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Competency-based teaching and learning in grade 6-10 science, maths, social science and languages in CBSE schools in India

A scoping study of current classroom practice with a focus on the use of practical and fieldwork activities

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Content

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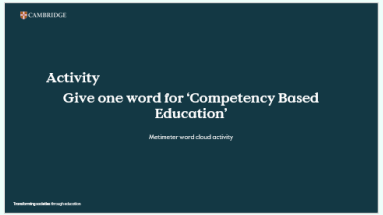
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Activity
Give one word for 'Competency Based Education'
Metimeter word cloud activity

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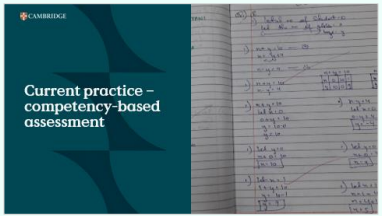
Current practice – competency-based teaching and learning
Maths in real life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Current practice – competency-based assessment

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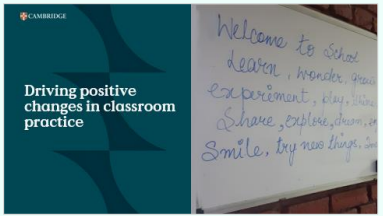
Current practice – practical and fieldwork activities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Driving positive changes in classroom practice
Welcome to school
learn, wonder,
experiment,
share, explore,
Smile, try new things.

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Thank you

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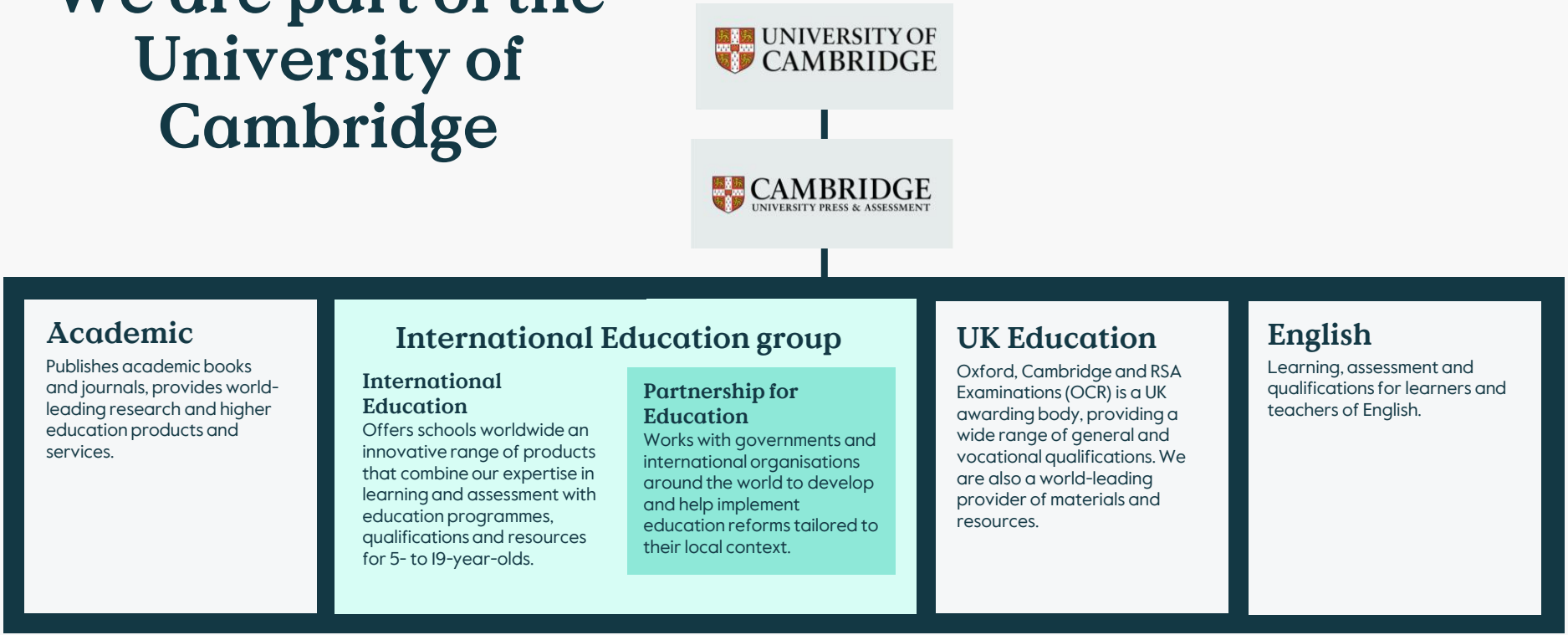

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80+ offices — worldwide serve as home to our colleagues

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Where we work

*where we have projects, contracts or offices

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Our impact – user reach

68 million total users reached = **30.3** million students + **800** thousand teachers and education leaders + **37.8** million additional 'downstream' students and teachers

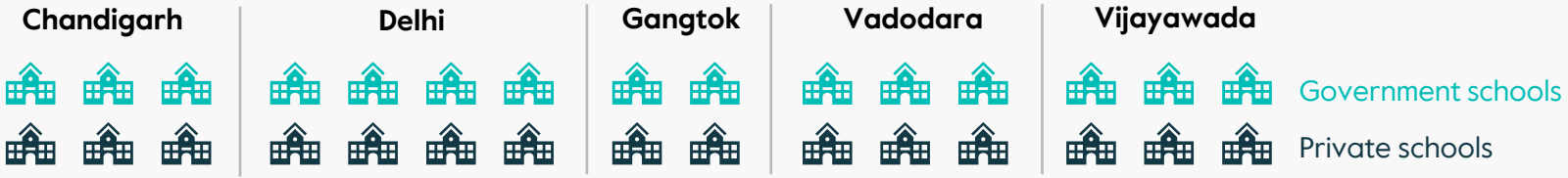
15.4+ million
users belong to an ethnic, national or racial minority within their local context.

7.3+ million
users have a special educational need or disability.

3.5+ million
users are displaced, vulnerable or living under emergency conditions

Scoping study approach

- The **expectations for competency-based teaching, learning and assessment** set out in policy and related documentation – explored through document analysis
- The **perspectives of a range of education stakeholders** on their interpretation of the policy expectations and current classroom practice – explored through interviews, focus groups and online questionnaires
- An **independent assessment of current classroom practice** in relation to competency-based teaching, learning and assessment – explored through classroom observations and reviews of facilities, teaching and learning materials (TLMs) and learners' work.



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Research framework

- A. Expectations set out in policy documentation
- B. Guidance and key messaging
- C. In-service teacher training
- D. Teaching and learning resources
- E. Current practice – teaching approaches
- F. Current practice – assessment
- G. Current practice – practical activities and fieldwork
- H. Current practice – climate change and sustainability education
- I. Current practice – inclusion and gender sensitivity

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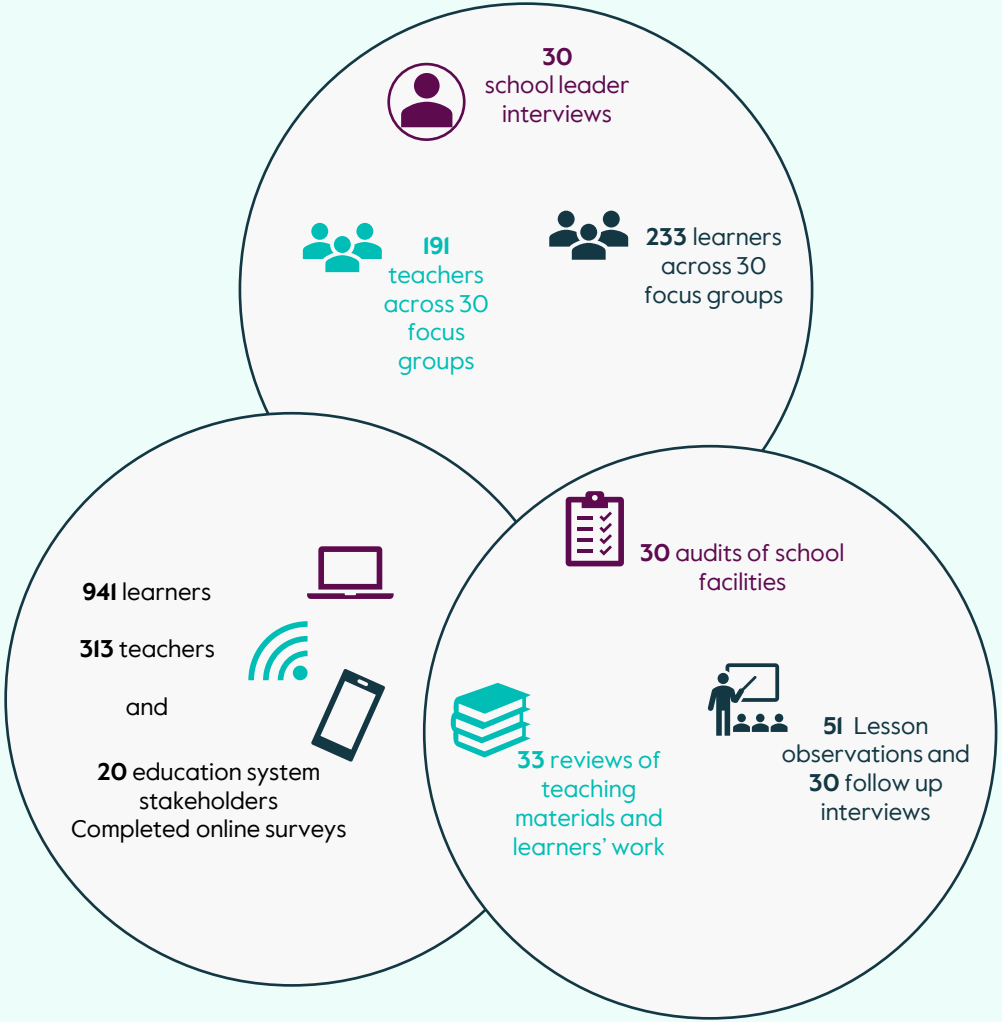
Data Collection



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Activity

Give one word for ‘Competency Based Education’

