APPENDICES

A1: Content Analysis Checklist for Cross-Cutting Themes (CCTs) – NCFSE 2023

This checklist evaluates how the NCERT Grade 6 Mathematics Textbook integrates the six Cross-Cutting Themes (CCTs) of NCFSE 2023, along with key pedagogical elements like teacher–student relationships, interdisciplinary learning, and digital compatibility.

1. Rootedness in India and Indian Knowledge Systems:
Looks for references to Indian mathematicians such as Aryabhata and Ramanujan, culturally relevant examples like rangoli and kabaddi, historical or scientific contexts such as Jantar Mantar, traditional knowledge systems like Vedic math, and examples of contemporary achievements like ISRO data in graphs.

2. Learning about and Caring for the Environment:
Includes the use of environmental datasets such as rainfall or energy use, the incorporation of sustainability concepts like water conservation, real-world problem-solving tasks like solar panel calculations, opportunities for critical analysis such as pollution trends, and practices encouraging eco-conscious behavior like waste reduction.

3. Inclusion in Schools:
Focuses on diverse social settings including rural and urban scenarios, collaborative and peer-based tasks, accessibility features for differently-abled learners such as tactile resources, linguistic diversity including bilingual presentation, cultural sensitivity through contextually inclusive references like festivals, and community-linked applications such as local market problems.

4. Values and Dispositions:
Identifies content that encourages perseverance and collaboration, poses ethical dilemmas such as fairness in resource distribution, promotes reflection on teamwork and problem-solving processes, and includes real-world tasks that foster social responsibility through community-oriented data analysis.

5. Educational Technology:
Evaluates the use of digital tools such as graphing apps or coding tasks, development of computational thinking through algorithmic patterns, attention to digital citizenship including data privacy, and interdisciplinary application of technology like simulations that connect math with science.

6. Guidance and Counselling:
Assesses the presence of reflective prompts that support socio-emotional learning, tasks that require teamwork and peer interaction, life-skill connections such as financial literacy or career awareness, and activities that support personal growth tracking like student journals.

Section	Instances (Keywords/Examples/Tasks)	Count	Notes (Qualitative Observations)
Prelims			
Chapter 1			
Chapter 2			
Chapter 3			
Chapter 4			
Chapter 5			
Chapter 6			
Chapter 7			
Chapter 8			
Chapter 9			
Chapter 10			
Total	Total Count:		

A2: CONTENT ANALYSIS TOOL FOR GRADE 6 MATHEMATICS TEXTBOOK

This tool evaluates the textual content of the NCERT Grade 6 Mathematics Textbook to determine its alignment with the National Curriculum Framework for School Education (NCFSE) 2023. It focuses on the integration of Cross-Cutting Themes (CCTs) and key pedagogical parameters to ensure that textbook content is inclusive, contextually relevant, ethically grounded, and developmentally appropriate for learners.

Evaluation Framework

The tool uses two core dimensions:

1. **Cross-Cutting Themes (CCTs) of NCFSE 2023**
    - Rootedness in India and Indian Knowledge Systems
    - Learning about and Caring for the Environment
    - Inclusion in Schools
    - Values and Dispositions
    - Educational Technology in Schools
    - Guidance and Counselling in Schools
2. **Pedagogical Parameters**
    - Teacher–Student Relationships
    - Interdisciplinary Learning
    - Contemporary Relevance
    - Digital Compatibility

Each unit, activity, or example in the textbook is evaluated under relevant themes/parameters using the following rating scale:

Rating	Descriptor	Explanation
0 – Absent	No meaningful presence	The theme/parameter is missing or not reflected in the content.
1 – Superficial	Minimal or tokenistic presence	Elements are mentioned without depth or connection to learning objectives.
2 – Moderate	Purposeful and relevant	Theme is clearly integrated in a way that supports the concept or learner experience.
3 – Profound	Deep, integrated, and transformative	Content meaningfully embeds the theme/parameter, enhancing critical thinking, equity, or engagement.

Example Entry in Data Template:

Chapter	Theme/Parameter	Content Description	Rating	Notes
Ch. 5	Inclusion	Word problems	2	Shows moderate

Chapter Theme/Parameter	Content Description	Rating	Notes
	include rural and urban contexts		representation of socio-cultural diversity.

This tool enables systematic, evidence-based evaluation of textbook content, highlighting strengths, gaps, and alignment with NCFSE 2023. Use qualitative notes to justify each rating and inform recommendations for future textbook development or revision.

A3: VISUAL ANALYSIS TOOL FOR GRADE 6 MATHEMATICS TEXTBOOK

This tool evaluates visuals—diagrams, charts, illustrations, and images—in the NCERT Grade 6 Mathematics Textbook to determine their alignment with the **National Curriculum Framework for School Education (NCFSE) 2023**. It specifically focuses on the **Cross-Cutting Themes (CCTs)** and **pedagogical aspects** to ensure visuals enhance mathematical understanding, relevance, equity, and engagement.

Evaluation Framework

The tool uses two core dimensions:

1. **Cross-Cutting Themes (CCTs)** of NCFSE 2023
    - Rootedness in India and Indian Knowledge Systems
    - Learning about and Caring for the Environment
    - Inclusion in Schools
    - Values and Dispositions
    - Educational Technology in Schools
    - Guidance and Counselling in Schools
2. **Pedagogical Aspects**
    - Clarity and Accuracy
    - Engagement and Motivation
    - Contextual Relevance
    - Cognitive Support

Each visual in the textbook is evaluated under relevant themes/aspects using the **rating scale** below.

This **4-point ordinal scale** ensures consistency, depth, and reliability across all themes and pedagogical lenses:

Rating	Descriptor	Explanation
0 – Absent	No meaningful presence	The visual does not address the intended theme/aspect at all. It may be missing, irrelevant, or purely decorative without connection to the learning goal.
1 – Superficial	Minimal or tokenistic presence	The visual includes marginal or symbolic elements of the theme/aspect without enhancing understanding (e.g., cultural or technological symbols without pedagogical value).
2 – Moderate	Purposeful and relevant	The visual meaningfully connects to the theme/aspect and supports the learning objective (e.g., using real-world

Rating	Descriptor	Explanation
		environmental data for a math task).
3 – Profound	Deep, integrated, and transformative	The visual strongly embodies the theme/aspect, promotes critical thinking, inclusivity, or ethical reflection, and significantly enhances mathematical understanding.

Example Entry in Data Template:

Chapter	Theme/Aspect	Visual Description	Rating	Notes
Ch. 3	Rootedness in India	Rangoli pattern used for symmetry	2	Culturally relevant but lacks explanatory annotation.

This tool enables a structured, evidence-based review of textbook visuals, ensuring that they align with the **NCFSE 2023 vision** by promoting conceptual clarity, cultural grounding, environmental consciousness, equity, engagement, and emotional support in mathematics education. Evaluate each visual based on relevant CCTs and pedagogical aspects, and support ratings with brief qualitative notes. Use the findings to identify patterns, gaps, and strengths for aligning visuals with NCFSE 2023 goals.