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# National Learning Assessment Framework

Liberia

IPA Liberia  
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# Acronyms and Abbreviations

APRESt - Andhra Pradesh Randomized Evaluation Studies  
ASER - Annual Status of Education Report  
CEO - County Education Officers  
CBA - Competency-Based Assessment  
CBC - Competency-Based Curriculum  
CBT - Computer-Based Testing  
DEO - District Education Officers  
EGMA - Early Grade Math Assessment  
EGRA - Early Grade Reading Assessment  
EMIS - Education Management Information System  
LHSCE - Liberia Junior High School Certificate Examination  
MOE - Ministry of Education  
NCP 2019 - National Curriculum Policy 2019  
NCF 2019 - National Curriculum Framework 2019  
NLAf - National Learning Assessment Framework  
NLAP - National Learning Assessment Policy  
PASEC - Le Programme d'Analyse des Systèmes Educatifs de la CONFEMEN  
PIRLS - Progress in International Reading Literacy Study  
PPS - Probability Proportional to their Size  
SACMEQ - Southern and Eastern Africa Consortium for Monitoring Educational Quality  
SLS - Student Learning Study  
STA - Secure test administration  
TERCE - Third regional Comparative and Exploratory Study  
TIMSS - Trends in International Mathematics and Science Study  
WAEC - West African Examinations Council  
WASSCE - West Africa Senior School Certificate Examination

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# 1. Introduction

The National Learning Assessment Framework (NLAF) is a guiding document anchored on the National Learning Assessment Policy (NLAP). It lays down guidelines for the development of an assessment test, content, and procedures keeping in mind the current status of education in Liberia.

The **Liberian education system** has made significant advances in educational attainment over the past several decades but continues to face **challenges** such as (i) over-age enrolment, (ii) low primary school completion rates, (iii) a high proportion of out-of-school children, and (i) low learning outcomes evidenced by a significant number of Grade 2 and 3 learners not being able to read a single word and dropping pass rates for the Liberia Junior High School Certificate Exam (LHSCE) and the West Africa Senior School Certificate Examination (WASSCE). In light of these challenges, the Ministry of Education (MOE) has prioritized the universal education of the Liberian people and the elimination of illiteracy. The National Curriculum Policy 2019 (NCP 2019) and National Curriculum Framework 2019 (NCF 2019) build on this priority by presenting a competency-based curriculum reform at all levels of education in the country. This reform is buttressed by the need for a system-wide national learning assessment in primary grades to assess the foundational skills gap.

The NLAP (refer to **Table 1.1** for further details) speaks to these challenges by highlighting the need for:

1. Accurately assessing the status of learning in the country and;
2. Informing decision-making and response across all levels of education.

The NLAP is closely tied to the NCP 2019, which calls for an assessment development for a competency-based curriculum (CBC) by - i) creating an enabling environment for performance-based learning, and ii) transforming assessments to check knowledge, skills, and abilities required for the performance of certain tasks.

The assessment policy underscores the need for a holistic approach to assessment with an emphasis on school-based assessment of students in Grades 3 and 6. Research suggests that foundational skills in literacy and numeracy serve as the building blocks for later learnings. Learners who fall behind in the development of these skills in early grades rarely catch up. Timely detection of gaps in foundational skills at two timepoints - middle of primary education (Grade 3) and at the exit of primary education (Grade 6) - can provide an early warning for immediate feedback to the MOE to design learning programs and reforms that will lead to improvements in students' learning. Thereby, paving the path for targeted support to the school administration in early grades.

The NLAF is a companion document to the NLAP, a result of collaborations and partnerships between the MOE and key education sector stakeholders in the region<sup>1</sup>. This participatory process was underpinned by:

1. **Policy goals** defined in the NLAP, Curriculum Reforms, Getting to Best-Education Sector Plan (2017-2021), Strategy for Education Reform (2018-2028), Education Sector Diagnostic Study (2016), Education Reform Act (2011), and the National Education Sector Plan (2010-2020).
2. **Informing education sector priorities**
3. **Reliability of data** gathered from the assessment.

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<sup>1</sup> The NLAF drafting and consultative process took place remotely due to the coronavirus pandemic that impacted active in-person workshops.

4. **Effective contextualization and feasible test administration** by local and regional actors in the medium- and long-run through a phased-in implementation.
5. **National ownership** of the assessment.

The NLAF defines key quality concepts laid down in the NLAP. It presents details on how to assess foundational skills and provides a blueprint for the assessment tool, its administration, and an examination system for Grade 3 and 6. It is grounded on competency acquisition measured by proficiency in foundational content and cognitive domains.

**Table 1.1: Overview of National Learning Assessment Policy, 2021**

Vision	Mission	Purpose
<ul style="list-style-type: none"> <li>- Provide critical information and feedback on students' learning and educational experience.</li> <li>- Drive reforms and decision-making to enable and enhance the learning capabilities of Liberian students to become fully participating members of Liberian society.</li> </ul>	<ul style="list-style-type: none"> <li>- Institutionalize and streamline a competency-based assessment system in primary education - Grade 3 and 6.</li> <li>- Align with and reinforce the priorities and focus of the entire education system in Liberia.</li> </ul>	<ul style="list-style-type: none"> <li>- NCF 2019: Assess the extent to which learning objectives including outcomes and competencies have been achieved and identify which schools and learners need pedagogical advice and strategic intervention</li> <li>- Regular monitoring of foundational skills acquisition in primary grades.</li> </ul>
Policy Orientation		
Foundational Skills	Grades 3 and 6	Group-administered written assessment Model
<ul style="list-style-type: none"> <li>- Focus on literacy and numeracy</li> <li>- Cognitive domains and Reading Inputs</li> <li>- Student Well-being</li> </ul>	<ul style="list-style-type: none"> <li>- Sample-based assessment capturing two key moments in the education cycle</li> </ul>	<ul style="list-style-type: none"> <li>- Grade 3 - Support provided by assessment administrators</li> <li>- Grade 6 - Completely self-administration test</li> </ul>

## 2. Assessment Framework

### 2.1 What is an Assessment Framework?

An assessment framework is a detailed manual guiding the development of (i) test design, (ii) its content, and (iii) its administration. It reiterates the purpose of the assessment policy and facilitates decision-making amongst education stakeholders by defining key concepts and processes. It lays down the pillars of the assessment policy and provides key justifications for:

#### 1. Design

- a. Scaffolding and asset-based approach: Emphasizes an asset-based approach, avoids floor and ceiling effects, and enables complementarity between the assessment policy and existing assessments like the West African Examinations Council (WAEC). Refer to **Section 2.2** on Assessment Framework Principles.
- b. Grades 3 and 6: Adhere to education sector reforms that call for a focus on early grades to track learner's progress across the education cycle (refer to **Section 4.5** on Sampling).
- c. Phase-in implementation: Ensure smooth administration, capacity-building, and national ownership of the assessment (refer to **Section 4.6** on Administration Context).

#### 2. Content

- a. Foundational skills: Recognize that a focus on literacy and numeracy will (i) serve as building blocks for later learning, (ii) address inequalities and their roots, and (iii) increase retention and completion rates.
- b. Assessment Blueprint (refer to **Section 4.1**)
  - i. Literacy - Focus on skills for reading and reading inputs domains
  - ii. Numeracy - Focus on content and cognitive domains
- c. Student Well-Being: A national learning assessment presents a unique opportunity to collect additional data from schools and students, including information regarding child wellbeing and safety at school. The assessment is designed to complement other data collection efforts (e.g. school census, school quality assessment) but is the only data collected directly from children.
- d. Content from NCP 2019 curriculum - includes a number of additional concepts like patriotism, digital skills, and social cohesion.

#### 3. Administration

- a. Group-administered assessment model: Allow for a larger sample of learners to be assessed in a rapid and cost-effective manner.
- b. Secure Testing: Prioritize fidelity of results and ensure the reliability of assessment data, as governments and stakeholders will use this data to evaluate, design, and target interventions.
- c. Conduct assessment in English with a gradual shift to include local languages in the future.