Metimeter word cloud activity

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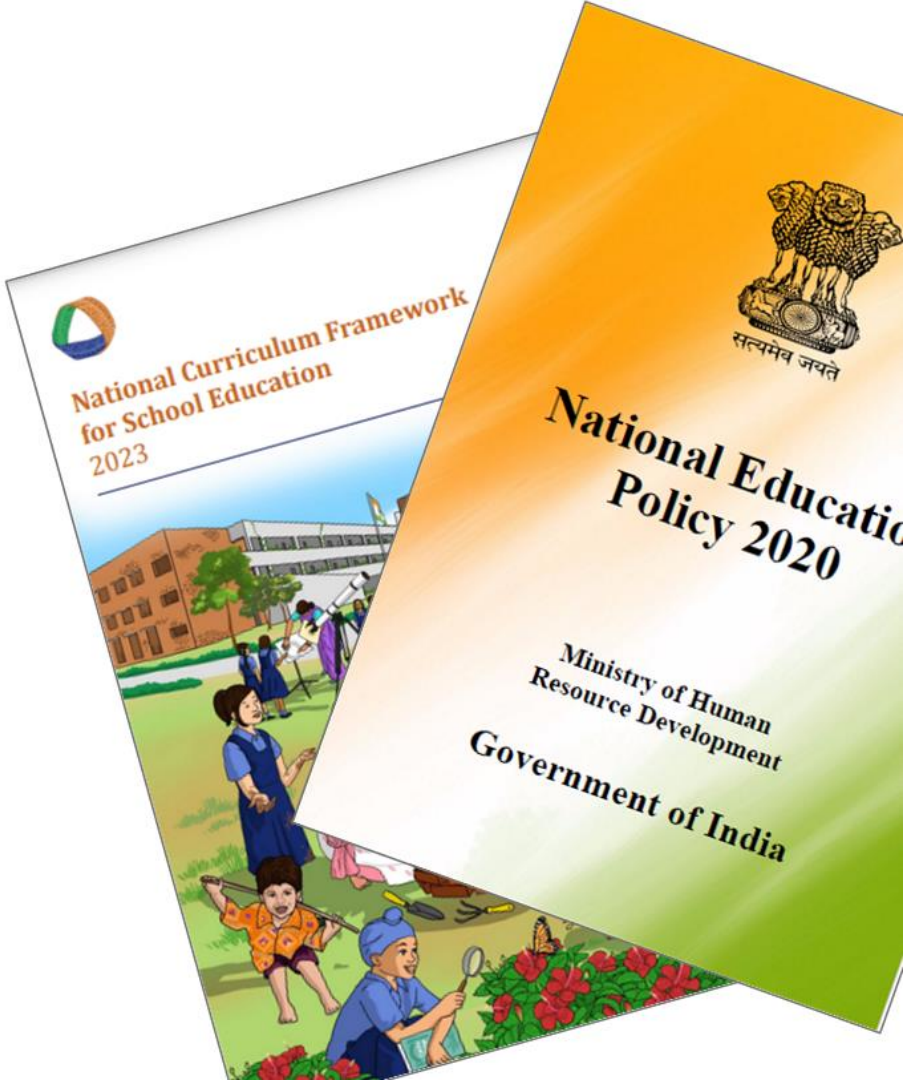
Policy expectations and comprehension of key terms



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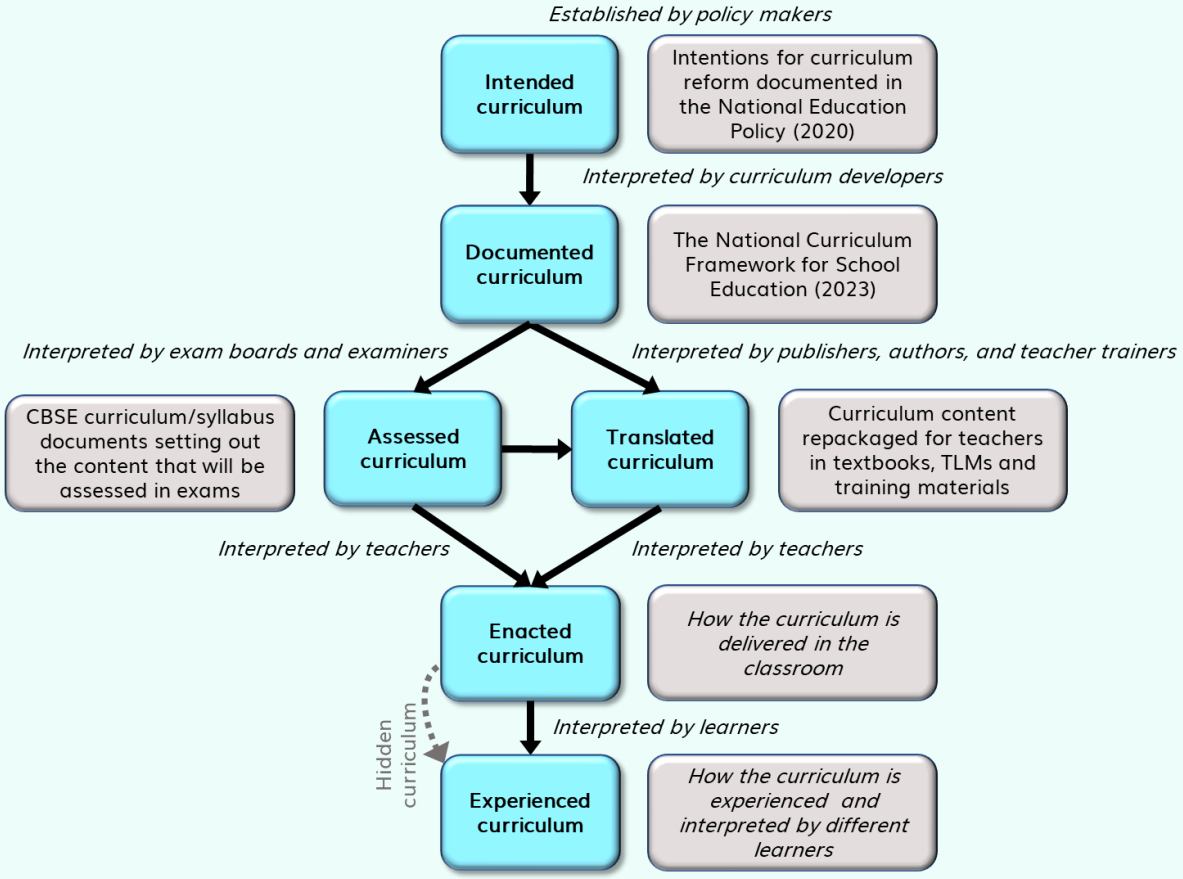
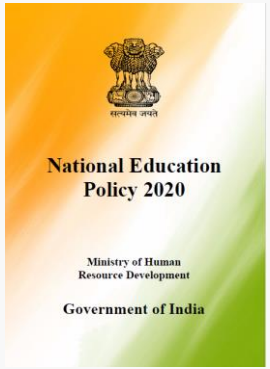
Forms of curriculum

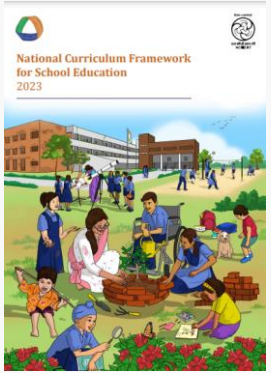


Policy terminology



KNOWLEDGE
Subject/discipline knowledge
Cross-cutting knowledge
SKILLS
Foundational skills (numeracy, literacy)
Higher order thinking skills
Creativity and innovation
Life skills
Social and emotional skills/soft skills
VALUES AND DISPOSITIONS
Ethical and moral reasoning
Constitutional values
Scientific temper

KNOWLEDGE
Subject/discipline knowledge
Interdisciplinary knowledge
CAPACITIES
Foundational literacy and numeracy
Inquiry, problem solving and logical reasoning
Aesthetic and Cultural Capacities
Capacities for Health, Sustenance, Self-management, and Work
Capacities for Social Engagement including Affective Aspect
VALUES
Ethical and moral values
Democratic values
Epistemic values
DISPOSITIONS
Positive work ethic
Curiosity and wonder
Pride and rootedness in India



Recommendation 1: Increase shared understanding of policy intentions

Support teachers and school leaders to develop comprehensive and consistent understanding of the key terminology used in the NEP, the NCF and other related frameworks by mapping the terminology used, establishing and defining a common language, and developing informative visual representations for easy reference. Apply this consistently throughout all training, teaching and assessment-related materials.

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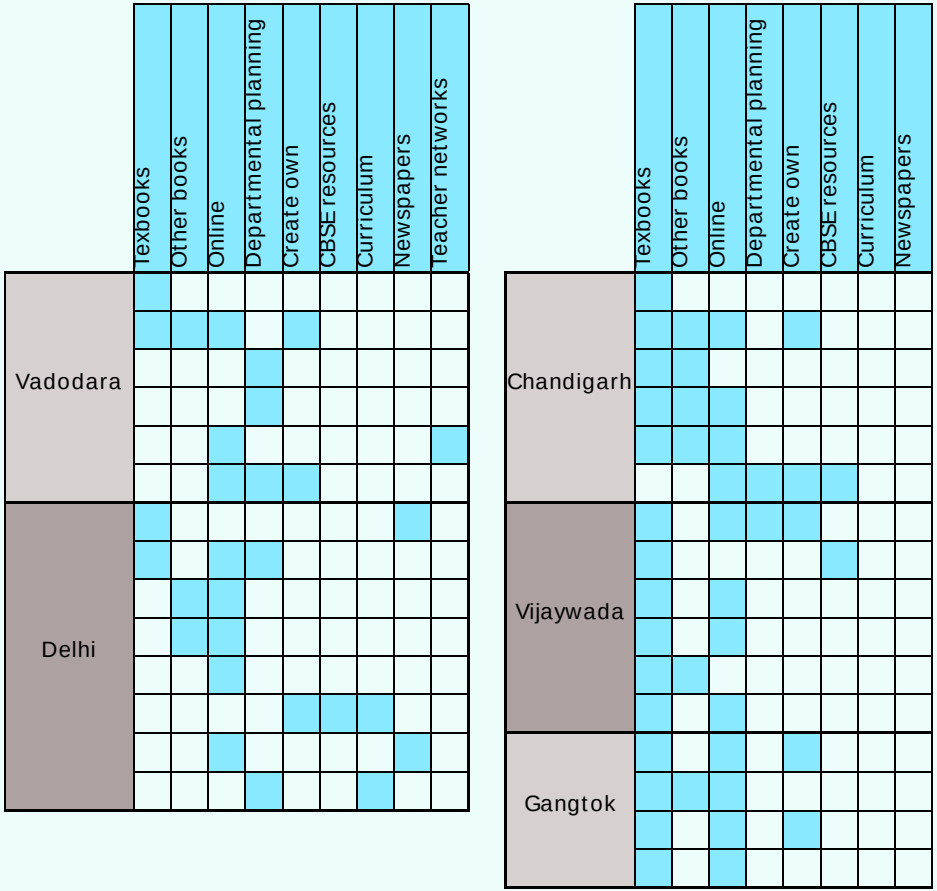

Teacher responses in relation to where they find information about the curriculum requirements to inform their lesson planning

Recommendation 2: Consider the alignment of textbooks with the NEP

Explore opportunities to ensure that existing and new textbooks can be used to support implementation of the teaching approaches set out in the NEP – for example by:

- Providing guidance and exemplars for teachers on how existing textbook content can be used flexibly to facilitate different types of learning activities in line with pedagogical expectations set out in the NEP
- Explore opportunities to work with other organisations who provide information or guidance to publishers, or who develop or manage textbook approval or accreditation criteria, to identify ways to increase the alignment of future textbooks with the intentions of the NEP.

