



Schools in the Times of COVID-19

*What Matters Most
& What We Should Do*

*Version 1.0
May 30, 2020*

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This document outlines Azim Premji Foundation's recommendations for starting and running public (government) schools across states given the COVID-19 situation.

The recommendations are based on widely understood educational principles, an assessment of the current reality, and analysis of the needs of the future. They set the direction and actions for the coming academic year, which may have longer-lasting implications.

This document uses the experience from the Foundation's on-the-ground work with the public education system for around two decades, through close engagement with lakhs of schools and teachers, and on other related matters such as curriculum development, in several states across the country.

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1. Context

We are in the midst of dealing with the impact of the COVID-19 pandemic. There is no certainty on how this situation will play out.

However, it is **important to start planning for how schools can reopen, and regular education begin for all our students**. This is fundamental to ensuring that students, especially those from the most disadvantaged background are not left behind.

2. Possible Scenarios

The uncertainty of the situation points to several possibilities over the coming weeks and months. There will be areas where the lockdown is completely lifted with minimal restrictions and normal mobility. There will be others where the lockdown is lifted but there are some restrictions and limited mobility. And there will be some places where the lockdown and the restrictions continue.

Schools could reopen on time with minimal restrictions, they could also reopen late with strong safety precautions and, in an extreme situation, they may not reopen at all.

These scenarios may coexist within the same city/district, e.g. the lockdown might be lifted in one district but clusters within this district might continue to be a containment zone. These scenarios could also keep changing from one to the other within the same location causing disruptions.

All this will affect how schools are reopened and operated through the year.

3. Important Considerations

- a. Learning happens best through face to face interaction. Students learn through a variety of interactions with their peers, with adults. They need to play together, work together and to simply be together. They also need mentoring with social and emotional support. It is, therefore, important to bring students to school, even if done in a 'different' way.
- b. Technology is a poor substitute to this and can, at best, be used as a supplement after face-to-face interaction for older students. In any case, most of our students cannot access technology in a meaningful manner. Using technology for student learning as an alternative to the regular teaching-learning process seriously compromises both equity and quality.

See Annexure 1 for details.

- c. Safety and good health of students and staff are a priority. There must be simple and sustainable processes to ensure this within schools.
- d. Schools are in different settings and are of different types within a district or state in terms of specific location, availability of space, age of students and number of students. Schools must reopen, with simple doable accommodations designed for specific situations.
- e. Teachers are central to good education - in times like these, their role is even more important. We must ensure adequate availability of teachers in each school, make them allies in this situation and support them in building the capability to handle it.
- f. The school year will, most likely, be truncated. Many academic processes will need to be reworked for this. We must prioritize key learning outcomes for all

classes depending on what has been completed and what is realistically possible in the new academic year.

- g. All schools have students from families who have been deeply affected by this pandemic - those who have been sick, those who have lost livelihoods, those who struggled for food or even those who have experienced bereavement. Schools and teachers must play a proactive role in battling the impact of this crisis through the year.
- h. It is prudent to assume that the situation will be dynamic in most places - we must be ready to quickly respond in a meaningful way at every stage.

4. Reopening Schools in a Safe Manner

- a. Schools are located in what may be red, orange and green zones¹ – these zones may change from time to time and will determine how schools can be operated. In addition, they may either be crowded or non-crowded (thin) as a function of student enrolment and space available.
- b. The frequency of classes, classroom arrangements, assembly and mid-day meals will be different depending on specific location, availability of space, age of students and size of school.
 - i. Illustratively, a crowded school in a red zone will follow the most stringent safety protocol, students will come to school on alternate days or in shifts, classrooms will have well demarcated sitting arrangements with space allotted for each student, assembly will take place in classrooms with physical distancing, and the mid-day meal will comprise dry rations or food packets for the children.
- c. Primary schools in villages with enough space for children to move around and play could open as usual. These schools serve children from the local community who anyway interact closely within the community – schools are, therefore, unlikely to be sources of spread if basic precautions are taken.
- d. Schools with large enrolments and/or lack of physical space in crowded, semi-urban or urban areas could consider the following options:
 - i. Students can come to school in shifts provided enough teachers are available.
 - ii. Students of specific classes can come to school on specific days of the week.
 - iii. An alternative building, if available, can be used to ensure availability of extra space.
- e. Assembly could be conducted every day or on alternate days or within classrooms with due consideration for physical distancing.
- f. The mid-day meal could range from regular meals, food packets or dry rations.
- g. There must be a clear, sensible list of Do's and Don'ts for schools from the School Education Department on safety precautions in schools.
 - i. District Education Officers could make revisions based on local context. These communications must ensure that fear and stigma related to COVID-19 are avoided.
 - ii. Cleanliness and hygiene must become part of the regular routine.
 - iii. Schools must ensure availability of soap and clean water along with masks for students, teachers and support staff, where necessary.