A comprehensive assessment framework endeavors to detail the following key elements (Anderson and Morgan 2008):

The **assessment blueprint** is the key point of reference throughout the assessment process, guiding the test development, outcome analysis, and report writing. It outlines the data that must be collected, defines the test length, and indicates the proportions of items in an assessment that address specific curriculum areas and objectives. More specifically, a good blueprint specifies the proportions of (i) test items that address each curriculum area, (ii) items within a curriculum area that assess certain skills, (iii) items that address different cognitive processing skills, (iv) multiple-choice and open-ended items, and (v) items devoted to stimulus texts of different kinds in reading or in mathematics. The assessment blueprint is a

reflection of the test's purpose and has direct implications on what is included in the assessment and what is left out.

In this context, **validity** measures the extent to which the test content is representative of the curriculum or competencies that are to be assessed. The test development team and a selection of subject specialists are responsible to ensure those test items represent an adequate sample and provide sufficient evidence of student achievement in a given subject area.

The choice in **test language** should be clarified and justified in the assessment framework. Usually, the test language is also the language of instruction. In countries where instruction occurs in different languages, translations are necessary; these, however, can be costly and time-intensive and require further considerations.

In written assessments, considerations should be made on the item format and the scoring of these items when developing a national assessment. Usually, there are four basic **item formats** through which students' proficiency level is evaluated. These include multiple-choice, closed constructed-response, open-ended short response, and essay or extended response. When making a judgment on the format, country context, budget, and time needed to score these items should be taken into account.

The assessment framework document should indicate and justify the selection of the **target population** for the assessment (e.g. Grade 3 and 6 students). Furthermore, it should also be specified if certain sub-populations of students, such as students with special educational needs or out-of-school learners, are to be included in the national sample.

Already from the outset, the central team should agree on a common standard for the **reporting of results**. This consequently has implications for the use of performance assessment scales and subscales as well as the compatibility with certain proficiency levels used by cross-national and global learning assessment initiatives. The assessment framework should also determine the types of national assessment reports to be published throughout the assessment process (e.g. a technical report, a series of summary reports for specific audiences, press releases, briefs, etc.).

National assessments provide policymakers with an opportunity to also collect **demographic and contextual information** on factors that can directly influence the quality of student learning outcomes. This usually includes a questionnaire covering demographic (e.g. socioeconomic background) and contextual information (e.g. school resources, instructional strategies, classroom environment, etc.). Such information can help policymakers understand reasons for differences in students' levels of achievement and inform decision-making and response. Depending on the priorities and the resources available, this information can also be collected by existing initiatives, such as the school consensus, and then later be connected to national assessment data for analysis.

## 2.2 Assessment Framework Principles

### Competency-Based Assessment

Competency-based assessment (CBA) is the measurement of a student's competency against a standard of performance. What has driven the concept are recent discoveries of the strong correlation between academic performance, career success, certain behaviors, and habits of mind. According to Heckman (2008), early mastery of a range of cognitive, social, and emotional competencies makes learning more effective at later ages.



The paradigm shift to CBA has resulted in several African countries reforming curriculums and adopting the CBC. One of the key attributes of CBA is that it goes beyond learning skills in the classrooms; it is personalized and makes learning more practical by the development of the entire individual competence which has driven more African countries to adopt a CBC (Ruth & Ramadas, 2019).

Prompted by this need, the NCP 2019 grounds itself on the shift of curriculum design from a content-based to a competency-based one. The NCP aims to provide clear competence goals to guide local teaching and learning. The CBA goal set out in the NCP is to develop a more complete and fair learning evaluation process focusing on both cognitive and non-cognitive attributes (different domains). The strategies employed for this process are the following:

1. Initiate organizational linkage and network to promote adoption and implementation of CBA;
2. Create an enabling environment for performance-based learning, and transform assessment to check knowledge, skills, and abilities required for the performance of certain tasks;

The NLAF is aligned with NLAP as well as with the goals and objectives of the NCP sets the following ways:

- The development of well-articulated Grade 3 and 6 assessment and learning outcomes in order for students to develop their independent foundational skills and competencies necessary to succeed.
- Empower students to demonstrate what they've learned

### **Asset-based approach**

The NLAF is informed by an asset-based approach. In simple terms, an asset-based educational assessment focuses on what learners *can do* rather than conventional deficit-based approaches that focus on what they *cannot do* (Rose, 2006). The approach integrates a range of student skills and capabilities into the test design by grounding itself on the realities of a classroom i.e. it emphasizes the strengths, skills, and competencies of students (Rose, 2006).

The NLAF is informed by the asset-based approach in two ways:

- **Provide Information** on where learners stand across the education cycle. For example, if a learner in Grade 6 is unable to solve multiplication problems, the approach will provide information on where the learner stands in terms of a) other foundational numeracy skills, and b) specific cognitive domains i.e. knowing, applying, and reasoning (see details **Section 4.1**).
- **Ensure Scaffolding** on test items by increasing the complexity of content and cognitive domains. To illustrate, a Grade 6 numeracy assessment is designed to include assessment items based on objectives that Grades 3 and 4 should also achieve. In a similar manner, the sequencing of assessment items follows first knowing the mathematical concepts, before they can be tested for applying and reasoning skills. For further examples refer to **Table 2.2**.

**Table 2.2: Scaffolding in International Literacy Assessments**

<b>Standardized Assessments: Integrating Scaffolding into Item Writing</b>	
<b>Early Grade Reading Assessment (EGRA) / Early Grade Math Assessment (EGMA)</b>	<ul style="list-style-type: none"> <li>- Mapping student's learning with curriculum-aligned books.</li> <li>- <a href="#">Textual scaffolding from beginning readers to grade-level texts.</a></li> </ul>
<b>Progress in International Reading Literacy Study (PIRLS)</b>	<ul style="list-style-type: none"> <li>- Early questions are easier questions.</li> <li>- Constructed-Response items are communicated to provide help or scaffolding for students.</li> </ul>
<b>Trends in International Mathematics and Science Study (TIMSS)</b>	<ul style="list-style-type: none"> <li>- <a href="#">Scaffolding of complex mathematics problems and science investigations.</a></li> </ul>
<b>Annual Status of Education Report (ASER)</b>	<ul style="list-style-type: none"> <li>- Paragraphs and story test items use words from different grade levels i.e. a paragraph at Grade 1 level should have 1 difficult word and a story at Grade 1 level should have 2-3 difficult words.</li> </ul>
<b>Uwezo</b>	<ul style="list-style-type: none"> <li>- Sections for literacy and numeracy are ordered by difficulty level i.e. both components flow from easy to difficult.</li> </ul>
<b>Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ)</b>	<ul style="list-style-type: none"> <li>- Tests start off with easier items first and then increase in complexity.</li> <li>- Stimulus material is provided to stimulate mental processing during the test, either generally or directly.</li> </ul>
<b>Le Programme d'Analyse des Systèmes Éducatifs de la CONFEMEN (PASEC)</b>	<ul style="list-style-type: none"> <li>- Both literacy and numeracy assessments follow a structure of successively increasing difficulty (ranging from the most basic elementary skills to grade-level requirements).</li> </ul>

### 3. Curriculum Review and Mapping

The NLAP is closely aligned with the NCP 2019 and NCF 2019, which call for a shift towards a CBC. The NLAP will serve to support this reform by focusing on assessing both foundational skills proficiency in **content dimension** (literacy and numeracy) against **cognitive skills**.