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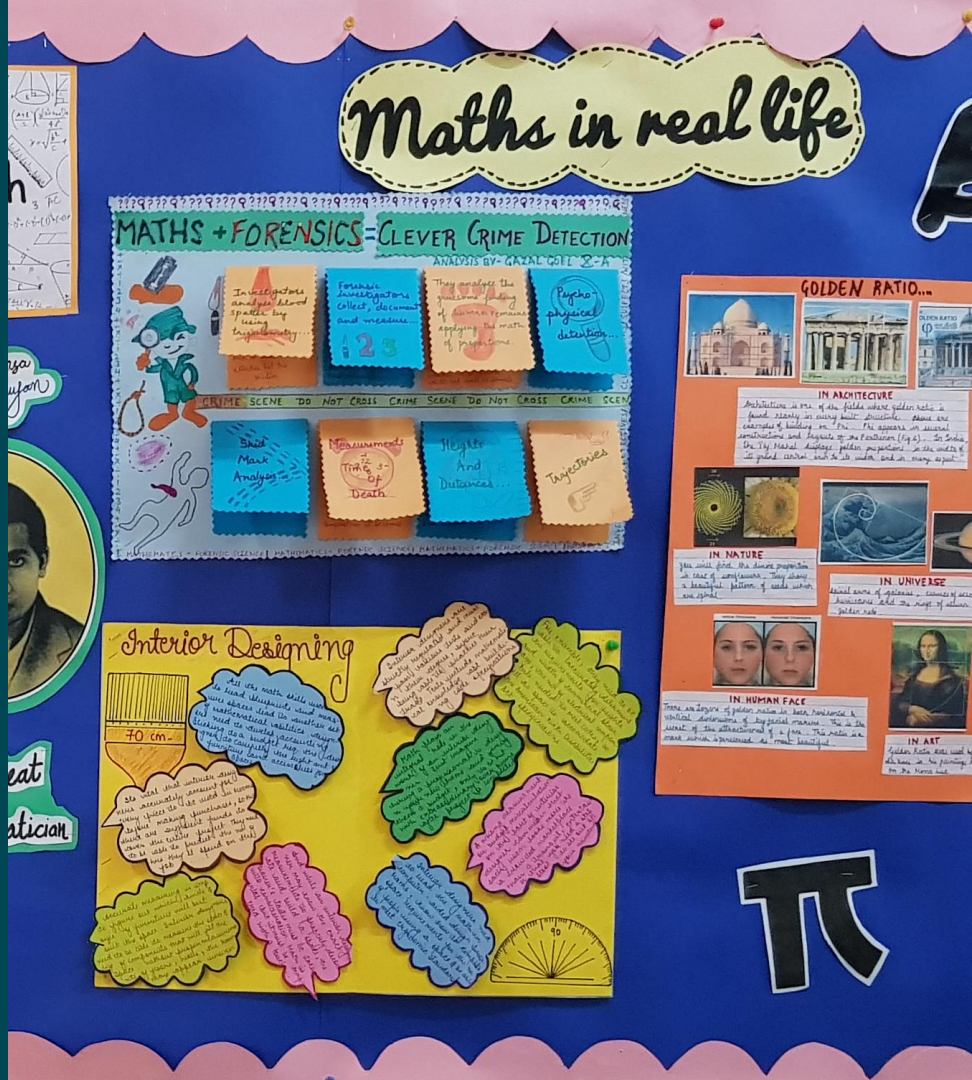
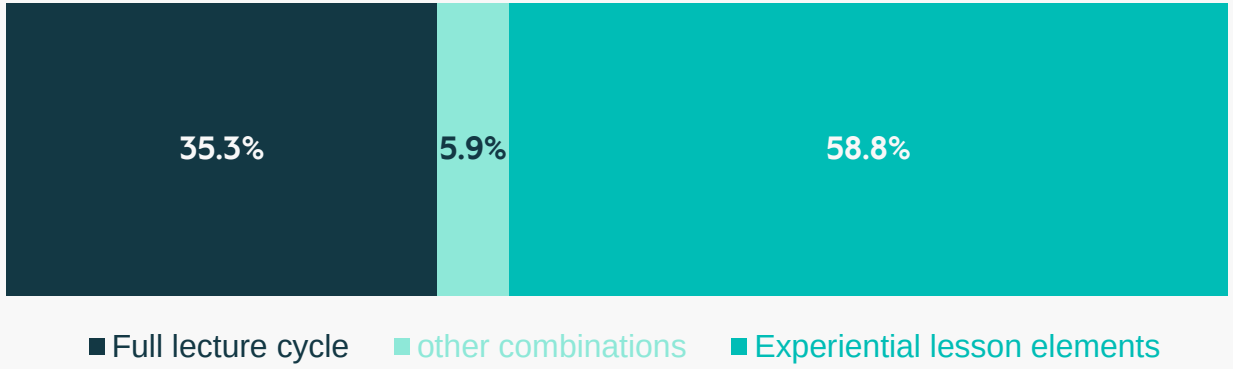
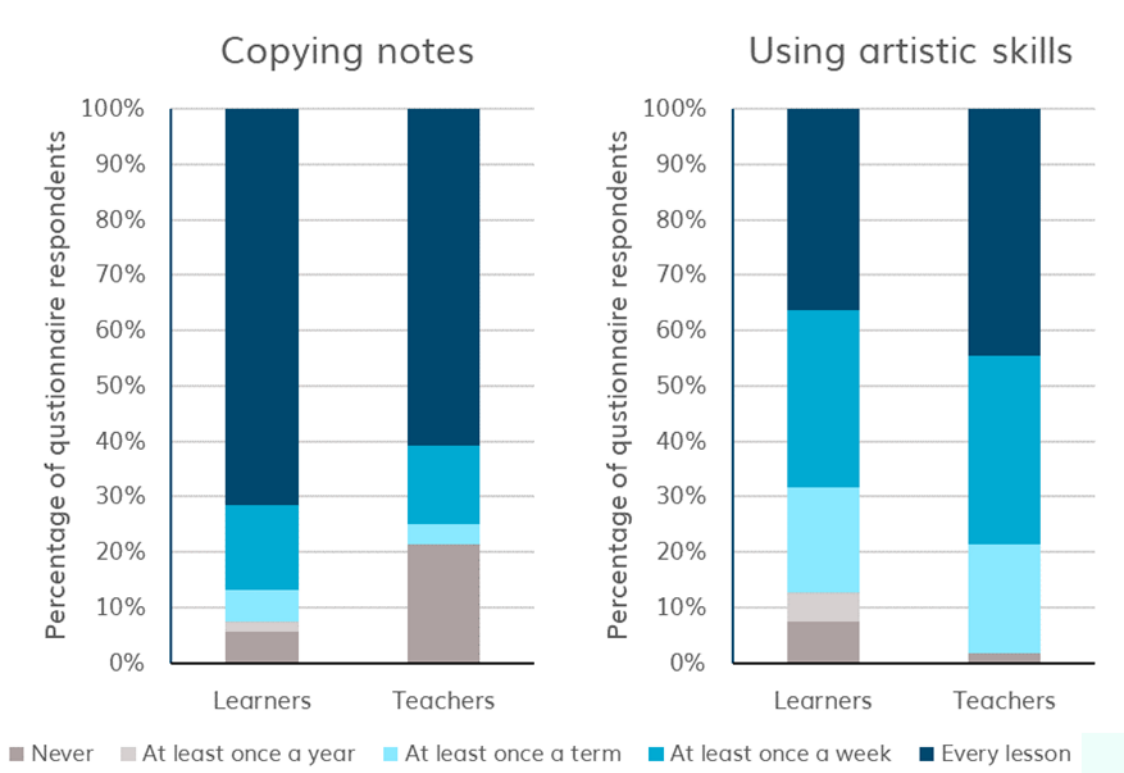
Current practice – competency-based teaching and learning



The percentages of observed lessons that were predominantly delivered through lecture style teaching in comparison to the percentage of lessons that included experiential elements or other combinations of teaching activities (data from lesson observations)

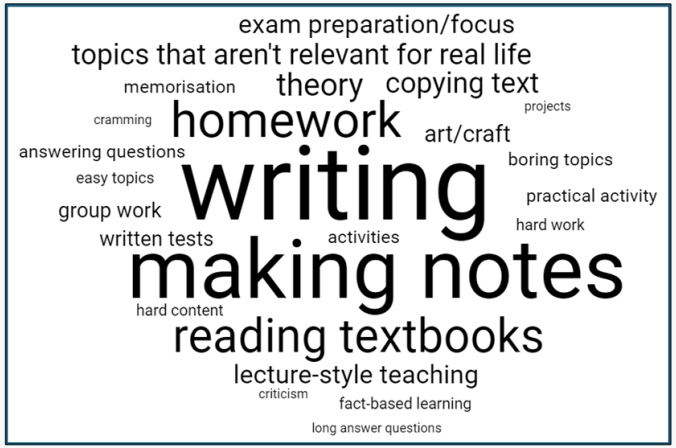




This example shows the difference in learners' and teachers' perceptions of how often copying notes or activities using artistic skills were incorporated in maths lessons (data from the learner and teacher questionnaires)

In lessons, learner would like to have:

LESS:



MORE:

Recommendation 3: Enhance the learner voice to reinforce the NEP

Support learners to understand what they should be able to expect from their lessons and to be able to communicate their perspectives constructively about the teaching they experience – for example by:

- Developing resources and a communication strategy to make the content of the NEP and NCF more accessible to learners to support them in developing an informed voice
- Exploring mechanisms to gather learner perspectives over time and to communicate these findings with school leaders and teachers in order to amplify the learners' voice and reinforce the importance of implementation approach set out in the NEP.