¹ The definitions of red, orange and green zones may vary in time and across states. It however will represent the intensity of the pandemic in the region and the associated risks. It is used in that sense in this document.

- iv. The School Management Committee (SMC) and the local Panchayat/Municipality must be actively involved to support this effort.
- h. Individual schools or groups of schools in the same geography should have the autonomy to frame time-tables, timings and structure based on the local situation.
- i. There must be continuous communication with parents and the community on the redesigned school processes.

See Annexure 2 for details.

5. Relooking at Student Learning Outcomes, Syllabus and Examinations

- a. As this will be a truncated year, learning outcomes and syllabus will need to be suitably revised.
- b. Key learning outcomes for each class must be defined. This would be based on what is critical for the students to learn during the year, what has been completed during the last year (which was cut short) and what is realistically possible in the new academic year given the situation.
- c. The revised syllabus should focus on these core learning outcomes for each class and key parts of the textbook must be identified for teaching. Support materials, activity kits etc. must be developed, wherever necessary and possible.
- d. Subjects and content within subjects must be prioritized (e.g. focus on language and mathematics for Grades 1-3). Teaching hours in school could be streamlined to reflect this (e.g. five hours of work per week for Grades 1-2; three hours per subject per week for Grades 9-10) given a possible shorter time in school.
- e. Classroom processes must maximize student learning during school hours and use this interaction as a basis for follow-up/ further practice at home. Ongoing progress could be assessed through regular classroom assessments; in case the annual exams cannot be held, these assessments could be used for deriving evaluation grades.
- f. If the Grade 10 Board examinations can be conducted, the syllabus could be reduced - the Boards could focus on key learning outcomes that are necessary for certification. Alternative methods like Open Book examinations could also be explored. Students could be given a one-year grace period to reappear for the Board exam if they want to modify their grades. In the eventuality that Board examinations cannot be conducted, schools can be entrusted to provide grades on the basis of internal evaluation.

See Annexure 3 for details.

6. Supporting Teachers

- a. Teachers will be central to bringing normalcy back in a difficult time. While many teachers have been an integral part of the effort in responding to and containing the implications of the pandemic, there is fear, uncertainty and anxiety among them.
- b. It is important to support them, appreciate their efforts and help them return to a positive frame of mind with sufficient and credible information about the pandemic, necessary safety measures and the measures taken by the government and civil society to help those in need.
- c. Teacher professional development must continue to happen in the face-to-face mode as far as possible. That remains the best method.

- d. But, given the situation, we must prepare for meeting in smaller groups, using larger physical spaces (where available) along with using other modes (e.g. online platforms, digital material repositories). Cluster level mechanisms and follow-ups to online interactions with small groups could be built into these efforts.
- e. The truncated curriculum will need to be the focus of professional development. Flexibility will be very important to address changes in the ground situation and government directives.
- f. It is vital to address issues of social and emotional well-being of learners and teachers – they must become part of the design of teacher professional development. This is a difficult time and stresses will be felt by all.