This focus on foundational skills is motivated by **three key insights** from extensive education research:

1. **Foundational skills serve as the building blocks for later learning:** Children need to master early competencies in order to be able to continue learning and to acquire more advanced skills. The critical transition between learning to read and reading to learn, for example, enables children to independently access content on other subjects. Similarly, basic numeracy is needed in order to be able to approach more complex mathematics as well as content in subjects such as the natural sciences. (Belafi, 2020; Hattori, 2017; World Bank, 2018)
2. **Gaps in learning outcomes between children emerge early and grow over time:** Children who fall behind in early grades rarely catch up. The ability to address inequality and the roots of inequality accordingly requires a focus on foundational skills. (World Bank, 2018)
3. **Low learning levels have been shown to be associated with school dropout:** Working to improve foundational skills, therefore, has the potential to improve learning as well as increase retention and completion rates. (Nakajima, Kijima & Otsuka, 2018; Zuilkowski, Jukes & Dubeck, 2016)

#### 3.1 Curriculum Reform: NCP 2019, NCF 2019

The NCP 2019 and NCF 2019 were developed in response to the need for a robust and relevant curriculum that addresses the present and emerging realities of Liberia. The NCP 2019 lays the foundation for NLAP because it prescribes a strategy (refer to **Table 3.1** below) for implementation of a CBA to measure the learning achievements and encourage life-long learning experiences for Liberian learners in all grades. The NLAP will assess progress towards this target as well as capture the variation in children's learning levels in two time points (Grade 3 and 6) and speak to key standards (refer to **Table 3.2** below).

**Table 3.1: Key Standards and Strategies laid down in NCP 2019 and NCF 2019**

Key Standards	Strategies
Children should demonstrate a range of reading rates at 100-150 words per minute or above, with 70-100% comprehension.	<ol style="list-style-type: none"><li>1. Establish mechanisms for conducting both formative and summative evaluations</li><li>2. Create an enabling environment for performance-based learning, and transform assessment to check knowledge, skills, and abilities required for the performance of certain tasks.</li><li>3. Initiate organizational linkages and networks to promote the adoption and implementation of competency-based assessment.</li></ol>

NCF 2019 identifies generic competencies for learners at all grade levels to attain during the course of their academic year (refer to **Table 3.2**). The vision is to provide a curriculum that is flexible and evolves with time to provide learners with the necessary skills and competencies that respond to developmental needs and aspirations.

**Table 3.2: Grade 3 and 6 Curriculum Competencies and Content, NCF 2019**

Grade	Subject	Competencies	Content
3	English	Effective Communication, Creativity & Innovation Skills, Research and Problem-Solving skills, Organizational Ability, and Digital Skills	Reading and Comprehension, Writing Composition and Language, and Vocabulary Development
	Mathematics	Analytical Skills, Problem-Solving, and Digital Skill	Sets and Numbers, Numeration, Whole Numbers, Fractions, Measurement and Geometry
6	English	Effective Communication, Creativity & Innovation Skills, Research and Problem-Solving skills, Organizational Ability, and Digital Skills	Reading and Comprehension, Grammar and Writing, and Speaking
	Mathematics	Analytical skills, Problem-solving, Creativity and Innovation, and Digital skills	Sets, Numeration, Number Theory, Ratio Percentages and Proportions, Measurement and Graphs and Interpreting Information

### 3.2 Curriculum Mapping

The NLAF is anchored on the competencies laid out in NCF 2019 for Grades 3 and 6 (refer to **Table 3.2** above for further details). **Tables 3.3 to Table 3.4** map the national curriculum content and competencies against the NLAP assessment tools and international assessments.

The aim is two-fold:

1. Contextualize the NLAP and NLAF by creating an assessment tool anchored in international and regional standards including but not limited to EGRA, EGMA, ASER, TIMSS, PIRLS, SACMEQ, and PASEC. Liberia positions itself to be one of the Anglophone West African countries that is part of international benchmarking efforts put in place by the IEA-Rosetta Stone Project.
2. Ensure assessment design is scaffolded in line with the national curriculum to allow education stakeholders to monitor the progress of Liberian learners and assess where students currently stand in terms of content and competency acquisition.

**Table 3.3: Grade 3 and 6 Literacy Assessment Mapping**

NCP Grade	Curriculum Content	NCP Competency	NLAP Domains	Suggested International Assessment Sources
Grade: 1 Marking periods: I, II, III, IV	Vocabulary Development	Effective Communication	<p><b>Pre-reading skills</b> - Vocabulary and oral language - Vocabulary (measures receptive-language skills of individual words and phrases related to body parts, common objects, and spatial relationships).</p> <p><u>Cognitive Domain:</u> Reading inputs - words</p>	Mindspark - Grades 4-5 (India)
Grade: 2 Marking period: I & 2	Parts of a Sentence  Reading and Comprehension, Parts of Speech / Types of Sentences	Effective Communication	<p><b>Reading comprehension</b> - Sentence completion Maze task (i.e., sentence with two or three alternative words; children must select the word that makes the most sense in the sentence).</p> <p><u>Cognitive Domain:</u> Reading inputs - sentences</p>	WAEC 2019, Grade 6 SEI - Grades 5-6
Grade: 2 Marking period: II	Vocabulary Development	Effective Communication	<p><b>Pre-reading skills</b> - Vocabulary and oral language - Vocabulary (measures receptive-language skills of individual words and phrases related to body parts, common objects, and spatial relationships).</p> <p><u>Cognitive Domain:</u> Reading inputs - sentences</p>	Mindspark - Grades 6-7 (India)
Grade: 2 Marking period: III	Reading & Comprehension	Effective Communication	<p><b>Reading comprehension</b> - Processes of comprehension - Focus on and retrieve explicitly stated information</p> <p><u>Cognitive Domain:</u> Reading comprehension - Informative texts  Reading comprehension - Literary texts</p>	Student Learning Study (SLS) - Grade 4 SLS Grade 6
Grade: 2 Marking period: III	Reading & Comprehension	Effective Communication	<p><b>Reading comprehension</b> - Processes of comprehension - Make straightforward inferences</p> <p><u>Cognitive Domain:</u> Reading inputs - Paragraphs</p>	EGRA Liberia 2011 SLS - Grade 4 SLS Grade 6

			Reading comprehension - Informative texts Reading comprehension - Literary texts	
Grade: 3 Marking period: III	Recognizing Adjectives	Effective Communication	<b>Reading comprehension</b> - Sentence completion Maze task (i.e., sentence with two or three alternative words; children must select the word that makes the most sense in the sentence).  <u>Cognitive Domain:</u> Reading inputs - Sentences	SLS - Grade 4
Grade: 3 Marking period: IV  Grade: 4 Marking period: III	Reading & Comprehension	Research and Problem Solving skills	<b>Reading comprehension</b> - Processes of comprehension - Interpret and integrate ideas and information  <u>Cognitive Domain:</u> Reading comprehension - Informative texts  Reading comprehension - Literary texts	QES - Grade 4 SLS - Grade 4 SLS Grade 6

**Table 3.4: Grade 3 and 6 Maths Assessment Mapping**

<b>NCP Grade</b>	<b>Curriculum Content</b>	<b>NCP Competency</b>	<b>NLAP Domains</b>	<b>Suggested International Assessment Sources</b>
Grade 1 Marking period: I	Set and numeration	Analytical skills	<b>Number</b> - Whole Numbers - Demonstrate knowledge of place value (2-digit to 6-digit numbers); represent whole numbers with words, diagrams, number lines, or symbols; order numbers.  <u>Cognitive domain:</u> Knowing - Recognize	Uwezo, March 2011
Grade: 1 Marking period: I & II	Set and numeration	Problem-solving	<b>Numbers</b> - Whole numbers - Add and subtract (up to 4-digit numbers), including computation in simple contextual problems.  <u>Cognitive domain:</u> Knowing - Compute	Core EGMA, March 2013
Grade 1 Marking period: III	Place Value	Analytical skills	<b>Number</b> - Whole Numbers - Demonstrate knowledge of place value (2-digit to 6-digit numbers); represent whole numbers with words, diagrams,	Andhra Pradesh Randomized Evaluation Studies (APREST) -