Best practice example

Examples of current integrated teaching practice

Art-integrated learning

Learners analysed artwork in different styles during lessons on patterns in maths and then designed their own artwork based on a particular pattern sequence

Sports-integrated learning

In maths lessons, basketball results and hands-on activities where individual learners took shots at a basketball hoop was used to teach probabilities

Cross-curricular linkages

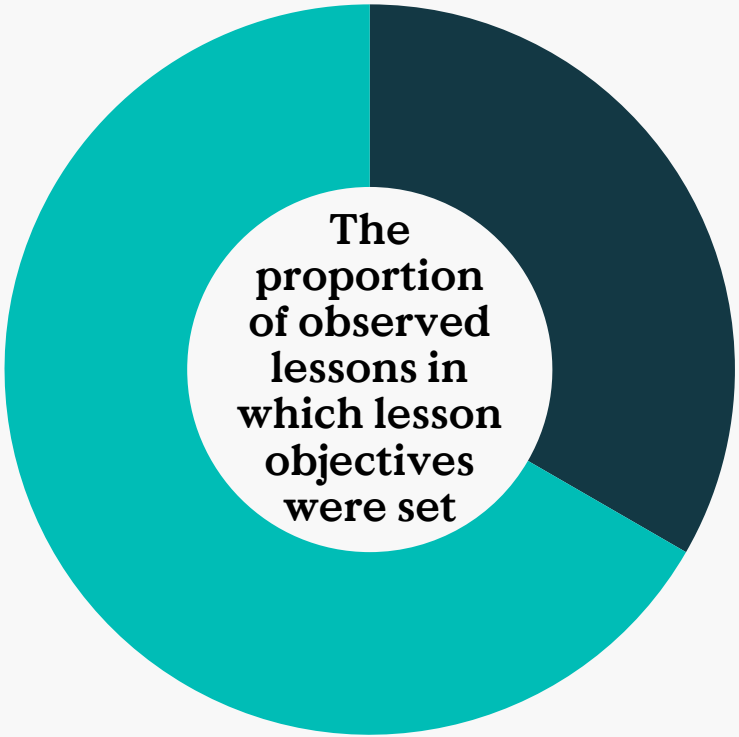
In a social sciences lesson about water scarcity, the teacher read a poem about the value of water to humans. For homework, learners were tasked with researching a theme related to water scarcity (e.g. uses of water or water pollution) and writing a poem to express their feelings and viewpoints about that theme

Recommendation 4: Provide examples and guidance on key approaches

Support teachers to expand their understanding of creativity and integrated teaching by:

- Developing subject specific guidance and TLMs that provide ideas and examples of fully integrated art- and sports-based activities within different subject areas
- Collating or developing resources to support the reframing of teachers' and learners' concepts of creativity and innovation within particular subjects, including subject-specific examples of activities focused on developing different facets of learners' creativity.

Taking ownership of own learning



Lesson 1:

Topic-based lesson objective: Idioms

Specific lesson objective:
Learners should be able to identify idioms in a section of text

Lesson 2:

Topic-based lesson objective: Idioms

Specific lesson objective:
Learner should be able to use idioms to convey meaning in their writing

Recommendation 5: Encourage best practice in setting learning objectives

Support teachers to systematically develop clear and meaningful learning objectives in order to assist learners in developing their metacognitive skills – for example by:

- Providing support and guidance on the design of specific lesson objectives to communicate to learners exactly what they are expected to be able to do in relation to a particular topic by the end of the lesson
- Providing support and guidance on the use of reflection activities, where appropriate, at the end of lessons to support learners to consider the extent to which they have achieved the expected learning outcome.

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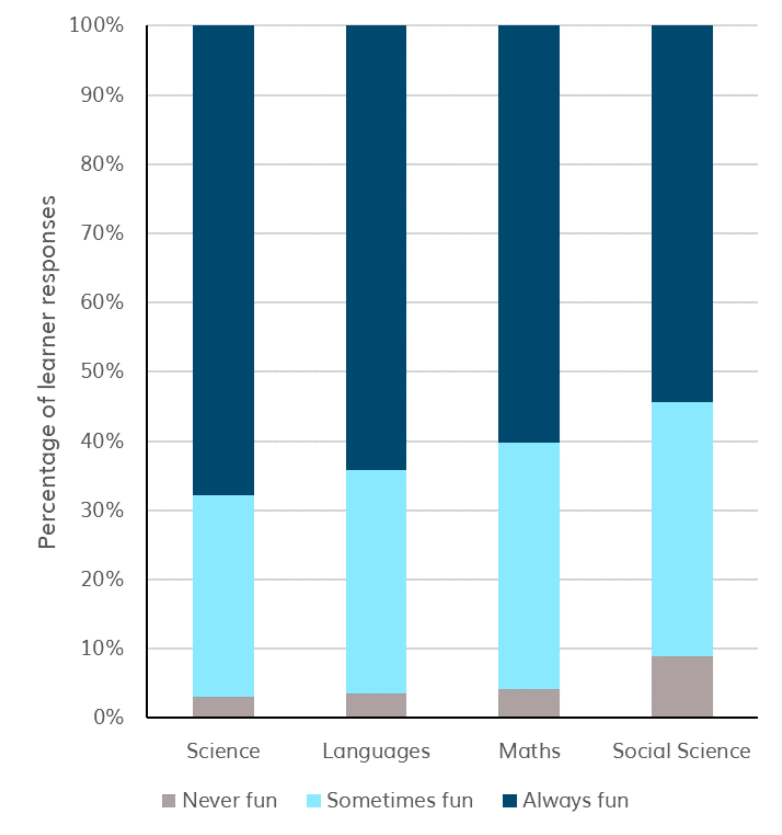

Never | At least once a year | At least once a term | At least once a week | Every lesson

Learner responses in relation to how fun they find lessons in the focus subject areas (data from the learner questionnaire)

Recommendation 6: Share best practice on managing large class sizes

Support the dissemination of best practice by collecting easily adaptable examples of best practice techniques to manage practical activities and assessment of progress with large class sizes and incorporate these in training and support materials.

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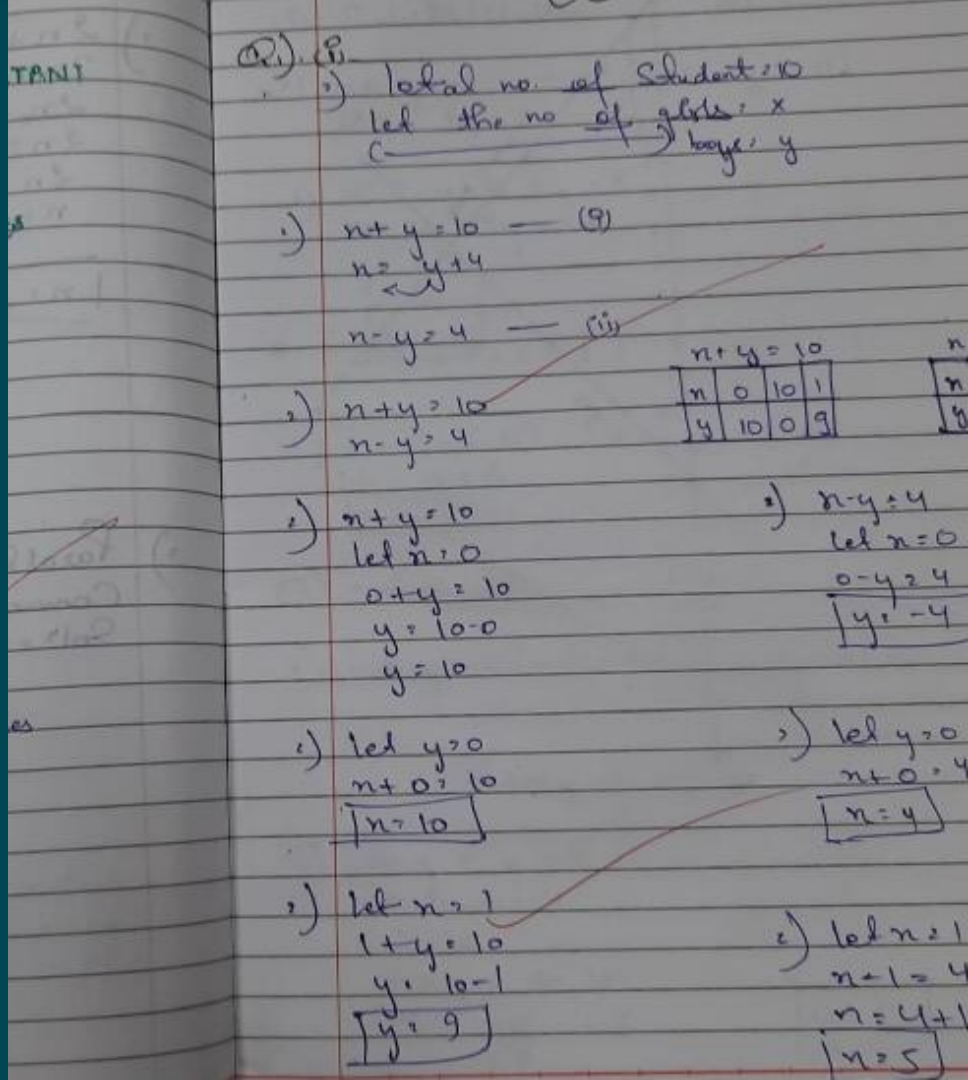
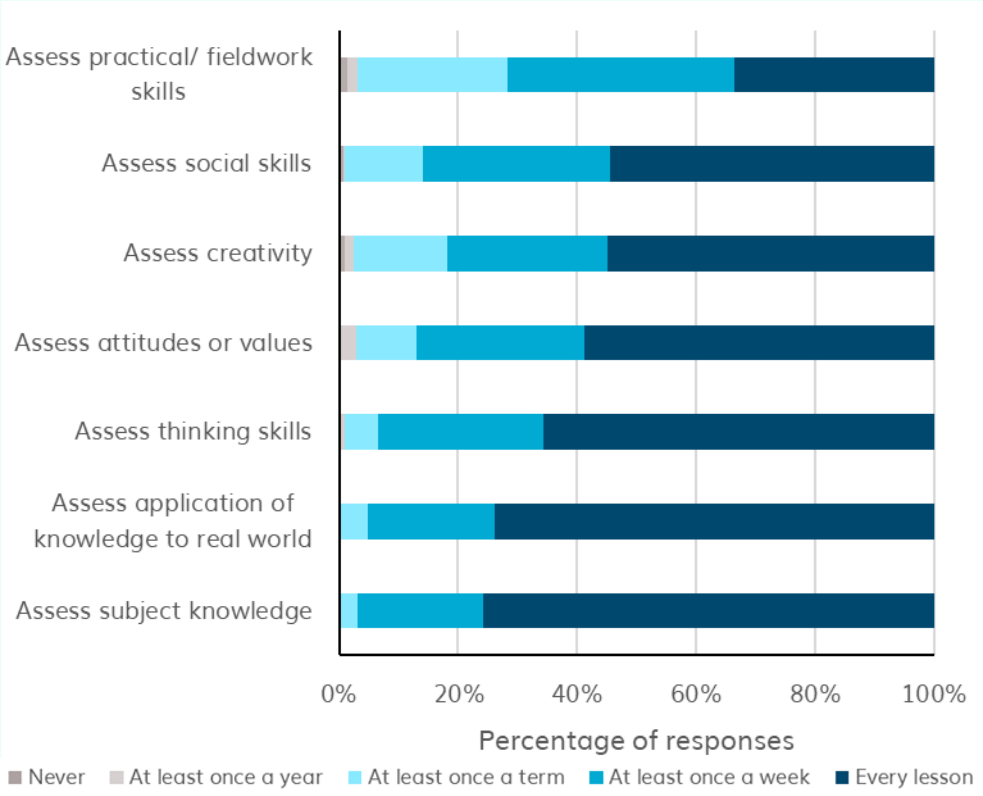
Current practice – competency-based assessment