7. Supporting the COVID-19 Effort

- a. Teachers and principals are very crucial partners in responding to the COVID-19 situation.
- b. All schools have children from families who have been deeply affected by this crisis in various ways as described earlier.
- c. School holds an important place in building awareness in society. The situation demands several behavioural changes including a stronger focus on simple health routines. Teachers must facilitate this change.
- d. Schools should work with all stakeholders - parents, SMC, Health Department, Panchayat Institutions, Department of Women and Child Welfare to build awareness and coordinate the work on COVID-19 in the immediate community.
- e. Schools must be fully informed about the different entitlements that are due to parents/ community. They could hence act as information centres for COVID-19 entitlements, in collaboration with the different relevant departments. Teachers must keep continuous track of children in difficulty and ensure that their families are aware of and are able to access their entitlement and any other help that they need.
- f. A simple Standard Operating Procedure (SoP) for schools to constantly monitor the level of risk they are in could be created by the School Education Department - this would help schools closely watch the alerts put out by the Health Department to understand what area is at what level of risk.
- g. A regular rhythm of communication between students, teachers, parents and community on the COVID-19 situation through simple key messages and small capsules on health, safety, wellness and hope could be created and disseminated. The guidelines for this could be part of the SoP that is created by the School Education Department.

8. Systemic Response: Key Responsibilities at Every Level

- a. An enabling environment for functionaries to respond to changing situations at the Block or Panchayat level is critical - this will happen through coherent policies, continuous coordination between the various departments involved, transparent communication and decentralisation of decision-making as far as possible.
- b. Funds necessary for facilitating school operations must be made available and disbursed on priority by the State.
- c. The State Council for Education and Training (SCERT) and Boards of Examinations must:
 - i. Relook and prioritize learning outcomes, syllabus and assessment across all grades.

- ii. Map the textbook content to the revised learning outcomes and syllabus.
 - iii. Develop and provide material like sample worksheets and projects for relevant grades.
 - iv. Develop and offer online training platforms and courses for teachers.
 - v. Develop alternative plans for the Grade 10 examination.
 - vi. Develop modules on psycho-social counselling for students in distress.
- d. The School Education Department at state level must:
- i. Develop SoPs for schools to operate as per Red, Orange or Green Zones, rural or urban areas, crowded or non-crowded schools.
 - ii. Fix minimum number of school days during the year that is realistically possible given the circumstances.
 - iii. Provide for extra funds to enable schools to follow all safety and hygiene procedures.
 - iv. Provide/arrange delivery of notebooks, stationery, workbooks and self-learning material to students at their homes, where necessary.
 - v. Prepare a coordination plan with various departments to enable schools as COVID-19 information centres.
- e. The school education system at the district level must:
- i. Have the flexibility to apply the SoP to open, operate and close schools based on different circumstances with adequate rationale - these decisions are to be taken in consultation with District Collector.
 - ii. Monitor and enable schools closely for ensuring safety of children and teachers.
 - iii. Enable coordination between various departments involved at the district to ensure schools have all the information regarding COVID-19 entitlements.
- f. District Institutes of Education and Training (DIETs) must:
- i. Facilitate in-service training of teachers in both face-to-face and online modes.
 - ii. Create additional learning material for children as per context.
- g. Block and Cluster Coordinators must:
- i. Closely monitor all schools, recommend opening, closing and operations of schools as per prevailing conditions.
 - ii. Ensure safety and hygiene norms are followed in all schools.
 - iii. Organize face-to-face and online capacity building programmes for teachers, like cluster meetings or weekly teacher discussion forums, focussed on academic issues related to the current situation, health and safety and the SOPs for schools.
 - iv. Ensure daily mid-day meal/dry ration for all children.
 - v. Ensure the operationalizing of schools as COVID-19 information centres.
- h. SCERT/Boards of Examination must lead academic efforts to facilitate the transition into a changed curriculum and school processes.