			number lines, or symbols; order numbers.  <u>Cognitive domain:</u> Knowing - Classify/Order	Grade 1
Grade 1 Marking period: V	Measurement	Analytical skills	<b>Measurement and Geometry</b> - Measurement - Solve problems involving mass (gram and kilogram), volume (milliliter and liter), and time (minutes and hours); identify appropriate types and sizes of units and read scales.  <u>Cognitive domain:</u> Reasoning - Draw conclusions	APRESt - Grade 2
Grade: 1 Marking period: VI	Geometric shapes	Analytical skills	<b>Measurement and Geometry</b> - Geometry - Use elementary properties, including line and rotational symmetry, to describe, compare, and create common two-dimensional shapes (circles, triangles, quadrilaterals, and other polygons).  <u>Cognitive domain:</u> Knowing - Recognize	APRESt - Grade 1
Grade: 2 Marking period: II	Numeration	Analytical skills	<b>Number</b> - Whole Numbers - Demonstrate knowledge of place value (2-digit to 6-digit numbers); represent whole numbers with words, diagrams, number lines, or symbols; order numbers.  <u>Cognitive domain:</u> Reasoning - Integrate/Synthesize	APRESt - Grade 2
Grade: 2 Marking period: IV  Grade: 3 Marking Period: I  Grade: 3 Marking Period: III	Operation Part II  Review of operations  Operation of whole numbers	Problem-solving	<b>Number</b> - Whole Numbers - Multiply (up to 3-digit by 1-digit and 2-digit by 2-digit numbers) and divide (up to 3-digit by 1-digit numbers), including computation in simple contextual problems.  <u>Cognitive domain:</u> Knowing - Compute	EGMA, PSL Endline
Grade: 2 Marking period: V	Measurement	Analytical skills	<b>Number</b> - Expressions, simple equations, and relationships - Identify and use relationships in a well-defined pattern (e.g., describe the relationship	SLS - Grade 4

			between adjacent terms and generate pairs of whole numbers given a rule).  <u>Cognitive domain:</u> Reasoning - Integrate/Synthesize	
Grade: 2 Marking period: VI	Geometry	Analytical skills	<b>Measurement and Geometry -</b> Geometry - Identify and draw parallel and perpendicular lines; identify and draw right angles and angles smaller or larger than a right angle; compare angles by size.  <u>Cognitive domain:</u> Knowing - Recognize	TIMSS 1995 - Grade 3/4
Grade: 2 Marking period: VI	Geometry	Analytical skills	<b>Measurement and Geometry -</b> Geometry - Use elementary properties, including line and rotational symmetry, to describe, compare, and create common two-dimensional shapes (circles, triangles, quadrilaterals, and other polygons).  <u>Cognitive domain:</u> Knowing - Recognize	TIMSS 1995 - Grade 3/4 Third regional Comparative and Exploratory Study (TERCE) 2013 - Grade 3
Grade: 3 Marking period: III	Operation of whole numbers	Problem-solving	<b>Numbers - Whole Numbers -</b> Solve problems involving odd and even numbers, multiples and factors of numbers, rounding numbers (up to the nearest ten thousand), and making estimates.  <u>Cognitive domain:</u> Applying - Implement	Uwezo, March 2010
Grade: 3 Marking period: III	Operation of whole numbers	Problem-solving	<b>Numbers - Whole Numbers -</b> Combine two or more properties of numbers or operations to solve problems in context.  <u>Cognitive domain:</u> Knowing - Compute	APRESt - Grade 3
Grade: 3 Marking period: III  Grade: 4 Marking period: I	Operation of whole numbers  Numeration, addition and subtraction	Problem-solving	<b>Numbers - Whole Numbers -</b> Combine two or more properties of numbers or operations to solve problems in context.  <u>Cognitive domain:</u> Applying - Determine	TIMSS 1995 - Grade 3/4
Grade: 3 Marking period: V	Measurement	Problem-solving	<b>Geometry and Measurement -</b> Measurement - Measure and estimate lengths (millimeters, centimeters, meters, kilometers); solve problems involving lengths.	SLS - Grade 4



			<u>Cognitive domain:</u> Applying - Implement	
Grade: 3 Marking period: V	Measurement	Problem-solving	<b>Geometry and Measurement</b> - Measurement - Identify and use relationships in a well-defined pattern (e.g., describe the relationship between adjacent terms and generate pairs of whole numbers given a rule).  <u>Cognitive domain:</u> Applying - Represent/Model	SLS - Grade 6
Grade: 3 Marking period: VI	Geometry	Analytical skills	<b>Measurement and Geometry</b> - Geometry - Identify and use relationships in a well-defined pattern (e.g., describe the relationship between adjacent terms and generate pairs of whole numbers given a rule).  <u>Cognitive domain:</u> Knowing - Recognize Knowing - Retrieve	TERCE 2013 - Grade 6 TIMSS 1995 - Grade 3/4
Grade: 3 Marking period: VI	Geometry	Analytical skills	<b>Data</b> - Reading, interpreting, and representing data - Read and interpret data from tables, pictographs, bar graphs, line graphs, and pie charts.  <u>Cognitive domain:</u> Reasoning - Analyze	TERCE 2013 - Grade 3
Grade: 3 Marking period: VI	Geometry	Analytical skills	<b>Data</b> - Reading, interpreting, and representing data - Read and interpret data from tables, pictographs, bar graphs, line graphs, and pie charts.  <u>Cognitive domain:</u> Applying - Represent/Model	TIMSS 1995 - Grade 3/4
Grade: 4 Marking period: I	Numeration	Analytical skills	<b>Number</b> - Whole Numbers - Demonstrate knowledge of place value (2-digit to 6-digit numbers); represent whole numbers with words, diagrams, number lines, or symbols; order numbers.  <u>Cognitive domain:</u> Knowing - Recognize Knowing - Classify/Order	TERCE 2013 - Grade 6 TIMSS 1995 - Grade 3/4
Grade: 4 Marking period: III	Number theory and fractions	Problem-solving	<b>Number</b> - Whole Numbers - Solve problems involving odd and even numbers, multiples and factors of numbers, rounding numbers (up to the	Uwezo, March 2010

			nearest ten thousand), and making estimates. <u>Cognitive domain:</u> Applying - Implement	
Grade: 5 Marking period: IV	Measurement	Analytical skills	<b>Measurement and Geometry</b> - Measurement - Solve problems involving mass (gram and kilogram), volume (milliliter and liter), and time (minutes and hours); identify appropriate types and sizes of units and read scales. <u>Cognitive domain:</u> Knowing - Retrieve	TIMSS 2003 - Grade 4

## 4. Liberian Assessment Model

The NLA mandates three instruments split amongst Grades 3 and 6. The Literacy and Numeracy assessment will assist in gathering relevant learning data while the Student Well-Being survey provides an assessment that goes beyond the content and skill acquisition in school. Taken together, these instruments must prioritize the progression of foundation skills of (i) Literacy and (ii) Numeracy with additional sections on (iii) learner well-being learning and (iv) curriculum competencies laid down in NCF and NCF 2019. The three instruments are presented in **Tables 4.1 to 4.6** along with their respective tasks (refers to **Section 4.1** for further details).

Each instrument is designed with an emphasis on:

- 1) Benchmarks and standards put in place by the MOE and development partners in Liberia.
- 2) Scaffold learning outcomes: tasks within each sub-task are ordered from lower skill levels to higher ones.
- 3) Alignment with competencies, outcomes, and objectives laid out in NCF 2019.
- 4) Leverage existing assessment instruments within Liberia: LPSCE, EGRA, and EGMA.
- 5) Contemporary research on educational outcomes in early grades using international and regional assessments.

The following sections define the four domains of Literacy, Numeracy, Learning Well-Being, and Curriculum Competencies.

### 4.1 Test Blueprint

The design of the literacy and numeracy assessment allows mapping of learners' grade proficiency level such that:

- The grade-3 assessment is scaffolded with lower grade-level assessment items from Grades 1-3.
- The grade-6 assessment includes all questions that will be asked to a Grade 3 learner, as well as higher-order questions that pertain to Grade 4-6. Such a structure enables assessing learners in Grade 6 who might be at a lower grade proficiency level in actuality.

