picture of solar system and satellites to the students. To help students understand the difference between natural and artificial satellite, explain the meaning of satellite.
    a. *A satellite is an object that revolves or orbits around another object in space.*

2. To help students understand the difference between artificial and natural satellite, show pictures and explain the vocabulary with meanings.
   A "natural satellite" is any astronomic body in space that orbits around a larger body e.g. *Moons are known as natural satellites because they orbit planets.*

   An artificial satellite is made by people and launched into orbit using rockets and are called "artificial satellites".





3. To improve students understanding about artificial satellite show pictures of different kinds of artificial satellites. Explain that there are currently over a thousand active artificial satellites orbiting the Earth and they all provide different information to the earth for example navigation satellite, weather satellite, earth observation satellite, communication satellite and International space station.

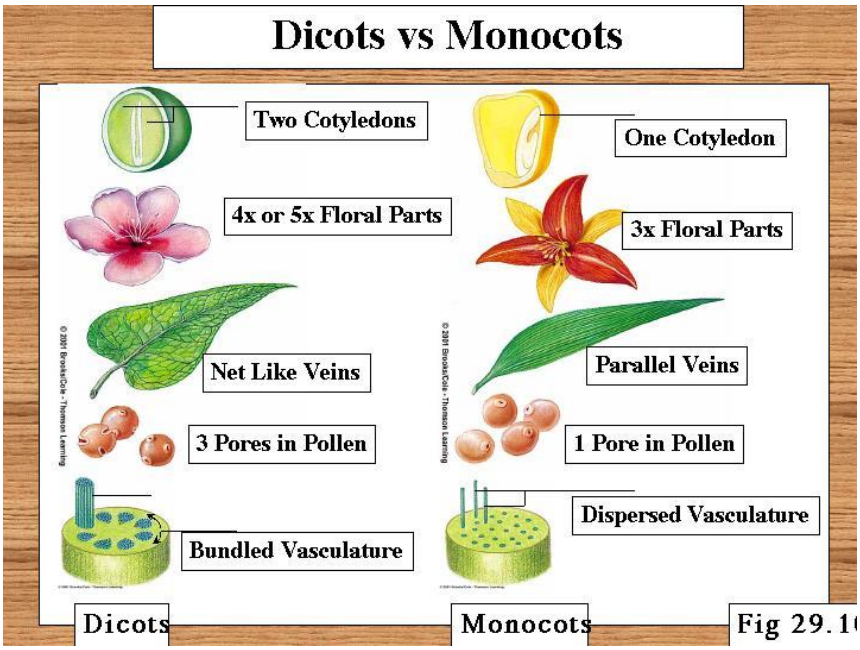
4. Ask the students to draw solar system on a paper and label it. Extend the task by instructing students to design their own satellite system and write down its purpose.

CONCEPT 17: DICOT PLANTS

Curricular reference	Classify the flowering plants into two major groups and give examples of each group (pp. 32)
Textbook reference	Pp. 14 – 15
What does the assessment data tell us?	18% answered correctly the concept of characteristics of dicot plants

Tips for the teachers

1. Recall students' prior knowledge about parts of a plant and structure of seed before teaching the classification of flowering plants,
   To reinforce, display a chart in class showing structure of a seed
   Show another chart displaying monocot and dicot seed plant.



2. Explain the differences in seeds, flowers, leaves and plants of monocot and dicot seed plants
   Perform an activity by distributing seeds of maize, wheat, peas and grams among the students, ask them to note the differences.
   After getting their feedback, tell them that maize and wheat seeds are monocotyledonous and grams and peas seeds are dicotyledonous.
   Now ask the students to paste a monocotyledonous or dicotyledonous seed on a piece of chart paper, identify it and write its characteristics as explained in the chart.

CONCEPT 18: SHADOWS

Curricular reference	Predict the location, size and shape of a shadow from a light source relative to the position of objects (pp. 34)
Textbook reference	Pp. 99 - 100
What does the assessment data tell us?	23% answered correctly the concept shadow formation at different times of the day.

Tips for the teachers

1. Before teaching the students about the concept of shadow, recall the differences between opaque, transparent and translucent objects.
   To observe their own shadow ask the students to stay infront of the light source (bulb/sun).
   Explain the students that shadow is formed when an opaque object is placed in front of a light source. Explain that the size and shape of shadow depend upon the position of object from the light source . To observe this fact use a torch and throw light on an opaque object from different directions. Ask the students to observe the changing size, shape and position of the shadow.
2. Ask the students to observe their shadow on a sunny day at different times and record their observations in the table. These shadows can be traced on the floor. Explain that the change in the size and position is due to the position of the sun (light source) in the sky due to the Earth's movement.