Annexure 1 – The Digital Divide

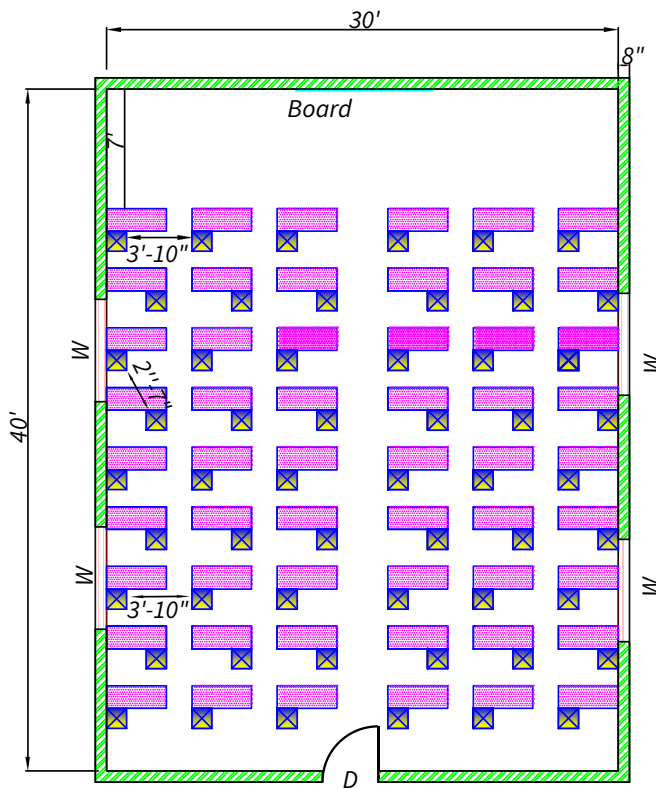
1. It was reported in 2018 that while 64% of Indians own a mobile phone, only 24% of Indian households owned a smartphone (Pew Research Centre).
2. Only 11% of households own a computer (including desktop computers, laptops, notebooks, netbooks, palmtops or tablets) (NSS 75th Round, 2017-18).
3. While there is a perception that a smartphone is as effective as a computer, it is difficult to use it for lengthy tasks (e.g. reading long texts, writing a long answer).
4. An informal survey by Azim Premji Foundation shows that only 7-10% families in rural areas own a **smartphone**.
5. Even if families own a smartphone, it may not be available to the child, particularly if parent(s) carry it with them when they go to work.
6. Anecdotal evidence also suggests that if there is a choice, the boy child will have priority for use as compared to a girl child.
7. Therefore, every child will not have access to, and control of, a smartphone, which is needed to use most content, for the duration required to meaningfully engage with the content.
8. It is also not certain that the 'last child' will have a radio or television.
9. Despite improvements, connectivity issues persist, particularly in remote areas. Only a little over 15% of rural and 42% of urban households have access to internet services (NSS 75th Round, 2017-18).
10. Continuous supply of electricity is also not a given. It was reported in 2017-18 that 16% of India's households received one to eight hours of electricity daily, 33% received 9-12 hours, and only 47% received more than 12 hours a day (Mission Antyodaya, a nationwide survey of villages conducted by the Ministry of Rural Development).

Annexure 2 – Reopening Schools

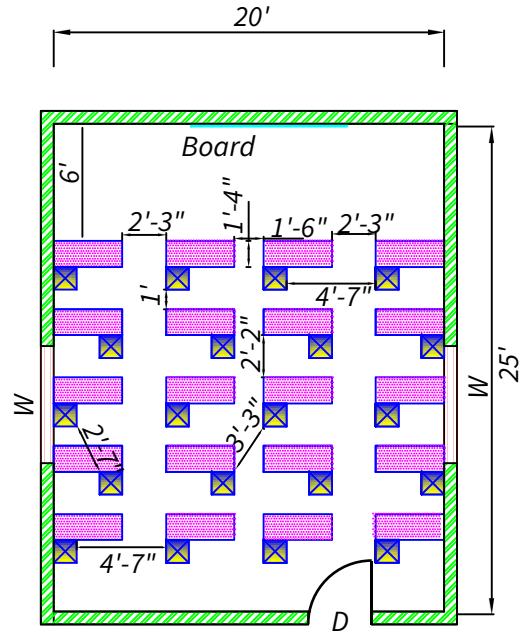
1. Schools may be located in what may be red, orange and green zones.
2. Schools may be further categorized as ‘crowded’ and ‘thin’ (non-crowded).
3. The basis of this categorization is classroom size and the number of enrolled students in that class. For example:
 - a. A classroom size of 20’*25’ can accommodate 20 students as per COVID-19 safety guidelines - if the class has more than 20 students, it is categorized as crowded and if it has less than 20 students, it is categorized as thin.
 - b. The number of students suggested for 30’*40’, 15’*18’ and 12’*15’ classrooms are 54, 12 and 9, respectively.
4. An illustrative framework is below.