In addition to mapping grade-level proficiency, both assessments further engage in content and cognitive domain mapping as described in the subsections below.

#### LITERACY ASSESSMENT

The literacy assessment framework has been adapted using elements from two international frameworks - EGRA and PIRLS - to capture a wide range of reading acquisition skills alongside reading inputs. The assessment items, however, have been sourced from various international and regional assessments undertaken in primary grades. These include but are not limited to EGRA, PIRLS, ASER, Uwezo, SACMEQ, PASEC, SLS, Mindspark India, and WAEC Liberia to name a few and as shown above in **Table 3.3**.

The literacy assessment is designed to assess learners primarily on reading and comprehension skills in a scaffolded manner. The assessment will broadly capture learning data on two domains, namely *Skills for Reading* and *Reading Inputs*. **Tables 4.1 and 4.2** below provide the distribution of assessment items under the two domains.

For the purposes of the NLAP to be administered at large scale with cost-effectiveness and standardized procedures, the literacy assessment will primarily focus on specific subdomains that can be administered in a paper test.

**Table 4.1: Distribution of Literacy Assessment Item per Skills for Reading Domain**

Skills for Reading	Grade 3	Grade 6	Grade 3 (# items)	Grade 6 (# items)
<b>1. Pre-reading skills</b>	<b>26%</b>	<b>21%</b>	<b>8</b>	<b>8</b>
<b>1.1. Vocabulary and oral language</b>	<b>26%</b>	<b>21%</b>	<b>8</b>	<b>8</b>
<b>1.1.1. Vocabulary</b> (measures receptive-language skills of individual words and phrases related to body parts, common objects, and spatial relationships).	26%	21%	8	8
<b>2. Reading comprehension skills</b>	<b>74%</b>	<b>79%</b>	<b>23</b>	<b>30</b>
<b>2.1. Sentence completion</b>	<b>23%</b>	<b>18%</b>	<b>7</b>	<b>7</b>
<b>C.1.2. Maze task</b> (i.e., sentence with two or three alternative words; children must select the word that makes the most sense in the sentence).	23%	18%	7	7
<b>2.2. Processes of comprehension</b>	<b>52%</b>	<b>61%</b>	<b>16</b>	<b>23</b>
<b>2.2.1. Focus on and retrieve explicitly stated information</b>	23%	29%	7	11
<b>2.2.2. Make straightforward inferences</b>	23%	21%	7	8
<b>2.2.3. Interpret and integrate ideas and information</b>	6%	11%	2	4

**Table 4.2: Distribution of Literacy Assessment Item per Reading Inputs domain**

Reading inputs	Grade 3	Grade 6	Grade 3 (# items)	Grade 6 (# items)
<b>1. Reading inputs</b>	<b>65%</b>	<b>53%</b>	<b>20</b>	<b>20</b>
<b>1.1. Words</b>	16%	13%	5	5
<b>1.2. Sentences</b>	32%	26%	10	10
<b>1.3. Paragraphs</b>	16%	13%	5	5
<b>2. Reading comprehension inputs</b>	<b>35%</b>	<b>47%</b>	<b>11</b>	<b>18</b>

<b>2.1.</b> Informative texts	19%	24%	6	9
<b>2.2.</b> Literary texts	16%	24%	5	9

### NUMERACY ASSESSMENT

The NLAP has adapted the TIMSS Fourth Grade Math Framework to develop a numeracy assessment framework for both Grades 3 and 6. This allows meaningful insights to be drawn about a child’s learning on two types of domains, *content* and *cognitive*. The *content domain* assesses subject matter proficiency, while the *cognitive domain* identifies the thinking processes used to complete the test item. Assessment items, similar to literacy assessment, have been carefully sourced from a myriad of international and regional assessments such as EGMA, TIMSS, Uwezo, TERCE, APREST, and SLS. and to See **Table 3.4** for further details.

Within the content domain, the assessment framework allows the NLAP to cover pre-numeracy foundational skills, scaffolded grade-wise content proficiency, and a wider variety of question types to assesses a range of problem-solving situations within mathematics, all of which fall under three sub-domains: numbers, measurement and geometry, and data. As for the cognitive domain, three processes are assessed: knowing, applying, and reasoning. For Grade 3, the assessment places a higher emphasis on the *knowing* domain as opposed to Grade 6, where *applying* and *reasoning* domains are given slightly high emphasis.

**Table 4.3: Distribution of Numeracy Assessment Item per Content Domain**

Content Domain	TIMSS Target	Grade 3	Grade 6	Grade 3 (# items)	Grade 6 (# items)
<b>1. Number</b>	<b>50%</b>	<b>68%</b>	<b>59%</b>	<b>17</b>	<b>22</b>
<b>1.1. Whole Numbers</b>	<b>25%</b>	<b>64%</b>	<b>57%</b>	<b>16</b>	<b>21</b>
<b>1.1.1.</b> Demonstrate knowledge of place value (2-digit to 6-digit numbers); represent whole numbers with words, diagrams, number lines, or symbols; order numbers.		16%	14%	4	5
<b>1.1.2.</b> Add and subtract (up to 4-digit numbers), including computation in simple contextual problems.		24%	19%	6	7
<b>1.1.3.</b> Multiply (up to 3-digit by 1-digit and 2-digit by 2-digit numbers) and divide (up to 3-digit by 1-digit numbers), including computation in simple contextual problems.		16%	11%	4	4
<b>1.1.4.</b> Solve problems involving odd and even numbers, multiples and factors of numbers, rounding numbers (up to the nearest ten thousand), and making estimates.		8%	11%	2	4

1.1.5. Combine two or more properties of numbers or operations to solve problems in context.		0%	3%	0	1
<b>1.2. Expressions, simple equations, and relationships</b>	<b>15%</b>	<b>4%</b>	<b>3%</b>	<b>1</b>	<b>1</b>
1.2.1. Identify and use relationships in a well-defined pattern (e.g., describe the relationship between adjacent terms and generate pairs of whole numbers given a rule).		4%	3%	1	1
<b>2. Measurement and geometry</b>	<b>30%</b>	<b>28%</b>	<b>32%</b>	<b>7</b>	<b>12</b>
<b>2.1. Measurement</b>	<b>15%</b>	<b>8%</b>	<b>11%</b>	<b>2</b>	<b>4</b>
2.1.1. Measure and estimate lengths (millimeters, centimeters, meters, kilometers); solve problems involving lengths.		4%	3%	1	1
2.1.2. Solve problems involving mass (gram and kilogram), volume (milliliter and liter), and time (minutes and hours); identify appropriate types and sizes of units and read scales.		4%	8%	1	3
<b>2.2. Geometry</b>	<b>15%</b>	<b>20%</b>	<b>22%</b>	<b>5</b>	<b>8</b>
2.2.1. Identify and draw parallel and perpendicular lines; identify and draw right angles and angles smaller or larger than a right angle; compare angles by size.		4%	5%	1	2
2.2.2. Use elementary properties, including line and rotational symmetry, to describe, compare, and create common two-dimensional shapes (circles, triangles, quadrilaterals, and other polygons).		12%	11%	3	4
2.2.3. Identify and use relationships in a well-defined pattern (e.g., describe the relationship between adjacent terms and generate pairs of whole numbers given a rule).		4%	5%	1	2
<b>3. Data</b>	<b>20%</b>	<b>4%</b>	<b>8%</b>	<b>1</b>	<b>3</b>
<b>3.1. Reading, interpreting, and representing data</b>	<b>15%</b>	<b>4%</b>	<b>5%</b>	<b>1</b>	<b>2</b>
3.1.1. Read and interpret data from tables, pictographs, bar graphs, line graphs, and pie charts.		4%	5%	1	2
<b>3.2. Using data to solve problems</b>	<b>5%</b>	<b>0%</b>	<b>3%</b>	<b>0</b>	<b>1</b>

