

UNIVERSITY OF LUCKNOW
DEPARTMENT OF EDUCATION
BACHELOR OF ELEMENTARY EDUCATION
(B.El.Ed.)

Session 2021 onwards

ORDINANCE AND CURRICULUM

These Ordinances pertain to the Bachelor of Elementary Education (B.El.Ed.), which is a four-year/ eight semester professional degree programme of Teacher Education offered after Senior Secondary. The Programme is in a regular full time mode. It aims to prepare teachers for the elementary stage of education. i.e. for Classes I to VIII. In addition, the programme prepares students for a wide range of professional and academic options in elementary education including teaching in elementary schools with special orientation for government schools; leading elementary school systems in various capacities; teaching and research in elementary education in the government and non-governmental sector; pursuing post-graduate and research studies in education and other disciplines; and working as teacher educators in various State/Central Institutes and University Departments / Colleges offering programmes in Elementary Education.

The B.El.Ed programme shall be offered only in a constituent or affiliated college of Lucknow university offering undergraduate studies in liberal arts, humanities, social sciences, commerce, mathematics and sciences, or a constituent or affiliated College of Lucknow University offering multiple Teacher Education Programme or Department of Education, Lucknow University itself.

Course Name: A professional Teacher Education programme in Elementary education leading to the Degree of Bachelor of Elementary Education (B.El.Ed.) under the Faculty of Education.

Duration of Course:

- a) The Elementary Teacher Education Degree programme, henceforth, called the Bachelor of Elementary Education (B.El.Ed.), shall be of a minimum duration of four academic years, including an Internship of a minimum 20 working weeks of which 4 weeks shall be in third year of study and 16 working weeks shall be in a fourth/ final year of study.
- b) Candidates admitted in this programme shall complete the final year examination within 6 years from the year of admission.
- c) There shall be at least two hundred working days each year exclusive of admission and conduct of examination, and inclusive of the period of classroom transaction, practicum, engaging with schools and school internship. The institution shall work for a minimum of thirty six hours in a week (five or six days), during which Faculty shall be available for the requirements of the programme including interaction with and mentoring students.

- d) The minimum attendance of student teachers shall be 80% for all course work including practicum, and 90% for school internship.

Admission Criteria:

Candidates seeking admission to the four year degree programme in Elementary Teacher Education shall have to qualify in the prescribed Centralized Entrance Test specially designed to assess the candidate's potential or any other selection process as per the policy of University of Lucknow.

The reservation and relaxation of marks for SC/ST/OBC and other categories shall be as per rules of the Central Government / State Government whichever is applicable.

Qualification for Admission:

The minimum qualification for admission to B.El.Ed. shall be a pass in the 10+2 Senior Secondary Examination or any other examination recognized as equivalent thereto with a minimum aggregate of Fifty percent marks.

Number of Seats:

Total intake of B.El.Ed. Course in one unit shall not exceed fifty students in a class or as decided by NCTE Norms and Regulations enforced from time to time.

Fee Structure:

The fee structure should be as decided by the State Government / University from time to time. Institutions shall not charge Donations, Capitation fees etc. from the students.

Examination, Standards and Qualification of Examiners:

- (a) The University shall conduct the examination once in a Semester on such dates as may be fixed by the University.
- (b) There shall be a written examination for all theory papers, 20% marks will be awarded on the basis of internal assessment. Evaluation of Practicum and School Internship will be based on internal and external assessment.
- (c) The minimum marks required to pass the examination shall be 36 % in each written paper, 40% in the internal assessment, 40% in practicum and 40% in the aggregate for each semester.

- (d) Candidate failing in more than one paper in any semester shall have to repeat the semester as a regular/ex student
- (e) An examiner for any of the subjects of examination shall have a minimum of three years teaching / professional experience in his /her field of study.
- (f) A Moderation Board constituted by the Department/Faculty of Education, University of Lucknow may monitor issues of quality and parity between institutions for all internal assessments, Practicum Courses etc.
- (g) There shall be separate divisions in theory and practical (practical/teaching skill / field engagement etc). However, no division shall be awarded in the first / second / third year. Only Pass / Fail shall be given in these years. Divisions shall be awarded on the basis of examination of all four years.
- (h) Classification of Results (Theory as well as Practical) -

60% and above	First Division
48% and above but below 60%	Second Division
36% and above but below 48%	Third Division (For Theory only)
40% and above but below 48%	Third Division (For Practical only)
- (i) In each academic semester, the candidate can appear in improvement / back examination in one paper only.
- (j) Internal evaluation in theory papers shall be through continuous and comprehensive evaluation on the basis of internal written test, regularity, conduct and presentation of assignments.
- (k) A candidate shall be promoted to next year only when he/she passed the examination of previous year.
- (l) A candidate shall be eligible to appear in the examination who has pursued the prescribed course of studies and has completed required attendance and all the activities related to practical/teaching/field engagements etc. as prescribed for each year.
- (m) A candidate shall be required to pass theory (External and Internal both) and practical examination separately.