Zone	Nature of school	School Processes			
		Frequency of Classes	Classroom arrangement	Assembly	Mid-Day Meal
Red	Crowded	Alternate days or in shifts to accommodate all classes in a week	Well demarcated classrooms with sitting arrangement Allotting space to a student with demarcation (please refer to the seating arrangement below)	In class with physical distance	Dry ration or food packets
	Thin	Alternate days or in shifts to accommodate all classes in a week		In class with physical distance	Daily mid-day meal for children attending school and dry packets for children staying at home
Orange	Crowded	Alternate days or in shifts to accommodate all classes in a week		In class with physical distance	Dry ration or food packets
	Thin	Regular school timing		Regular assembly with physical distance	Daily mid-day meal for children attending school and dry packets for children staying at home
Green	Crowded	Alternate days or in shifts to accommodate all classes in a week		In classrooms with physical distance	Dry ration or food packets
	Thin	Regular school timing		Regular assembly with physical distance	Daily mid-day meal for children attending school and dry packets for children staying at home

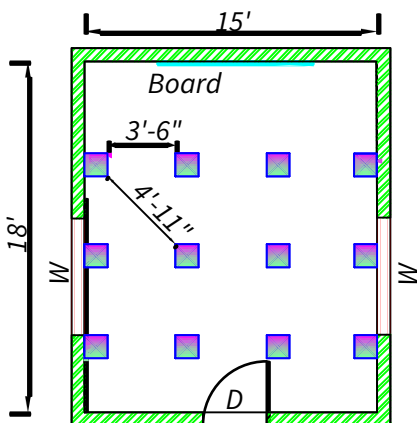
Seating arrangement in various classrooms to comply with COVID-19 guidelines



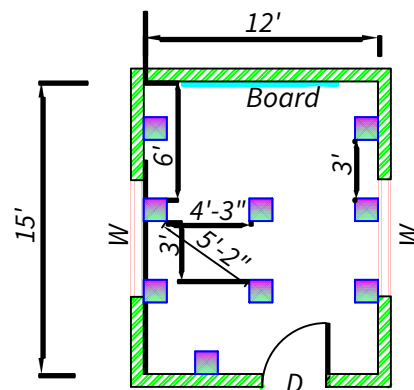
Class room size- 30'x40' = 1200 Sqft
 Actual Strength = 75
 Strength (After compliance with COVID-19 Guidelines) = 54 (72%)



Class room size- 20'x25' = 500 Sqft
 Actual Strength = 40
 Strength (After compliance with COVID-19 Guidelines) = 20 (50%)



Class room size- 15'x18' = 270 Sqft
 Actual Strength = 30
 Strength (After compliance with COVID-19 Guidelines) = 12 (40%)



Class room size- 12'x15' = 180 Sqft
 Actual Strength = 20
 Strength (After compliance with COVID-19 Guidelines) = 9 (45%)

5. All schools must follow **safety and health** protocols.
 - a. For all schools this should include a clear demarcation of the school boundary, availability of soap and masks, mandatory hand wash on entry and exit, thermal screening on entry and exit, planning for space like marking sitting places in the classroom and following the official checklist and processes to keep the premises clean including toilets.
 - b. Schools in a red zone or those that have a large number of students should do daily sanitization of premises and weekly deep cleaning and decontamination as may be recommended by the local bodies. Schools in an orange or green zone should do daily cleaning and mopping using material prescribed by local bodies.
 - c. School/classroom assemblies should ensure a minimum of six feet distance between each person and avoid activities that involve touch. Classrooms should follow the seating layout plan as per their category (see earlier table) and avoid activities that involve touch.
 - d. People cooking and serving the mid-day meal should be screened on entry and exit, must wash their hands regularly and wear a mask at all times. All utensils must be washed using detergent and all vegetables are to be washed in baking soda. Grains, pulses and other dry material to be stocked to avoid visiting the market frequently. No uncooked food to be served (e.g. fruits/salads).
 - e. Teachers should be screened on entry and exit, must wash their hands on entry and exit, and wear a mask always. They must fully understand the safety protocols related to COVID-19.
 - f. Physical distancing will need to become a norm. Initially, marking areas for sitting and standing will be necessary. Gradually, this will become a part of the school routine.
6. No child must be denied **admission**, whatever her background or circumstance or connection with the COVID-19 situation (e.g. children of returning migrant workers or of affected families).
7. Different schools may have different hours or different arrangements - all of them must follow a **common curriculum** based on commonly defined **learning outcomes** for each class.
8. If particular schools are being used as quarantine centres, there must be a plan to make schools operational, either in their original building after due sanitization or in some other suitable building. In some places, the community could make a suitable building available - a large home could also serve as a school. The options will vary from one area to the other and such decisions must be left to local functionaries, at the block or even Panchayat level.