<b>3.2.1.</b> Use data to answer questions that go beyond directly reading data displays (e.g., solve problems and perform computations using data, combine data from two or more sources, draw conclusions based on data).		0%	3%	0	1
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**Table 4.4: Distribution of Numeracy Assessment Item per Cognitive Domain**

Cognitive Domain	Target	Grade 3	Grade 6	Grade 3 (# items)	Grade 6 (# items)
<b>1. Knowing</b>	<b>40%</b>	<b>72%</b>	<b>62%</b>	<b>18.00</b>	<b>23.00</b>
<b>1.1.</b> Recognize: Recognize numbers, expressions, quantities, and shapes. Recognize entities that are mathematically equivalent (e.g., equivalent familiar fractions, decimals, and percents; different orientations of simple geometric figures).		24%	24%	6	9
<b>1.2.</b> Classify/Order: Classify numbers, expressions, quantities, and shapes by common properties.		12%	8%	3	3
<b>1.3.</b> Compute: Carry out algorithmic procedures for +, −, ×, ÷, or a combination of these with whole numbers, fractions, decimals, and integers. Carry out straightforward algebraic procedures.		32%	24%	8	9
<b>1.4.</b> Retrieve: Retrieve information from graphs, tables, texts, or other sources.		4%	5%	1	2
<b>2. Applying</b>	<b>40%</b>	<b>12%</b>	<b>24%</b>	<b>3.00</b>	<b>9.00</b>
<b>2.1.</b> Determine: Determine efficient/appropriate operations, strategies, and tools for solving problems for which there are commonly used methods of solution.		0%	3%	0	1
<b>2.2.</b> Represent/Model: Display data in tables or graphs; create equations, inequalities, geometric figures, or diagrams that model problem situations; and generate equivalent representations for a given mathematical entity or relationship.		0%	5%	0	2

<b>2.3.</b> Implement: Implement strategies and operations to solve problems involving familiar mathematical concepts and procedures.		12%	16%	3	6
<b>3. Reasoning</b>	<b>20%</b>	<b>16%</b>	<b>14%</b>	<b>4.00</b>	<b>5.00</b>
<b>3.1.</b> Analyze: Determine, describe, or use relationships among numbers, expressions, quantities, and shapes.		4%	3%	1	1
<b>3.2.</b> Integrate/Synthesize: Link different elements of knowledge, related representations, and procedures to solve problems.		8%	8%	2	3
<b>3.3.</b> Draw conclusions: Make valid inferences on the basis of information and evidence.		4%	3%	1	1

### LEARNER'S WELL-BEING

Questions on well-being will assess a student's engagement and motivation to learn by understanding their sense of belonging and attitudes towards school, and their relationship with adults in the school community, among others. For the NLAP, this is important because students who do not engage with school and learning early on are at greater risk of not fulfilling their potential later on, in the labor market or personal lives (OECD, 2013, 2019). Engagement in school has also been identified as a primary variable in understanding key determinants of educational outcomes: dropout/completion, attendance, achievements, and behavior (Hart et al., 2011).

**Well-being questions** will be placed across **five themes**: (i) sense of belonging, (ii) participation, (iii) absenteeism, (iv) attitudes towards school, and (v) relationship with adults. Understanding these themes is important as learning outcomes are often tied to school conditions and environments. Each theme will be measured using a response scale, for example: strongly agree, agree, disagree, strongly disagree. Examples for each are provided in **Table 4.5** below:

**Table 4.5: Test Items for Learner Well-Being Domain, NLAP**

Theme	Response Scale			
	Strongly Disagree	Disagree	Agree	Strongly Agree
At school, I feel like an outsider (or left out of things)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At school, I make friends easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At school, I feel like I belong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At school, I feel awkward and out of place	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At school, other students seem to like me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At school, I feel lonely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At school, I do not want to go to school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At school, I often feel bored	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



<b>Relationship with Adults</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
At my school, there is an adult who really cares about me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At my school, there is an adult who notices when I'm not there	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At my school, there is an adult who tells me when I do a good job	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At my school, there is an adult who believes I will be a success	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At my school, there is an adult who listens to me when I have something to say	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Participation</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
At school, I do interesting things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At school, I take part in school activities and events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At school, I decide things like class activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
At school, I work with classmates on projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Absenteeism</b>	<b>None</b>	<b>1 or 2</b>	<b>3 or 4</b>	<b>5 or more</b>
How many times in the last two weeks did you miss school?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How many times in the last two weeks did you skip classes?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How many times in the last two weeks did you arrive late for school?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Attitudes towards school</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
I enjoy learning new things in class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think learning is boring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I look forward to going to school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In class, I work as hard as I can	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I'm in class, my mind wanders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## **KEY CURRICULUM COMPETENCIES**

NCF 2019 identifies key competencies, values, and beliefs for the Liberian education system. These include digital skills, research & problem-solving skills, analytical skills, effective entrepreneurial skills, effective communication skills, creative & innovation skills, patriotism, and organizational abilities. While the primary focus of the NLAP remains assessment of foundational skills in literacy and numeracy, moving forward, considerations can be made to include questions on additional topics. The rationale for including these in the curriculum is to:

1. Ensure access to emergent issues in society such as peacebuilding, human rights, and citizenship.
2. Promote social change between and amongst people regarding patriotism, social cohesion, and citizenship.
3. Encourage the use of technology in education.

The NLAP assessment tools can be aligned with these by including sub-tasks on patriotism, and basic computer literacy. Examples are provided in **Table 4.6** below:

**Table 4.6: Test Items for Curriculum Competencies Domain, NLAP**

Competency	Question
Patriotism	<ol style="list-style-type: none"> <li>1. What are the colors of the Liberian Flag?</li> <li>2. What is the meaning of the colors of the Liberian Flag?</li> <li>3. Identify national symbols.</li> </ol>
Digital Skills	<ol style="list-style-type: none"> <li>1. List 1 search engine you can use to find information online.</li> <li>2. What is a computer screen called?</li> <li>3. When you save a file from the internet on your computer, what is this action called?</li> <li>4. List 3 ways you can communicate with another person through the internet.</li> </ol>

## 4.2 Validity

In this context, *validity* measures the extent to which the test content is representative of the curriculum or competencies that are to be assessed. For NLAP,

- Clear mapping has been undertaken (refer to Tables 3.3 and 3.4) to ensure the high validity of the assessment instruments with the national curriculum.
- In order to assess proficiency in a particular content and cognitive domain, multiple assessment items have been included to test particular domains before making inferences.

## 4.3 Test Language

The language of a test is usually the official medium of instruction used in the classroom. In Liberia, English is identified as the national language of instruction with the current revised NCP 2019 and textbooks available in this language. Thus, the NLAP mandates **English as the language of assessment items and instructions.**

However, it is critical to note that Liberia has over 18 different language groups, and the Education Reform Act 2011 allows County School Boards to select a local language that may also be taught in primary schools. This is in line with target 11 of the Strategy for Education Transformation 2018-2028 which identifies the need for an indigenous language to be taught in schools and universities. To date, no local language curriculum has been approved officially with teaching materials available in local languages for classroom instruction.

In a diverse country with existing low levels of reading proficiency, the NLAP encourages efforts to be made to determine true familiarity with English as a key gate-keeping skill for children’s learning in Liberia.

Upon the development and introduction of local language teaching materials, the NLAP would then recommend assessing learners partially in the local language to gauge language itself as a key mediator or barrier for learning.

When conceptualizing the inclusion of local language assessment items, it would be useful to only assess certain curriculum components or a particular sub-task, such as Listening Comprehension, rather than fully translating the assessment. By doing so, it can reduce translation costs and avoid logistical challenges in a country like Liberia where the language scripts are tough to put in paper format and usually known orally, rather than in writing. Additional research efforts will be required involving language experts before deployment of local language assessments.