(n) A student who has completed all the desired activities / internal tests / attendance etc. throughout the year but could not appear in the examination or appeared in the examination but failed in more than one papers, may be allowed to appear in the semester examination of next year as an ex-student. The internal marks received in previous semester shall be carried over.

(o) Classification of Grades shall be as follows:

Grade A	Excellent	75% and Above
Grade B	Good	60%-70%
Grade C	Average	50%-60%
Grade D	Satisfactory	40%-50%
GradeE	Unsatisfactory	below 40%

Award of Degree:

The B.El.Ed. Degree of the University of Lucknow shall be awarded to the candidate who have pursued a regular course of study and have fulfilled all the conditions and have passed the prescribed examination.

Medium of Instruction and Examination

The medium of instruction and examination shall be Hindi or English only.

Semester-wise Titles of the Papers

Year	Sem.	Paper Number	Paper Title	Credits
1	I	P1	Basic Concepts of Education	4
		P2	Education in Contemporary India	4
		P3	Basics of Core Discipline - Languages and Social Sciences	4
		Practical 1	Academic Enrichment Activities (Internal Evaluation)	2
		Practical 2	Performing and Participatory Work (Internal Evaluation)	2
		Practical 3	Communication Skills Development (Internally Graded)	-
	II	P4	Philosophical and Sociological Perspectives of Education	4
		P5	Fundamentals of Educational Technology	4
		P6	Basics of Core Discipline – Mathematics and Natural Sciences	4
		Practical 4	Use of Craft and Fine Art in Teaching (External Evaluation)	2
		Practical 5	Text Book Analysis (External Evaluation)	2
		Practical 6	Personality Development (Internally Graded)	-
2	III	P7	Development and Understanding of the Learner	4
		P8	Liberal Course (Select any one) Hindi 1, English 1, Sanskrit 1, Mathematics 1, Botany 1, Zoology 1	4
		P9	Liberal Course (Select any one) History 1, Geography 1, Political Science 1, Economics 1, Physics 1, Chemistry 1	4
		Practical 7	Psychological Testing (External Evaluation)	2
		Practical 8	Case Study of a Problem Child (External Evaluation)	2
		Practical 9	Yogic Practices (Internally Graded)	-
	IV	P10	Innovations in Education	4
		P11	Liberal Course (Select any one) Hindi 2, English 2, Sanskrit 2, Mathematics 2, Botany 2, Zoology 2	4
		P12	Liberal Course (Select any one) History 2, Geography 2, Political Science 2, Economics 2, Physics 2, Chemistry 2	4
		Practical 10	Observing Children in Classroom Settings (Internal Evaluation)	2
		Practical 11	Sports and Physical Education (Internal Evaluation)	2
		Practical 12	Computer-use Skills Development (Internally Graded)	-
3	V	P13	School Planning and Management	4
		P14	Pedagogy of Languages	4
		P15	Pedagogy of Social Sciences	4
		Practical 13	Micro Teaching Skills Practice (Ten) (Internal Evaluation)	2
		Practical 14	Observing School Functioning (Internal Evaluation)	2
		Practical 15	School Library visit (Internally Graded)	-
		P16	Measurement and Evaluation	4
		P17	Pedagogy of Mathematics	4
		P18	Pedagogy of Natural and Environmental Sciences	4

	VI	Practical 16	Simulated Teaching Practice of 10 lesson plans (External Evaluation)	2
		Practical 17	Organizing an Educational / Environmental / Social Campaign (External Evaluation)	2
		Practical 18	Participation in Cultural Activities (Internally Graded)	-
4	VII	P19	Issues and Challenges of Elementary Education	4
		Practical 19	Four Week Teaching Practice and School Experience (External Evaluation)	8
		Practical 20	Achievement Test Preparation (External Evaluation)	2
		Practical 21	Preparation and use of Innovative Teaching material (Internally Evaluated)	2
		Practical 22	Community Work (Internally Graded)	-
	VIII	P20	Optional Paper: A. Inclusive Education B. Guidance and Counselling C. Value and Peace Education D. Yoga Education for Wellbeing E. Environmental Education	4
		Practical 23	Sixteen Week School Internship (External Evaluation)	8
		Practical 24	Action Research (External Evaluation)	2
		Practical 25	Appraisal of School Internship Experience (Internally Evaluated)	2
		Practical 26	Life Skills Development (Internally Graded)	-