Annexure 3 – Prioritizing Student Learning Outcomes, Syllabus and Assessment Methods

1. SCERT must set up a curriculum redesign committee to decide the learning outcomes for the year for Grades 1-10.
2. Based on this, the syllabus, textbook content and teaching-learning materials will need to be reorganized.
 - a. A list of chapters from the textbook aligned to the learning outcomes could be decided and the rest of textbook chapters could be used as supplementary reading.
 - b. A repository of stories, songs, games, puzzles/riddles, worksheets for children of all classes will need to be developed to aid in teaching.
3. Working hours in school must be streamlined; subjects and content within subjects must be prioritized. The following approach could be adopted.
 - a. Grades 1-3: Five hours of work per student per week, focus on language and mathematics.
 - b. Grades 4-5: Six hours of work per week, focus on language, mathematics and EVS.
 - c. Grades 6-8: Ten hours of work per week, focus on language, mathematics, science and social studies.
 - d. Grades 9-10: Three hours of work per subject per week; e.g. if there are 6 subjects then 18 hours per week; this can be a combination of time spent in schools and used at home for self-learning. For Grade 10: Three hours of additional work per week for examination preparation.
4. Priority must be given to content that is relevant to developing dispositions necessary for the prevalent situation, such as resilience, care, sensitivity, and empathy.
5. Systematic lesson plans must be made available and active learning methodology enabled during school hours to maximize student learning.
 - a. Provide/develop clear lesson plans that list the learning outcomes to be achieved, chapter to be transacted, resources to be used, activities to be conducted, and home assignments to be provided as follow up.
 - b. Use teaching-learning processes/such modes of interactions with students which maximize learning e.g. where children are 'doing' things which they can follow-up/practice further at home; bridge activities to address the gap between the earlier and the new class, etc.
 - c. Assign project work to older children to enable self-learning; this can be from the syllabus areas that are not addressed in the school hours.
 - d. Assess ongoing progress through classroom assessments.
6. Prioritizing learning outcomes is illustrated in the samples below.
 - a. **Sample 1: Hindi – this sample can be generalized for other first languages.**
 - i. The curricular expectation of language at the primary level is to enable children to:
 - Acquire the skills of listening, speaking, reading, writing and thinking in an integrated manner.
 - Develop interpersonal communication skills, attain basic proficiency like, developing ability to express one's thoughts orally and in writing in a meaningful way.

- Interpret and understand instructions and polite forms of expression, and respond meaningfully both orally and in writing.
 - Develop reference skills in both printed and electronic mode.
 - Acquire a varied range of vocabulary; understand increased complexity of sentence structures both in reading and writing.
 - Express an awareness of social and environmental issues.
 - Read and interpret critically the texts in different contexts– including verbal (including Braille) and pictorial mode.
- ii. In the current situation, the learning outcomes of Grades 1-5 for Language can be prioritized as below:

Grades 1-2	Grades 3-5
a. Develop the skill of listening comprehension and the connection between sounds and words	a. Ability to read and write independently
b. Develop basic reading and writing skills	b. Ability to comprehend textual materials presented in different forms like poems, stories, notice boards, posters, etc
c. Understand events occurring in the surroundings and express them orally	c. Ability to express one’s thoughts with confidence in oral and written forms
	d. Understand the basic structure of the language and apply it in writing