Teacher responses in terms of how often they assess different elements of competency within their lessons (data from the teacher questionnaire)

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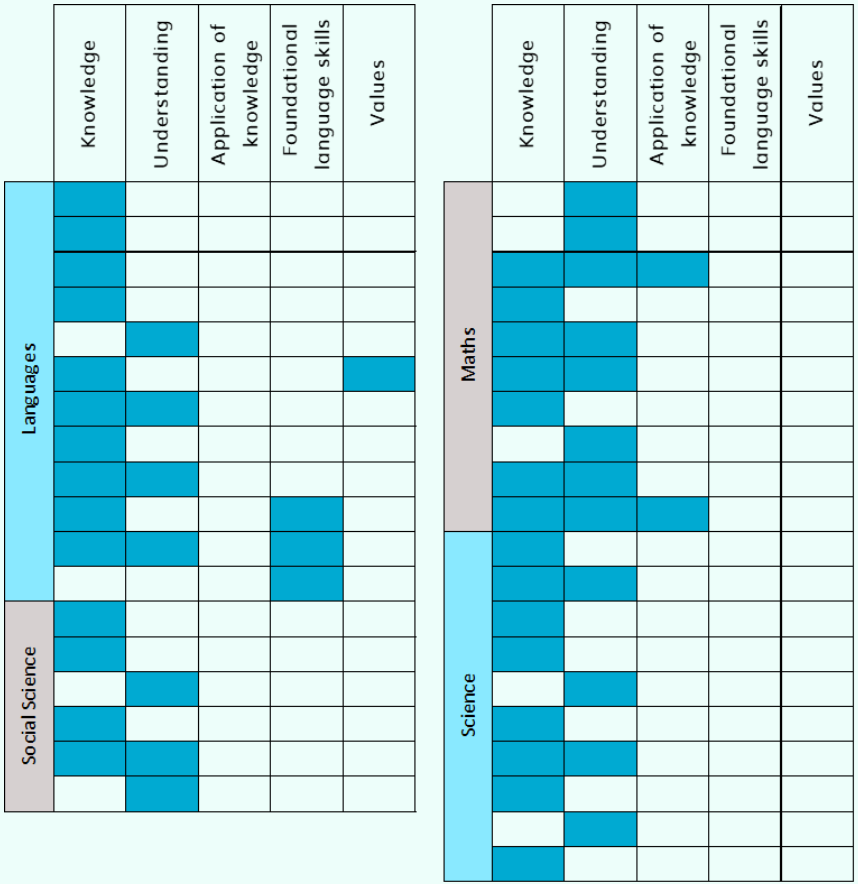
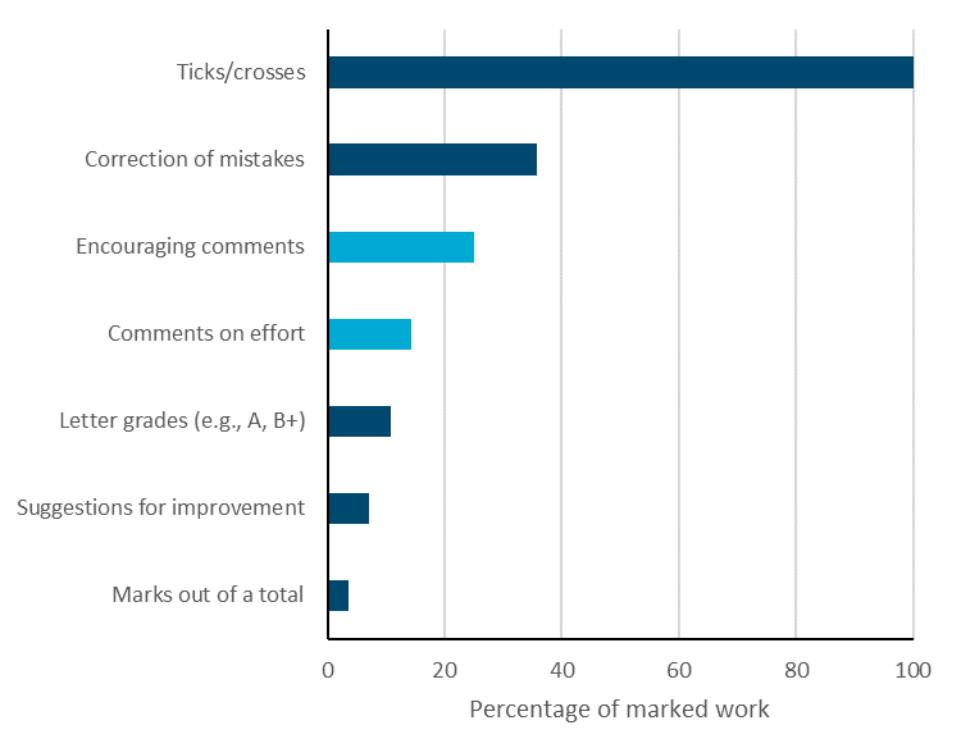


The focus of assessment carried out in observed lessons (data from lesson observations)

Recommendation 8: Support the diversification of classroom assessment

Support teachers to diversify the formative assessment they use within lessons by:

- Providing simple tools (e.g., rubrics) and guidance (general and subject specific) to support formative assessment of broader aspects of learner performance including higher order thinking skills, social skills, life skills, attitudes and values. This could enrich existing training on formative assessment, and support teachers to gather richer assessment data and use that data more effectively to inform teaching
- Collate or develop examples of simple within-lesson assessment approaches to enable teachers to gather information on progress made by the whole class in varied areas of competency development and incorporate these within resources or training related to formative assessment – this links to Recommendation 6.



The percentage of marked work reviewed that included different forms of marking and feedback from the teacher (data from the review of learner work)

https://www.aitsl.edu.au/teach/improve-practice/feedback

International example:

Promoting effective feedback - Australian Institute for Teaching and School Leadership Toolkit

Recommendation 9: Encourage richer and more targeted feedback

Support teachers to provide richer and more targeted feedback, for example by:

- Developing training and support materials following international models of best practice in this area to support teachers to develop their approach to providing effective written and oral feedback.