Detailed Syllabus

B.El.Ed. (YEAR - I) Semester I

Paper-1: Basic Concepts of Education

Objectives:

On completion of this course, learners will be able:

- ❖ To understand the meaning, nature, scope and aims of education.
- ❖ To explain the functions of education and their interrelationship.
- ❖ To become aware of different agencies of education that influence education.
- ❖ To be acquainted with the Constitutional values and Educational provisions.

Unit I

- Education- Meaning, Nature, scope and components
- Forms of Education
- Aims of Education: Individualistic, Social, Democratic and Vocational.
- Education and its relationship with other Disciplines

Unit II

- Functions, Approaches and methods of Education
- Alternative modes of Education: Continuing, Distance and Open Education
- Agencies of Education – Formal, Informal and Non-Formal

Unit III

- Education for National and Emotional Integration
- Education for International Understanding
- Education for leisure
- Citizenship Education
- Education as a means of Human Resource

Unit IV

- Constitution of India: Preamble and its influence on Education
- Constitutional provisions in Education- Article 15, 21 A, 41, 45, 46, 28, 29, 350, 351
- Education and Fundamental Rights and Duties

Suggested Readings:

1. Aggarwal, J.C. *Theory and Principles of Education*, New Delhi, Vikas Publishing House. 2010
2. Banerjee, A. *Philosophy and principles of education*. Calcutta, SusobanPrakashan. 1994
3. Barrow, R., & Milburn, G. *A critical dictionary of educational concepts: An appraisal of selected ideas and issues in educational theory and practice*. New York: St. 1986

4. Bhatia & Bhatia. *Theory and principles of Education*. New Delhi, Doaba House. 2011
5. Cohen, B. *Educational Thought: An Introduction*. Britain: MacMillan. 1970
6. Dahiya B.S 'Higher Education in India' Retrospect and Prospect, Kanishka N, Delhi, 1997.
7. Dewey, J. *The school and society*. USA: The University of Chicago Press. 1915
8. Dhankar, R. *Education in emerging Indian Society*. New Delhi: APH Publishing Corporation. 2010
9. Ghosh S.C. *The History of Education in Modern India (1757-2007)* Hyderabad: Orient Blackswan Private Limited, 2009, Third Edition.
10. Lal, R.B. & Sharma, K.K. 'History Development and Problems of Indian Education', R.Lal Book Depot, Meerut, 2015.
11. Moonis, Raza, 'Higher Education in India' Retrospect and Prospect, AIU, N, Delhi, 1991
12. Pandey R.S. *Principles of Education, Agra*, Vinod Pustak Mandir. 1992
13. Ramchandran, P. & Ramkumar, V. 'Education in India' , NBT, N, Delhi, 2014.
14. Saxena, N.R. S. *Principles of Education*. Meerut. R. Lal Book Depot. 1996
15. Vakil K.S and S. Natrajan, 'Education in India' Allied Publishers, Bombay, Rev Edn., 1966

B.El.Ed. (YEAR - I) Semester I

Paper 2: Education in Contemporary India

Objectives:

Pupil Teacher will be able-

- ❖ To know about the history of Education system
- ❖ To understand the role of education in contemporary India
- ❖ To understand the different government policy documents
- ❖ To know the national system of Education and other key institutions
- ❖ To know and understand initiatives of government of India

UNIT I

- Education during Vedic period (3000BC – 500BC)
- Education during Buddhist period (500BC – 1200AD)
- Education during Muslim period (1200AD – 1700AD)

UNIT II

- Education during Pre-Independence (1800 – 1947)
- Charter of 1813, Macauley's Minutes 1835, Wood's Dispatch 1854, Hunter Commission 1882-83, Lord Curzon's Policy, National Movements on Education, Hartog Committee 1929, Basic Education (Vardha Scheme on Education)