#### 4.4 Item Format

The selected item format (e.g. fill in the blank, multiple-choice, etc.) and the scoring method can impact the overall cost of an assessment system. For the purposes of the NLAP, a **multiple-choice item format** will be used. This selection takes into account the appropriateness of skill measurement, the feasibility of test administration by the assessors in a standardized format, the assessment fatigue of learners, the expertise required for scoring guidelines, and the cost of hand-scoring.

Generally, learning assessments use four item formats which include multiple-choice, closed constructed-response, open-ended short response, and essay or extended response. Multiple-choice items require students to select one (or possibly multiple) of several options. In closed constructed-response items, students generate one correct answer (usually acceptable with minor variations). For open-ended short-response items, several different correct answers may exist, which usually require some short explanation. Lastly, essay or extended-response items require the development of a more complex and lengthy response to a prompt. In national learning assessments, the first three formats are more commonly used for more cost-efficient reliable marking. For further advantages and limitations of each item format, consult **Table 4.7** below.

**Table 4.7: Advantages and Limitations of Item Formats**

Item format	Advantages	Limitations
<b>Multiple Choice</b>	<ul style="list-style-type: none"> <li>• Many items in one test can address a wide range of outcomes.</li> <li>• Items can make fine distinctions in students' knowledge and understanding.</li> <li>• Hand-scoring is not required, so testing is relatively inexpensive.</li> </ul>	<ul style="list-style-type: none"> <li>• Expertise is required to develop high-quality items.</li> <li>• Students do not generate understanding.</li> <li>• Students may guess.</li> </ul>
<b>Closed constructed response (one- or two-word answer)</b>	<ul style="list-style-type: none"> <li>• Students locate or recall information themselves.</li> <li>• Hand-scoring is relatively straightforward.</li> </ul>	<ul style="list-style-type: none"> <li>• Items usually address a limited range of outcomes (mainly retrieval and recall).</li> </ul>
<b>Open-ended short response (one- or two-sentence answer)</b>	<ul style="list-style-type: none"> <li>• Students can be required to generate high levels of understanding.</li> <li>• Items can address a range of outcomes.</li> <li>• Partial understandings can sometimes</li> </ul>	<ul style="list-style-type: none"> <li>• Expertise is required to write clearly focused items.</li> <li>• Trained raters and quality control measures are required, thus contributing to costs.</li> </ul>

	be measured.	<ul style="list-style-type: none"> <li>• Items that take time for students to answer reduce the range of outcomes that can be addressed.</li> </ul>
<b>Essay or extended response</b>	<ul style="list-style-type: none"> <li>• Students can demonstrate a depth of understanding.</li> <li>• A range of partial understandings can be measured.</li> </ul>	<ul style="list-style-type: none"> <li>• A limited range of outcomes can be addressed.</li> <li>• Trained raters and quality control measures are required, resulting in higher costs.</li> </ul>

Source: Anderson, P., & Morgan, G. (2008). *Developing Tests and Questionnaires for a National Assessment of Educational Achievement*. The World Bank.

For a cost-effective NLAP, cost considerations when selecting item format were taken into account as listed below in **Table 4.8** below (Anderson & Morgan, 2008):

**Table 4.8: Cost Considerations for Item Format Selection**

<b>Item Format</b>	<b>Cost Consideration</b>
<b>Multiple Choice</b>	<ul style="list-style-type: none"> <li>• Usually scored as correct or incorrect using computer software.</li> <li>• Responses can be entered electronically through scanning or manually. <ul style="list-style-type: none"> <li>○ Scanning - Require availability of special equipment and in-country technical back-up. Economical for large-scale assessments. Restricted to a particular format that requires answers to be shaded and special response sheets. <ul style="list-style-type: none"> <li>■ Opportunity to leverage systems used by WAEC in-country.</li> </ul> </li> <li>○ Manual entry - Require data entry team and simple layout for recording responses on a computer or electronic forms. Correct answers can be coded into the form. Capture a wider range of styles such as drawing circles around words, ticking boxes, or drawing lines to select options). <ul style="list-style-type: none"> <li>■ Feasible for the assessment agency and MOE to consider minimizing complexity on marking.</li> </ul> </li> </ul> </li> </ul>
<b>Closed constructed response (one- or two-word answer)</b>	<ul style="list-style-type: none"> <li>• Require hand-scoring because a number of different responses may be acceptable.</li> <li>• Detailed scoring guides to specify the range of acceptable and unacceptable answers.</li> <li>• Need for uniform rater training and quality control implementation.</li> </ul>
<b>Open-ended short response (one- or two-sentence answer)</b>	<ul style="list-style-type: none"> <li>• Range of acceptable and unacceptable responses can be large.</li> <li>• Scoring guide is complex.</li> <li>• Requires highly trained raters with extensive training to maintain uniformity.</li> <li>• Real-time cross-checking of ratings is required for quality control.</li> <li>• Open to subjective scoring by raters if not properly trained and monitored.</li> </ul>
<b>Essay or extended response</b>	<ul style="list-style-type: none"> <li>• Complex scoring guides that require extensive elaboration for training purposes.</li> <li>• Extensive rater training required.</li> <li>• Real-time cross-checking of ratings is required for quality control.</li> </ul>

Source: Adapted from Anderson, P., & Morgan, G. (2008). *Developing Tests and Questionnaires for a National Assessment of Educational Achievement*. The World Bank.

Some key considerations for **multiple-choice item** format to avoid are listed in **Table 4.9** below:

**Table 4.9: Other Considerations for Multiple-Choice Item Writing**

<b>Item Difficulty</b>	<ul style="list-style-type: none"> <li>● Cues (either grammatical or logical) or overlapping of answers with the question such that it singles out the right answer choice.</li> <li>● Constructing the correct answer much longer or more detailed than the other options.</li> <li>● Using keywords or phrases from the question in the correct option but not in others.</li> <li>● Illogical order or confusing options</li> </ul>
<b>Item Bias</b>	<ul style="list-style-type: none"> <li>● Adding questions or answer options that can offend a particular group of learners.</li> <li>● Breach ethical, cultural, or other sensitivities.</li> </ul>

Source: Anderson, P., & Morgan, G. (2008). *Developing Tests and Questionnaires for a National Assessment of Educational Achievement*. The World Bank.

Finally, good assessment items are clear, relevant to the curriculum, and focused on a particular aspect of content and cognitive domain. Item writers or developers should carefully consider item format, text type, intended grade level, learning outcome, and cognitive domain.

## 4.5 Sampling

The NLAP mandates a sample-based assessment at the school level. To guarantee appropriate levels of statistical precision and validity in the interpretation of assessment results, the NLAP relies on scientific sampling methods. Scientific sampling methods ensure that the selected sample is representative of the population it is taken from, allowing inferences about the population to be made based on observations from the sample (ACER, 2017).

The NLAP will collect information from a nationally representative sample of schools and students, in Grades 3 and 6. A sample-based assessment has three advantages:

1. **High-quality data:** dedicated efforts to supervise the assessment through Secure Test Administration (STA) protocols provides reliable data.
2. **Cost-effectiveness:** assessing a limited number of schools and students reduces overall costs for test administration while ensuring a representative population.
3. **Quicker results:** turnaround is faster as data preparation and analysis are limited to the sample.

The first cornerstone of the sampling process is to identify and define the **target population** of the assessment. The *desired* target population refers to the population for which information is sought and estimates are required. However, for practical reasons possibly related to cost, geographical isolation, civil unrest, or school size, some elements of the target population may have to be excluded. The *defined* target population thus may be a reduced form of the desired target population by omitting certain categories of schools. This population may possibly be further reduced, by finding additional units that are excluded, when administering the assessment. This then comprises the *achieved* population. Within this population, the MOE (or Central Team) may decide to also determine subnational groups of interest (e.g. in terms of region or gender) (see Greaney & Kellaghan, 2012).