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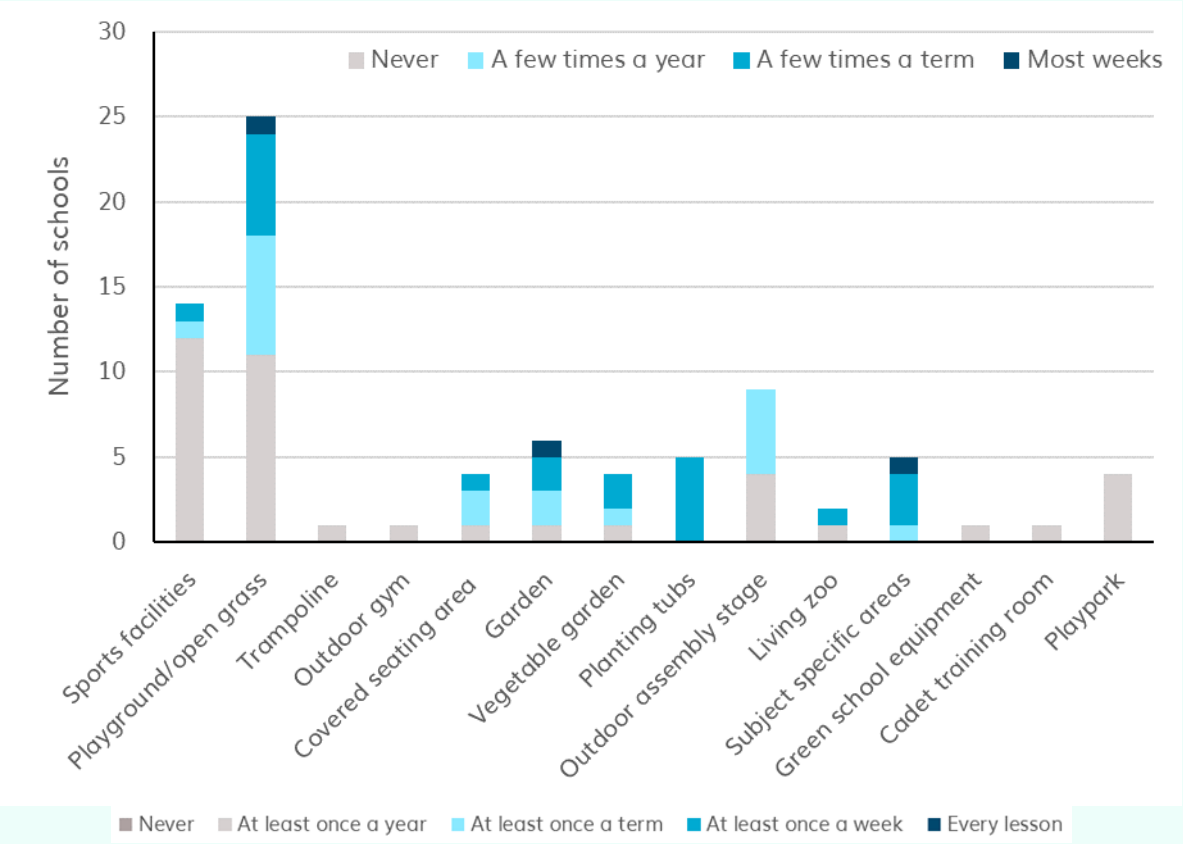
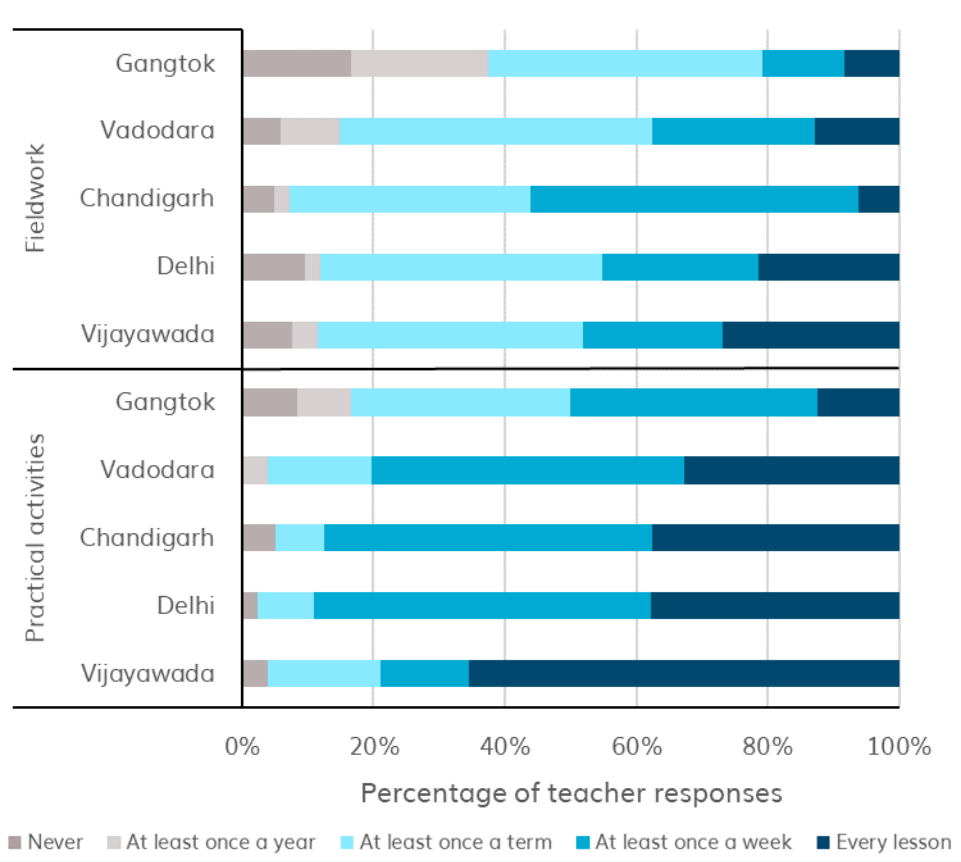
Current practice – practical and fieldwork activities



The number of schools with different types of outdoor facilities and how frequently these are used by languages, maths, science or social science teachers for fieldwork activities during their lessons (data from the facilities audit)



Differences by school location in teacher responses related to how often they use practical activities and fieldwork in their lessons (data from the teacher questionnaire)

Best Practice Example

Creative uses of school facilities

In one school, a social science teacher regularly booked the school's recording studio for her lessons to enable her learners to record newscast videos for learners in other classes. Learners carried out research, drafter the scripts and recorded their videos which were then added to a video bank for teachers and learners to access.

In another school, learners in science classes visited the dining hall to review the food options and carry out a survey on eating habits and nutrition. In another school, social science teachers made use of the school kitchens to teach learners how to prepare foods from particular locations in India or around the world that learners were studying.

Recommendation 11: Exemplify practical and fieldwork activities

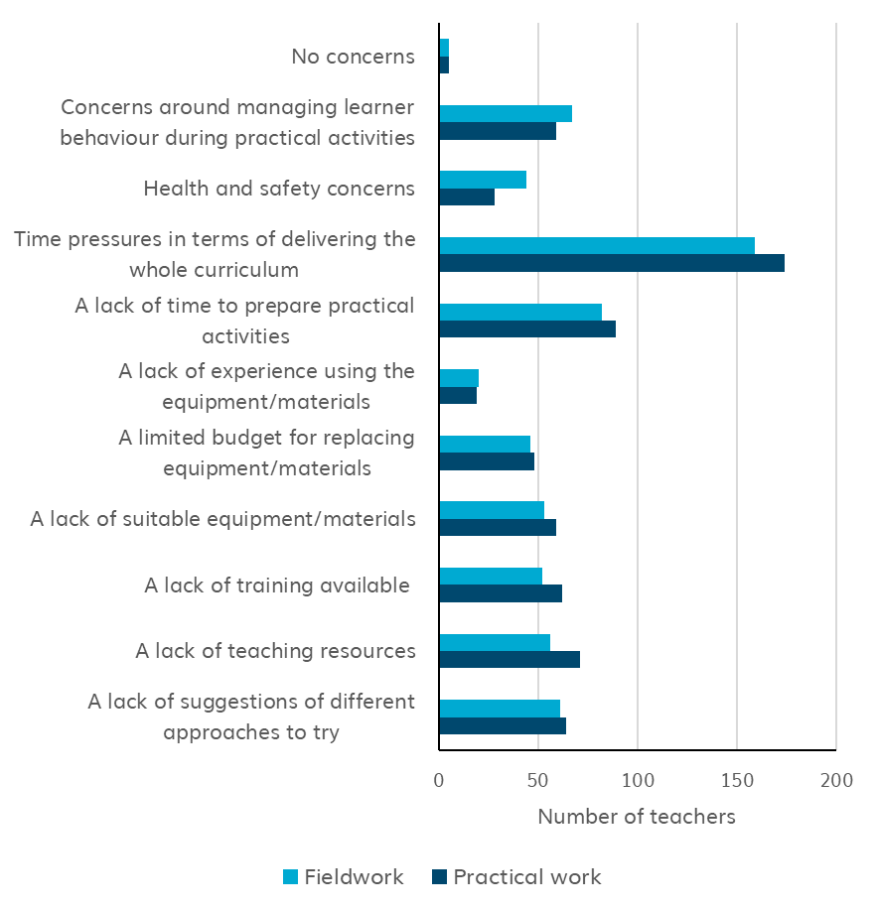
Promote the use of existing facilities within schools to carry out creative practical and fieldwork activities and reinforce this approach by:

- Collating/developing an adaptable collection of generic hands-on activities of varying length that can be used across different subject areas
- Collating/developing a collection of adaptable subject specific practical activities of varying lengths that can be completed in standard classrooms with minimal equipment or within other types of facilities within the school buildings
- Collating/developing a collection of adaptable subject specific fieldwork activities that can be completed with minimal equipment within the school grounds.

These collections of suggested activities should include a range of examples of how these types of activities can be managed with larger class sizes – see Recommendation 6.

Recommendation 12: Encourage the creation of flexible learning spaces

Develop guidance on how schools can design low cost and low maintenance outdoor (or indoor) learning areas which can support wide ranging practical and field activities within their existing school grounds and buildings.



Factors that teachers believe can limit the amount of practical or fieldwork carried out (data from the teacher questionnaire)

Recommendation 13: Address perceived barriers to practicals/fieldwork

Identify ways to overcome the perceived challenge of delivering practical or fieldwork activities within relatively short lessons – for example:

- Consider the implications of increasing the recommended lesson length in order to make it easier for teachers to deliver experiential lessons, to apply the range of types of pedagogy expected, and to provide a deeper engagement with the topics
- Provide guidance to school leadership teams on timetable blocking to enable regular double lessons in focus subjects
- Provide evidence on the potential impact of fieldwork on learning and development
- Provide a range of examples of simple activities mapped to the curriculum that can be delivered within the existing lesson timelines – this links to Recommendation II
- Develop practical guidance for teachers on managing syllabus load and the expected balance between teaching curriculum content and hands-on learning to reinforce to teachers that experiential activities are considered to be high priority by the board.

Best Practice Example

Creative examples of fieldwork

In languages, there were many examples of how teachers used outdoor spaces within the school grounds to enable learners to experience elements of particular texts or poems being studies or to find inspiration for their won writing. For example, in one school, language learners were studying a poem that described rain. The teacher took learners outside when it was raining to experience rainfall directly and listen to the sounds made by rain falling on different surfaces and structures. In another school, learners studied a text about a child climbing a tree and the teacher took the learners outside to experience climbing a tree themselves. In other schools, nature walks were used to inspire learners' own writing.

In some schools, learners in science lessons have planted different seeds in different locations and under different conditions. Over a number of subsequent lessons, learners regularly visited and monitored the plants in order to learn about the plant lifecycle and identify the factors affecting plant growth.

In other schools, teachers made use of outdoor spaces for group work, debates, performance of role plays, revision activities using sports activities or other games like treasure hunts.

	Guidance	Training	TLMs
MAJOR THEMES	Guidance on managing syllabus load – the expected balance between teaching curriculum content and hands-on learning	Hands-on practical training	A bank of subject specific activity suggestions linked to the curriculum
	Guidance on time management for planning and delivering activities within lessons	Subject specific fieldwork training with a range of simple ideas to implement	Examples of simple subject-specific fieldwork activities
		Training delivered by subject specialists	Online demos of practicals and fieldwork activities

	Guidance	Training	TLMs
MINOR THEMES	Links to organisations with fieldwork ideas/support	Opportunities to learn ideas from other teachers	Virtual practicals and fieldtrips
	Guidance on the formal expectations related to fieldwork in the curriculum	Health and safety	Manuals/workbooks
	Guidance on managing permissions to do fieldwork	Opportunities to observe demo lessons	Practical kits for individual learners

Major and minor themes identified through thematic analysis of teacher responses on what types of support would enable them to increase the amount or the quality of the practical and field activities they deliver in their teaching (data from the teacher questionnaire)

Recommendation 14: Actively manage curriculum load in future reform

In any redevelopment of the curriculum or syllabus, actively manage the balance of content required – for example, through the estimation of expected teaching time per topic based on practical, experiential delivery models.