UNIT III

- Education in Post- Independent India
- University Education Commission (1948)
- Secondary Education Commission (1952-53)
- Education Commission (Kothari Commission) (1964-65)
- National Education Policies (1968, 1986, 2020)

UNIT – IV

- NCF 2005, National Knowledge Commission (2007)
- Initiatives of Government of India – SSA, RMSA
- Educational Provisions for Minorities, SC, ST and Girls
- Schools in India: types and affiliation, Kendriya Vidyalayas, Navodaya Vidyalaya, Sainik Schools, Government and Private schools

Suggested Readings:

1. Acharya Ramamurthy Report (Programme of Action) (1990). Available at www.ncert.ac.in
2. Commission, 1964-66. Available at www.mhrd.gov.in/
3. Ghosh, S. C. (2007). History of education in India. Rawat Publications.

4. GOI. (1966). Report of the education commission: Education and national development. New Delhi: Ministry of Education.
5. GOI. (1986). National policy of education. GOI.
6. GOI. (1992, 1998). National policy on education, 1986 (modified in 1992). Retrieved
7. GOI. (2009). The right of children to free and compulsory education act, 2009. Retrieved from http://mhrd.gov.in/sites/upload_files/mhrd/files/rte.pdf
8. Govinda, R. (Ed). (2002)India education report: a profile of basic education. New Delhi: Oxford University Press.
9. Hindustani Talimi Sangh. (1938). Basic national education: Report of the Zakir Hussain committee. Sagaon, Wardha: Hindustani Talimi Sangh.
10. Kothari, D. S. (1964). Education and national development: Report of the education
11. Naik, J.P. (1979) Education Commission and After. A P H Publishing Corporation: New Delhi. Also available in Hindi
12. National policy on Education (1986). Available at www.ncert.ac.in
13. NCERT (2006/7) National Focus Group Paper on the Problems of Scheduled Castes and Scheduled Tribes; National Focus Group Paper on Gender. New Delhi: NCERT.
14. NCF-2005 available on www.ncert.ac.in
15. NCTE (2009) National Curriculum Framework for Teacher Education.
16. PROBE (1998) and PROBE 92011) Revisited available on www.academia.edu
17. PROBE (1999) Public report on basic education in India. New Delhi: Oxford University Press.

B.El.Ed. (YEAR - I) Semester I

Paper 3: Basics of Core Discipline - Languages and Social Sciences

Objectives:

Pupil Teacher will be able-

- ❖ To understand the importance and functions of Language
- ❖ To know and appreciate different languages of India
- ❖ To understand aims and objectives of studying Language
- ❖ To understand and appreciate the importance of social science and its context with different subjects
- ❖ To understand the various states of administration
- ❖ To understand the aims and objectives of studying Social Sciences

UNIT I

- Meaning, nature, scope and importance of Language.
- Aims and Objectives of studying Language.
- Development of Language as a subject

UNIT – II

- Verbal and non-verbal communication, defining features of human system of communication, the concept of universal grammar, basic concepts of phonology, syntax and semantics.
- Organization of discourse structure, oral and written, nature of classroom discourse, structure of a story, poem, essay etc.
- Language and society, linguistic variability, multilingualism, using the multilingual resource in a classroom.

UNIT – III

- Meaning, nature, scope and importance of Social Science (to be discussed in context of History, Geography, Civics and Economics)
- Aims and Objectives of studying Social Sciences.
- Development of Social Sciences as a subject

UNIT – IV

- Data, method and evidence to be discussed in the context of History, Geography, Economics and Civics.
- Significance of perspective and context in the study of social sciences.
- Monarchy, aristocracy, imperialism, fascism, nationalism, democracy and citizenship (to be taught with examples from a content area).

Suggested Readings:

- Aggarwal, N.Net.et (1978), Principles of Political science. New Delhi : Ram Chand and Co.
- Agnihotri, R.K. and Khan, A.L.(eds).English Grammer in context, Ratnasagar: Delhi
- Brumfit, C.J and Rubers, J.T. (1983). Language and Language Teaching. Batsford Academic and Education (H.). London
- Chaudhory , K.P. (1975), The effective Teaching of History in India, New Delhi, NCERT.
- Dixit, U and Bughela (1972), Itihas Shikshan, Jaipur. Hindi Granth Academy.
- Ellis, Arthur K. (1991), Teaching and Learning Elementary Education, New York : Macmillan.
- Lewis, E.M. (1960), Teaching History in secondary school. Delhi: Sterlibng Publisher.
- NCERT Book from 6th to 12th class.
- Verma, S.K. and N. Krishnaswamy (1993). Modern Linguistics: An Introduction. Oxford University Press. Delhi
- Yule, G. (1996). The Study of Language. Cambridge University Press. Cambridge.