- iii. To meet the above learning outcomes, the syllabus could be selected on the following basis:
- For Grades 1-2, emphasis on picture reading/visually appealing materials, connecting to printed materials in textbooks, using that as the basis for familiarization with script.
 - Activities that give plenty of space to children to talk, engage in dialogue and express in class; children should be given systematic opportunities to share stories, recite rhymes, folk songs, etc to get used to the language.
 - Opportunities to listen to plenty of interesting stories and poems – such stories/poems can be selected that are distinct from each other, have different contexts, different genres. The number of poems/stories in the syllabus can be halved.
 - Text that highlights the importance of safe health and hygiene must be identified.

- iv. A detailed sample for Grade 4, based on the Rimjhim textbook (NCERT) content is below. The number of chapters have been reduced based on the learning outcomes above.

Chapter No.	Name of chapter	Reason for selection	Suggestions for pedagogy and assessment
Ch-1	Man Ke Bhole Bhole Badal (poem)	Encourages children to observe and imagine, exposure to language, well-integrated with EVS.	Read the stories and poems aloud with detailed explanations.
Ch- 2	Jaisa Sawal Vaisa Jawab (story)	Has a historical context. Uses the Akbar-Birbal duo, introduces children to humour style of writing. Encourages children to develop the skill to think critically and ask questions.	Practice read aloud sessions with children with adequate voice modulation and intonations. Discuss the stories, ask questions in between the stories to check for understanding.
Ch-7	Daan ka Hisaab (story)	Gives children the exposure to develop skills of logical reasoning, develop sensitivity, analysis of present context. Can be integrated with games in mathematics, EVS topics such as natural calamities.	Perform short activities like role plays and skits to make children enact the stories, practice dialogues and use language.
Ch- 9	Swatantrata ki Or (Essay)	Instills patriotism, courage and understanding of society. Exposure to freedom movement, issues of exploitation and human rights, contributions of Mahatma Gandhi.	Conduct group activities, like spelling and dictation, making charts on types of clouds, types of food, etc based on the chapters, singing rhymes/local songs and explaining the meaning.
Ch- 10	Thapp Roti Thapp Daal (children's play)	Exposure to diverse genre of writing. Opportunities for skits and role plays. Can be integrated with EVS- discussion on sources of food, differences in culture, etc.	Provide homework for days when children are at home that is well connected to the lesson e.g. drawing something based on the theme of the lesson, writing a few sentences, doing a worksheet given in the textbook.
Ch- 12	Sunita Ki Pahiya Kursi (story)	Develop sensitivity to people who are differently abled. Exposure to diversity – issues of gender.	Assessment should be ongoing: based on observation, how children participate in group activities and worksheets given for home work.
Ch- 14	Muft Hi Muft (Gujarati Lok-katha)	Exposure to people living in diverse geographical context and their lifestyles. Familiarizes with geography of Gujarat.	

b. Sample 2: Science – Grades 6-8

- i. This sample is based on NCERT science textbooks, which are used in most states across the country.
- ii. The learning outcomes in science are articulated in such a way that they can be achieved while dealing with any content/chapter in the textbook. Therefore, the focus should be on achieving the learning outcomes with a limited number of chapters. This can be addressed through either class work or project work. For example, in Grade 6:
 - The learning outcome ‘differentiates materials and organisms’ can be achieved through helping learners understand the differences between fibre and yarn, tap and fibrous roots, electrical conductors and insulators, etc, based on properties, structure and functions.
 - The learning outcome ‘explains processes and phenomenon’ can be achieved through helping learners explain processes and phenomenon related to movements in plants and animals, formation of shadows, reflection of light in plane mirror, variations in composition of air, preparation of vermicomposting, etc.