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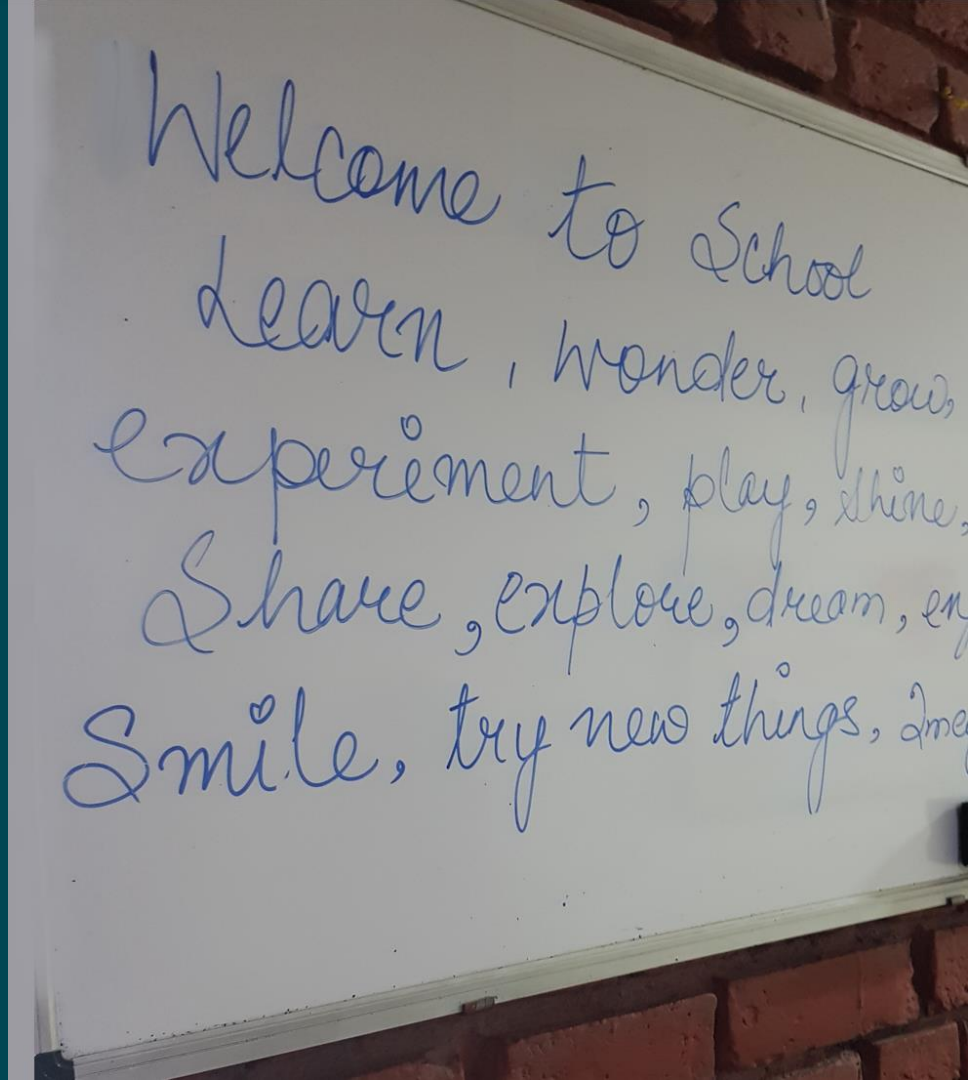
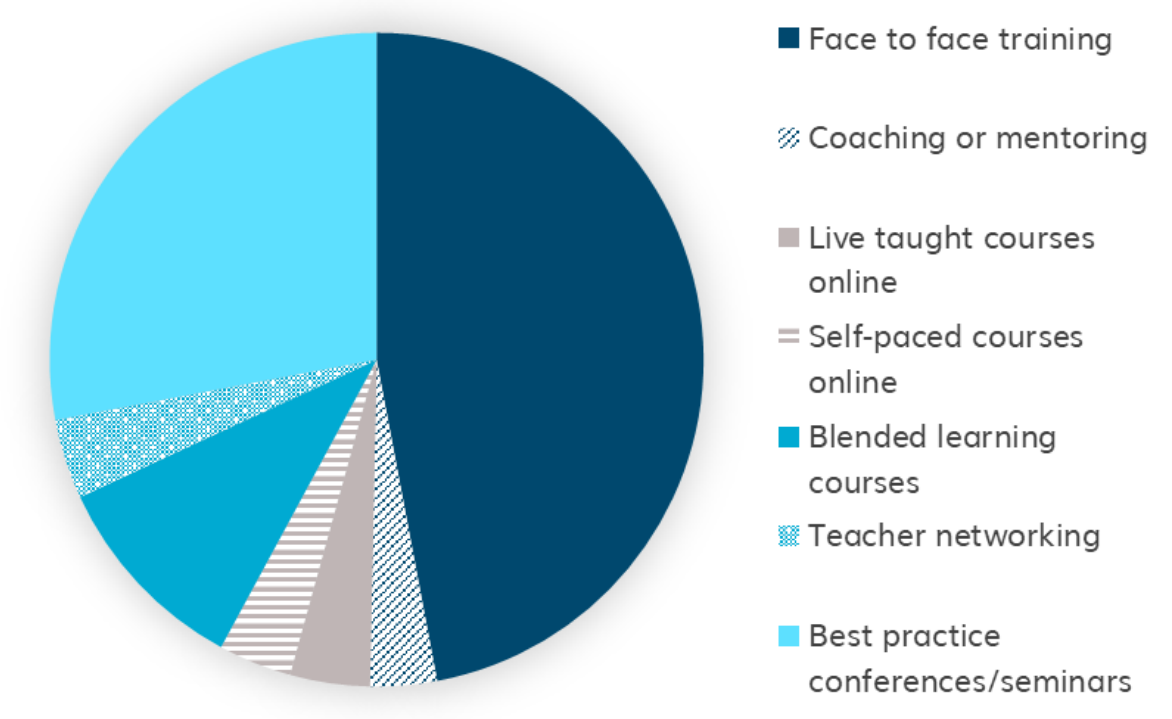
Driving positive changes in classroom practice





Teacher training

The proportion of teachers who considered the different types of training to be the most effective (data from the teacher questionnaire)

Recommendation 21: Review the mode and focus of training

Review the current training provision to:

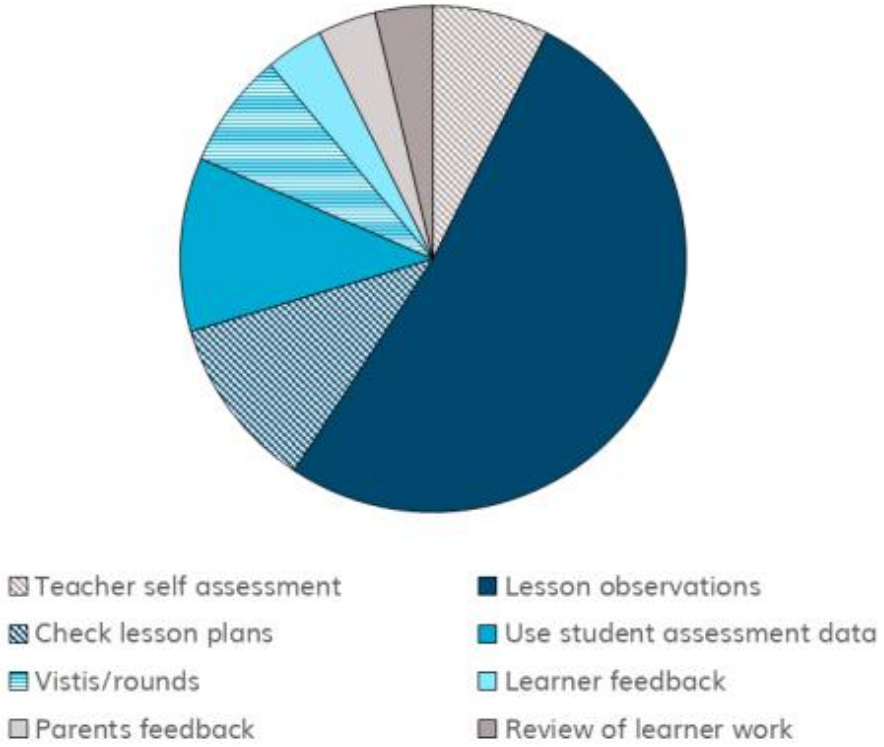
- Identify the extent to which the existing training pedagogy models the desired pedagogy in the classroom (e.g., gives teachers the opportunity to 'learn by doing' through hands on training activities)
- Identify opportunities to increase subject-specific training, to enable teachers to learn from each other and share best practice examples
- Identify opportunities to increase the amount of training in key areas identified by teachers and education system stakeholders as substantial future training needs (e.g., training in delivering fieldwork activities or assessing attitudes and values).