S.No	Time	Size of Shadow	Position of Shadow
1.	Assembly		
2.	Break Time		
3.	Science Period		
4.	Off Time		

CONCEPT 19: ELECTRICITY AND MAGNETISMS

Curricular reference	Explain the production of static electrical charges in some common materials objects (pp. 35)
Textbook reference	Pp. 112 - 114
What does the assessment data tell us?	24% answered correctly the concept of the storage of electric charges on the surface of a objects.

Tips for the teachers

1. Reinforce the concept of Electricity &Magnetism through flash cards.
2. Recall that static electric charge is the study of charges when they are at rest.
3. Take a plastic comb and rub it with a woollen sweater. Bring the comb close to the small pieces of papers. Ask the following questions from students:
    a. What do they observe?
    b. Why do the pieces of paper cling to the comb?

   Tell them, it happens because comb and pieces of paper are both charged.
4. Assign the students another activity for home, to repeat the same process with a silk cloth and note their observations.

CONCEPT 20: ELECTROMAGNETISM

Curricular reference	Explore different electromagnetic devices used in their daily life. (pp. 35)
Textbook reference	Pp. 115 - 118
What does the assessment data tell us?	25% answered correctly the concept of electromagnetic devices

Tips for the teachers

1. Reinforce the concept of magnet & electromagnetism through a brainstorming session.
2. Explain that **permanent magnet** keeps hold of its magnetism all the time.
3. To let the students observe electromagnetism make a **temporary magnet** by passing electricity through a coil of wire wrapped around an iron nail . Switch on the current and the nail becomes a magnet; switch it off again and the magnetism disappears. Explain that temporary magnets like this are called **electromagnets**—magnets worked by electricity.
4. Name some devices and ask the students to classify the given devices as electromagnetic or non-electrometric devices.
    a. Electric fan, electric drill machine, chair, pencil, washing machine, radio, electric bulb, television, electric bill

S.No	Electromagnetic Devices	Non-Electromagnetic Devices
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

CONCEPT 21: ELECTROMAGNETISM

Curricular reference	Describe the relationship between electricity and magnetism in an electromagnetic device (pp. 35)
Textbook reference	Pp. 116 - 117
What does the assessment data tell us?	26% answered correctly the concept of electromagnetism

Tips for the teachers

1. Recall the concept of electricity and magnetism by showing them on the charts.
2. Explain that electricity and magnetism relationship is used in electromagnetic devices, used in daily life.
    a. Example: door bell and loudspeaker.
3. Perform the activity in class, turn on the radio / mobile in the class. Tell them that radio is an electromagnet device, when current passes through magnet of the device the speaker membrane vibrate and sound is produced.
4. Ask students to write names of devices in which phenomenon of electromagnetism is used.

CONCEPT 22: SOIL

Curricular reference	Identify similarities and differences among the different types of soil (pp. 35)
Textbook reference	Pp. 125 - 126
What does the assessment data tell us?	23% answered correctly the concept of characteristics of different types of soil

Tips for the teachers

1. Display a chart in the class having properties of sand, clay and silt.
2. Explain that soil is the outer most layer of earth in which the plants grow.
3. Discuss properties of different types of soil, given in the chart.
4. Collect samples of different soil from different places and ask the students to classify their sample on the basis of the given properties.

Soil textural group	*Soil textural class*	*Feel by hand texturing*
Coarse to very coarse	Sand, loamy sand	Gritty -- does not ribbon or leave a stained smear on hand.
Moderately coarse	Sandy loam	Gritty -- leaves smear on hand, does not ribbon -- breaks into small pieces.
Medium	Loam, silt loam, silt	Smooth and flour-like, does not ribbon, breaks into pieces about 1/2 inch long or less
Moderately fine	Sandy clay, sandy clay loam, clay loam, silty sandy clay loam, silty clay, clay	Forms ribbon; clays form longer ribbons than clay loams. Clay loam feels gritty.

CONCEPT 23: SOLAR SYSTEM

Curricular reference	Describe the solar system and its planetary arrangement showing position of earth in our solar system. (pp. 36)
Textbook reference	Pp. 132- 135
What does the assessment data tell us?	20% answered correctly the concept of arrangement of planets in the solar system.

Tips for the teachers

1. Draw a sketch of the Solar System & paste on the writing board/wall of the classroom.
2. Show a chart containing unlabelled solar system and ask the students to label its different planets.
3. Draw figure of different planets on a paper, cut it and ask students to place them at their relevant places in the solar system on the board.
4. Ask students to make a model of solar system and present in the class.