B.El.Ed. (YEAR - I) Semester II

Paper 4: Philosophical and Sociological Perspectives of Education

Objectives:

The pupil-teacher will be able:

- ❖ To understand the philosophical and sociological perspective of education.
- ❖ To understand the meaning, nature and concept of philosophy & sociology in context of education.
- ❖ To understand the various schools of philosophy and related thinkers and reflections of their ideology on education.
- ❖ To understand the society, culture and the process of socialization.
- ❖ To understand the concept of diversity, inequality and marginalization.

Unit I

- Philosophy- Meaning, Concept, Nature, scope and its inter-relationship with Education
- Educational contribution of Indian thinkers: Gandhi, Tagore, Vivekananda and Gijjubhai Badheka
- Educational contribution of Western thinkers: Froebel, Dewey and Montessori

Unit II

- Principles of some major Schools of Philosophy and their contribution to present day Education – Idealism, Naturalism, Pragmatism, Realism
- Radical Educational Philosophers: Ivan Elich, Paulo Freire; J. Krishnamurti

Unit III

- Sociology – Meaning, Nature, Difference between Educational Sociology and Sociology of Education
- Contemporary Indian Society and Education
- Relationship between Education and Society
- Socialization Process, Techniques and Agencies.

Unit IV

- Culture: Meaning, Nature, Relationship with Education, Indian Culture - Unity in Diversity
- Social Change: Meaning, Characteristics, Factors, Relationship with Education
- Social Mobility: Meaning, Types, Relation with Education,
- Social Stratification: Meaning, Basis, Relationship with Education.

Suggested Readings:

1. Aggarwal, J. C. (2014). Philosophical and Sociological Perspectives on Education. Delhi: Shipra publication.
2. Aggarwal, J.C. (1981). Philosophical and sociological Bases of Education, New Delhi: Vikas Publishing House Pvt. Ltd.
3. Arulsamy, S. (2011). Philosophical and Sociological Perspectives on Education. Hyderabad: Neelkamal Publication Pvt. Ltd.
4. Broudy, H. S. (1965). Values in the Education Enterprise: Building a Philosophy of Educational. New Delhi: Prentice Hall of India Pvt. Ltd.
5. Brubacher, J. S. (Ed). (1953). Modern Philosophies of Education 54th year books NSSE. Chicago: University of Chicago press.
6. Butler, T. D. (1908). Four philosophies and their practice in education and religion. New York: Harper Brothers Publishers.
7. Chaube S.P. & Chaube A. (2010). Philosophical and sociological foundations of education. Agra: Vinod Pustak Mandir.
8. Chaube S.P. (n.d.). Recent Educational Philosophies in India, New Delhi: Vikas Publishing House.
9. Chaube S.P. (n.d.). Western Educational Philosophers. Agra: Vinod Pustak Mandir.
10. Dewey, J. (1956). The school and Society. Chicago: University of Chicago Press.
11. Dewey, J. (1963). Democracy and education. New York: Macmillan.
12. Freire, P (1970). Cultural action for freedom. Penguin education Special, Ringwood, Victoria, Australia.
13. Freire, Paulo (1993). Pedagogy of the oppressed (revised ed.). London, UK: Penguin books.
14. Hansen, D. T. (Ed.). (2006). John Dewey and Our Educational Prospect: A critical Engagement with Dewey's Democracy and Education. Albany, NY: State University of New York Press.
15. Pandey, R. S. (1982). An Introduction to Major Philosophies of Education. Agra: Vinod Pustak Mandir.
16. Pandey, R.S. (2007). Philosophising Education, New Delhi; Kanishka Publishing House.
17. Peters, R. S. (Ed.). (1975). Concept of Education. London: Oxford University Press.
18. Peters, R. S. (Ed.). (1975). The Philosophy of Education. London: Oxford University Press.
19. Rusk, R. R. (1956). The Philosophical Bases of Education, London; University of London Press.
20. Singha, J. (1961). Introduction to Philosophy, Kolkatta; Shinha Pub. House.
21. Wynne J.P. (1977). Philosophies of Education. London: Prentice- Hall. Inc.