Recommendation 22: Collate wide-ranging competency-based activities

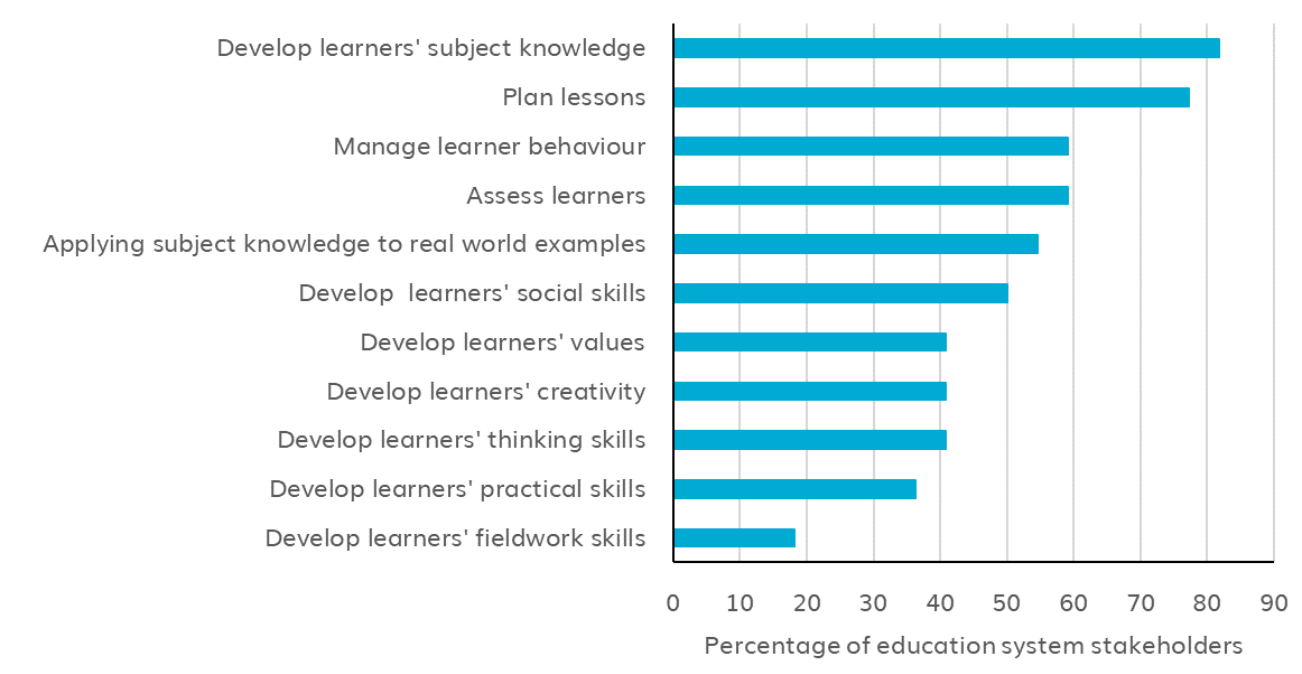
Collate or develop tagged collections of adaptable subject-specific teaching activities that are mapped against curriculum topics and areas of competency development. Use the mapping exercise to identify gaps and prioritise the development of new materials in under-resourced areas – this links to Recommendations II and 20.

Monitoring quality of teaching

The proportion of schools in which different approaches are used to monitor the quality of teaching & learning (data from school leader interviews)



Education system stakeholders' perception of the focus of lesson observations and teacher appraisal (data from the ESS questionnaire)



Best Practice Example: NEP-aligned lesson plan template

LESSON PLAN
NAME OF THE TEACHER: SUBJECT: CLASS: DURATION/NO. OF CLASSES: TOPIC/ LESSON: SUBTOPIC:
EXPECTED LEARNING OUTCOMES (KNOWLEDGE, SKILL, VALUES/ ATTITUDE): LESSON ACTIVITIES:
MATERIALS/RESOURCES:
PRE-LESSON / ASYNCHRONOUS TASK:
NEP CONNECT Tick the component addressed in your Lesson Plan and specify details: Real life Connect (RLC) ❑ Environmental Concerns ❑ Gender Sensitivity ❑ Experiential Learning ❑ Inclusive Practices ❑ Collaborative Approach ❑ Differentiated Instructions ❑ Interdisciplinary Approach ❑ Details of Methodology for incorporation of NEP Connect:
CONCEPT BUILDING/DETAILS OF STUDENT ENGAGEMENT ACTIVITIES (Incorporate at least 3 Es) Explanation: Engagement: Exploration:
ASSIGNMENT:

Best Practice Example : NEP-aligned lesson observation template

Review skills (basic):		
I. Subject Matter Content	4. Teaching Methods	7. Assistance to Students
2. Organization	5. Presentation	8. Personal Presentation
3. Rapport and Sensitivity	6. Management	9. Questioning Skills

Review skills (Advanced)
I. Innovative Pedagogy used: Used an innovative pedagogy like flip classroom, case study, experiential learning situations, design thinking, inquiry-based learning, problem solving, collaborative technique etc.
2. Online teaching tools: Used appropriate Online teaching tools for enhancement of learning
3. Subject Integration: Is able to integrate Art / Values/ Competencies in your subject effectively/ Is able to integrate other subjects in your subject
4. Recapitulation of the lesson: Summarises the lesson effectively and takes feedback from the students; provides homework assignments which reflect the material which has been taught; provides input for further learning; provides road man or the next lesson
5. Hook of the Class: The activity to engage the class at the beginning of the session

Recommendation 23: Enhance alignment of accountability mechanisms to scale and accelerate new T&L approaches in schools

Review the existing mechanisms for the monitoring of the quality of teaching and learning in schools. Use the findings to provide tools and support to enable school leaders to increase the potential of these mechanisms to reinforce implementation of the NEP – for example by:

- Developing exemplar tools like lesson plan templates, classroom observation tools and teacher self-assessment tools that link directly to key components of the teaching and learning approaches set out in the NEP
- Providing training and guidance for members of school leadership teams to support them to adopt or adapt the exemplar tools as appropriate for their particular context.

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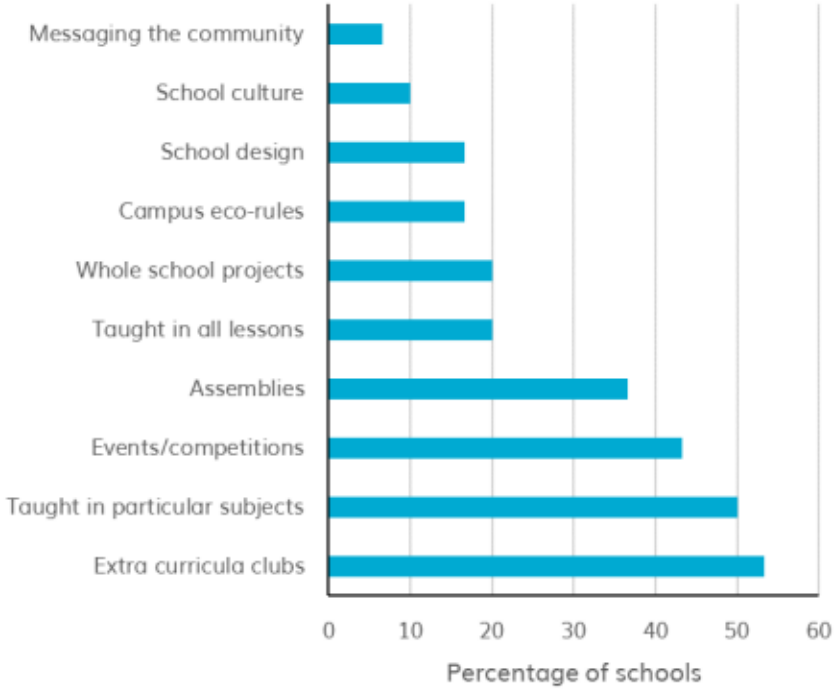
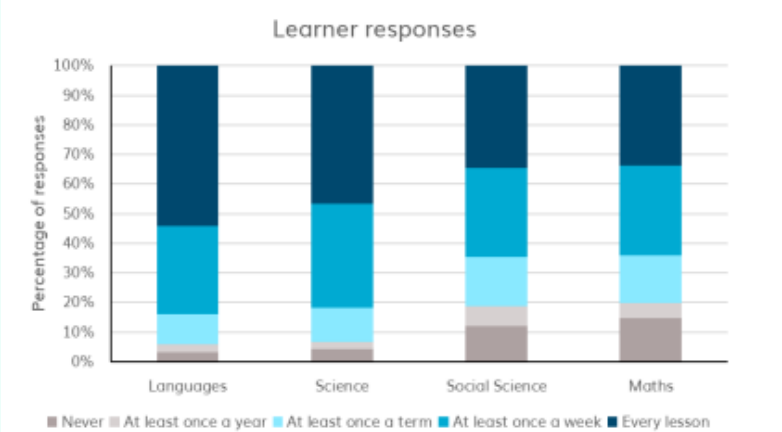
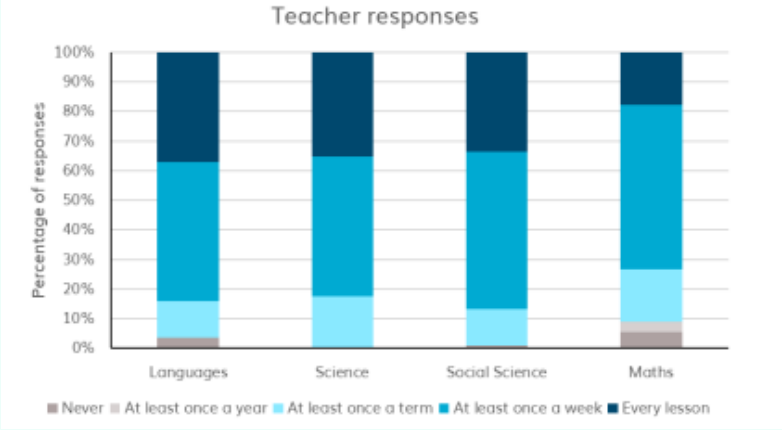
Current practice – cross-cutting theme: climate education



Percentage of schools that use different mechanisms to deliver climate and sustainability education (from school leader interviews)





The percentage of learners and teachers who gave different responses in relation to how often there are activities relating to climate change and sustainability in different subject lessons (from learners and teachers' questionnaires)

Best Practice Example

Creative examples of fieldwork for climate education

‘We have a small herbal and vegetable garden maintained by students. We teach them about the fertility of the soil, effects of pollution, water conservation, rainwater harvesting, effects of greenhouse gases and have daily values lessons.’ (School leader interview)

‘Our children make paper bags from newspaper and distribute them in the vegetable market nearby to promote sustainability of environment.’ (School leader interview)

Recommendation 20: Support the integration of climate education

Explore opportunities to support schools and teachers to embed climate and sustainability education principles, contexts and examples within every-day teaching. This could include, for example:

- Providing guidance to publishers on the incorporation of climate change or sustainability content within textbooks and TLMs and, if appropriate, incorporate this requirement within textbook approvals processes – this links to Recommendation 2
- Collating best practice examples and a bank of simple activities to support teachers to use climate education as a context within everyday lessons within the focus subject areas (rather than just within curriculum topics related to the climate or the environment)
- Incorporating elements of climate education and sustainability into general training courses to normalise the practice and support teachers to identify ways to incorporate the topic area within general lessons.

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Thank you

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