- The learning outcome ‘classifies materials, organisms and processes based on observable properties’ can be achieved through helping learners classify materials as being soluble, insoluble, transparent, translucent and opaque; changes as those that can be and cannot be reversed; plants as herbs, shrubs, trees, creeper, climbers; components of habitat as biotic and abiotic; motion as rectilinear, circular, periodic; and so on.
- iii. There are common learning outcomes across the grades that are spirally linked through content and its complexity. For example, Changes Around Us in Grade 6 culminates to Physical and Chemical Changes in Grade 7. This enables revisiting similar content in multiple years with increasing depth. Therefore, the suggested approach is to prioritize some chapters in classroom teaching and others through project work that the learners can do independently. Thus, the content on Fibre to Fabric in Grade 6 can be given as project work in the current academic year, and can be dealt with through classroom teaching the following year.
- iv. In this way, the syllabus can be reduced to 50% by focussing on the achievement of learning outcome and not on the coverage of content.
- v. Content selection – List of chapters Grades 6-8.

Grade	Chapters primarily for regular teaching	Chapters primarily for project work
6	Food: Where does it come from - Chapter 1 Components of Food - Chapter 2 Separation of substances - Chapter 5 Changes around us - Chapter 6 Getting to know plants - Chapter 7 Body movements - Chapter 8 The living organisms - Characteristics and habitats - Chapter 9 Motion and measurement of distances - Chapter 10 8 Chapters	Fibre to fabric - Chapter 3 Sorting materials into groups - Chapter 4 Light, Shadows, and reflections - Chapter 11 Electricity and circuits - Chapter 12 Fun with magnet - Chapter 13 Water - Chapter 14 Air around us - Chapter 15 Garbage in, Garbage out - Chapter 16 8 Chapters
7	Nutrition in plants - Chapter 1 Nutrition in animals - Chapter 2 Heat - Chapter 4 Acids, bases, and salts - Chapter 5 Physical and chemical changes - Chapter 6 Respiration in organisms - Chapter 10 Transportation in animals and plants - Chapter 11 Reproduction in plants - Chapter 12 Motion and time - Chapter 13 9 Chapters	Fibre to Fabric - Chapter 3 Soil - Chapter 9 Weather, climate and adaptations of animals to climate - Chapter 7 Winds, storm, cyclones - Chapter 8 Electric current and its effect - Chapter 14 Light - Chapter 15 Water a precious resource – Chapter 16 Forests: Our lifeline - Chapter 17 Wastewater story - Chapter 18 9 Chapters

Table continued on the next page.

8	Microorganisms: Friend and Foe - Chapter 2 Metals and non-metals - Chapter 4 Cells - Chapter 8 Reproduction in animals -Chapter 9 Reaching the age of adolescence - Chapter 10 Sound - Chapter 13 Chemical effect of electric current - Chapter 14 Light - Chapter 16 Stars and solar system - Chapter 17 9 Chapters	Crop production and management - Chapter 1 Synthetic fibres and plastics - Chapter 3 Coal and petroleum - Chapter 5 Combustion and flame - Chapter 6 Conservation of plants and animals - Chapter 7 Forces and pressure - Chapter 11 Friction - Chapter 12 Some natural phenomenon - Chapter 15 Pollution of air and water - Chapter 18 9 Chapters
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vi. Suggested pedagogical processes and assessment processes:

- Giving explanations of key concepts, doing experiments, group activities to actively engage with the core scientific facts.
- Giving projects on chapters to be done at home, as mentioned above, with clear instructions on what to do; teachers can use projects as resources to teach other grades.
- Students reading literature on their own, including textbook chapters.
- Providing several worksheets or survey tasks to students before the teacher starts teaching the topic in the classroom. This would help students in actively engaging with the content. This would help save time during classroom teaching.
- Another strategy is teaching different chapters as a coherent unit and not as isolated topics. For example, in Grade 6, Getting to know plants (Chapter 7) can be integrated with Food: Where does it come from (Chapter 1). Similarly, integrating content in different subjects like science and geography (motion of the earth, major domains of the earth, climate vegetation and wildlife) could also be explored.
- Evaluating students' project work, worksheet-based assessment, homework, allowing students to do peer and self-assessment, short conceptual quizzes, etc would provide a good source of assessment. Teachers' judgements in attaining learning outcomes against appropriate tasks would be a strong assessment tool.
- An effective assessment strategy would be providing students books and magazines to read and discuss. That would not only evaluate students' science content, but also other subjects and languages.