Books Recommended (Hindi):

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B.El.Ed. (YEAR - I) Semester II

Paper 5: Fundamentals of Educational Technology

UNIT – I

- Educational Technology: Meaning, Nature, Scope and Significance, Type of Educational Technology – Hardware, Software and System Approach.
- E – Learning – meaning, nature and characteristics.
- Blended learning,
- Various forms of Educational Technology – Meaning and Characteristics.
- Computer assisted instruction (CAI)

UNIT – II

- Teaching – meaning, definition, characteristics. Difference in Teaching and Training.
- Levels of Teaching – Memory, understanding and Reflective, Principles and Maxim's of Teaching
- Phases of Teaching (Pre Interactive, Interactive and Post Interactive).
- Teaching methods and strategies- Lecture Method, Problem-Solving, project method and Brain storming.
- Teaching Aids- Traditional and Modern.

UNIT-III

- Communication- Meaning, Definitions, Process and Barriers.
- Micro Teaching- concept and process.
- Teaching skills- Meaning and Types.
- Open Education Resource, Mook (Massive Open Online Courses).

UNIT-IV

- Models of Teaching- Meaning, Definitions, Characteristics.
- Programmed Instruction: Meaning, Characteristics and Types.
- Virtual Reality in Education.
- E-Library – Meaning and concept.

Suggested Readings

1. Aggarwal, J.C. (2001). Principles, Methods and Techniques of Teaching. Delhi: Vikas Publication.
2. Bengalee, Coomi (1986). Introduction to Educational Technology: Innovations in Education. Mumbai: Saith.
3. Bhatia, K.K.(2001). Foundation of teaching learning process. Ludhiyana: Tandon Publishers.
4. Bhatt, B. D.,Sharma, S. R.(1992). Educational Technology: Concept and Technique. New Delhi: Kanishka Publg House..
5. Das, R. C. (1993). Education Technology: a basic text. New Delhi: Sterling.
6. Dasgupta, D. N. Communication and Education, , Pointer Publishers
7. Kumari, S. (2006). Increasing role of technology in education. Delhi: Isha.
8. Mangal, S.K. (2002). Essentials of Teaching Learning and Information Technology. Ludhiyana: Tandon Publishers.
9. O. P. Dahama & O. P. Bhatnagar, Education and Communication for development, Oxford & IBH Publishing company, New Delhi
10. Pachauri, Suresh Chandra (2011). Educational Technology. Aph Publishing Corporation: New Delhi.
11. Robert, Heinich (1990). Instructional Media and The New Technologies of instruction. London:
12. Sharma, R.A. (2001). Educational Technology. Agra: Vinod Pustak Mandir.
13. Singh, C.P. (2011). Advanced Educational Technology. Lotus Press: New Delhi

B.El.Ed. (YEAR - I) Semester II

Paper 6: Basics of Core Discipline - Mathematics and Natural Sciences

Objectives:

Pupil Teacher will be able-

- ❖ To understand the aims and objectives of studying Mathematics and Science
- ❖ To understand and appreciate the importance of Mathematics and Natural Sciences in one's life
- ❖ To understand the different measurements of Mathematics and Natural Sciences
- ❖ To understand the different classifications of living world
- ❖ To understand the life processes of living world

UNIT I

- Meaning, nature, scope and importance of Mathematics.
- Aims and Objectives of studying Mathematics.
- Development of Mathematics as subject and discipline.

UNIT II

- Number system, ratio and proportion Fractions and Decimals, Concept and Measurement of length mass, area and volume.
- Collecting, organizing and interpretation of data by using elementary statistical techniques, Interpretation and drawing a Bar Graph.
- Straight line, Triangles and Circles, Percentage, ratio and proportion, interest, profit and loss.

UNIT – III

- Meaning, nature, scope and importance of Science.
- Aims and Objectives of studying Science.
- Development of Science as a subject and discipline.

UNIT – IV

- Measurement of length, mass and time, density, pressure, work and energy, weight, gravitation, heat and temperature, states of matter, properties of magnets, electricity refraction, reflection, shadows and eclipses.
- Physical and Chemical changes, separation of mixture, atoms and molecules, metals and non metals, oxides, acids, bases and nuclear fusion.
- Living and non-living, classification of living world, germination of seeds, life process eg. Respiration, digestion, reproduction, Photosynthesis, transportation, interdependence of plants and animals, Biodiversity loss.

Suggested Readings:

- Bolt, Brain (1982) Mathematical Activities : A Resource Book for Teachers. Cambridge University, Paris
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