In the case of the NLAP, the desired target population comprises all Liberian students enrolled in Grades 3 and 6. In addition, subpopulations of interest could include out-of-school learners and learners with disabilities.

After having specified the target population, a **sampling frame** is to be constructed. Under ideal conditions, the sampling frame is a comprehensive and up-to-date list of the defined target population and sufficient information that helps access the students. Such a complete and up-to-date list may,

however, be very difficult or nearly impossible to obtain. In that case, it is advisable to set the focus on a comprehensive list of schools first, and then acquiring complete student lists only for the participating schools. In the context of the NLAP, the Education Management Information System (EMIS) provides the basis for the sampling frame, and because of this, it is critical that this data is up-to-date and accurate. For essential elements of a sampling frame for a national assessment consult **Table 4.10**. If the sample selection is to be based on certain stratification variables, then these are to be included in the sampling frame as well.

**Table 4.10: Essential Elements of a Sampling Frame for a National Assessment**

Element	Description
Identification	Each school must be identified clearly and have a unique ID for maintaining anonymity during reporting (e.g. by name or school number).
Communication	The national assessment team must have information to allow it to contact each school. Appropriate information might include geographical location, telephone numbers, or both. If such information is lacking, contact might have to be made by direct field visits, which require knowing the school's physical location.
Classification	Classification information must be included in the sampling frame if a national assessment requires the classification of schools, such as grouping of schools by geographic area, school type, levels of schooling, for sampling, estimation, or reporting purposes.
Measure of size	A measure of sizes such as school enrollment or the number of classrooms may be required if sampling involves unequal probabilities.
Update	The sampling frame should have details on when the information used to construct it was obtained or updated. This information will be considered in the event that the national assessment is repeated.

Source: Greaney, V., & Kellaghan, T. (2012). *Implementing a National Assessment of Educational Achievement*. The World Bank.

Keeping in mind budgetary constraints while ensuring a nationally representative sample, a minimum number of schools should be identified using power calculations. This precise sample needed will depend on the kinds of analysis conducted, which will vary over time with available resources and the phase stage of the assessment. There are two levels to the sampling procedure, school and student. This procedure will avoid duplication of existing assessment data from WAEC, while collecting enough to conduct key analyses and draw conclusions with confidence. This will be accomplished through a **stratified two-stage cluster sample design**. Cluster sampling is a two-step procedure. After identifying and grouping the target population into clusters (i.e. schools), a sample of clusters is selected and units within that cluster (i.e. individual students) will be then randomly selected. The following steps and inclusion criteria are detailed below for schools and learners.

### 8.1.1 SAMPLING STAGE 1 - SCHOOL SAMPLING:

- Schools sampled using Probability Proportional to their Size (PPS) from the list of all schools in the country with eligible students from Grades 3 and 6. The PPS is a method of sampling from a finite population in which a size measure is available for each population unit before sampling and where the probability of selecting a unit is proportional to its size. In the case of NLAP, the PPS accounts for the uneven distribution of schools across different counties. This method takes varying sample sizes

into account. This helps to avoid underrepresenting one subgroup in a study and yields more accurate results.

- Schools should be stratified by county.
- Schools should be randomly selected proportional to the distribution of all schools across 15 counties using the most updated school census data.
  - In the case of the short-run phase, any county with less than 2% of eligible schools teaching grades 3 and 6 will be dropped for cost-effectiveness.
- At least 5 replacement schools should be pre-assigned to each sampled school during the sample selection process. Replacement schools must be held in reserve in the event when the sampled school cannot be fully assessed for whatever reason.

#### **8.1.2 SAMPLING STAGE 2 - STUDENT SAMPLING:**

- Within the sampled school, only grades 3 and 6 should be considered for the NLAP. In the case where there are more classrooms per grade, an attempt should be made to combine all classrooms to form one large group of learners in that grade. Eg: If Grade 3 has two classrooms then both the classrooms should be combined to form one large Grade 3 classroom to sample students from.
- A random sampling approach should be used to select 10 students from each grade with equal gender stratification. There may be cases when a grade has more than 10 enrolled students. In which case, random tables should be used for sampling students. However, one might encounter cases when less than 10 students are enrolled or present on the day of the assessment. In such a case, all students should be included.
- Random sampling should be done using an updated classroom enrollment log when using a random table. If the enrollment log is not available then seek the principal's support to rapidly construct one from recall.
- Students present in school at the time of assessment administration should be considered. Any student who is absent or left school should be excluded from sampling. Efforts should be made to inform principals ahead of time to ensure high attendance.

## **4.6 Administration Context**

This section will highlight the implementation strategy for the MOE by carefully assessing priorities as well as detail the assessment administration model and various considerations to be made for high fidelity.

### **4.6.1 ASSESSMENT IMPLEMENTATION PLAN (PHASED-IN APPROACH)**

Careful implementation planning is the cornerstone for the success of any new policy roll-out. For the NLAP, policy implementation will be a collective effort across **three team levels:** a Central Team, Local Actors, and High-level staff, as recommended in the **NLAP Section 8.3.1**. Further, it will be implemented in three phases: **short-, mid-, and long-run phases**. A phased-in approach will be employed that allows for each phase to be prioritizing key process objectives.

In the **short-run**, efforts must be directed to ensure:

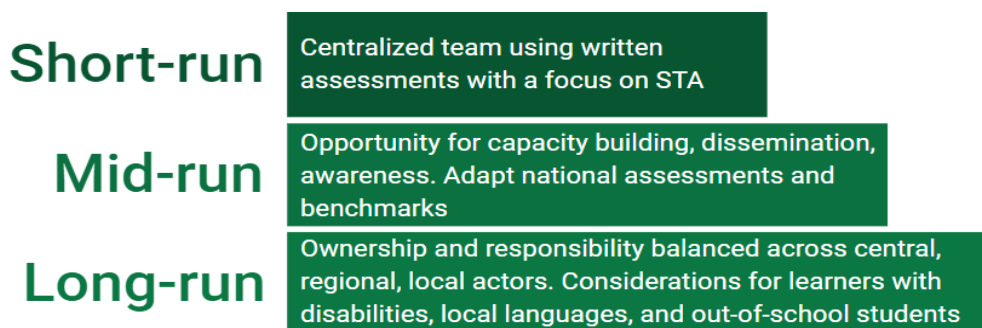
- The establishment of the proposed team structure (as stated above) with careful considerations made on the choice of assessment administrator.
- Secure test administration (STA) processes are established by the central team.
- Further refinement of the national learning assessment by field-testing the assessment tools on a nationally representative sample.
- Policy buy-in at all levels for smooth implementation and coordination.

The **mid-run** phase must set priorities to achieve:

- Capacity building of local actors through targeted knowledge sharing workshops on assessment administration, involvement in results dissemination plan, and creating a platform for a feedback loop to ensure assessment results can inform daily classroom practice.
- Engagement in further adoption of the national assessment and setting benchmarks per international standards.

Finally, the **long-run phase** should focus on enhancing the inclusiveness of the NLAP by taking into account learners with disabilities, out-of-school students, and non-English local languages. This phase must set in motion targeted efforts to the deployment of adapted national assessments that include these groups.

**Figure 1: Key Objective of Different Phases**



### **Secure Test Administration**

National assessments must take extra precaution to ensure the reliability of data that is gathered from standardized tests and exams, as governments and stakeholders rely on this data to evaluate, design, and target interventions. The extent of this reliability is often determined by the design and structure of national assessments. Specifically, how the test is administered, by whom, and under what conditions are critical considerations. For example, Liuzzi et al. (2019) demonstrated that national census testing in Honduras generated an implausible distribution of assessment scores with much higher scores as compared to a random sample of schools in which the same assessments were securely administered. The researchers also found that STA likely reduced the tendency to inflate scores in subsequent rounds of assessment. Further evidence from education systems in India (Singh, 2020) and Indonesia (Berkhout et al., 2020), also suggests that underlying official data – in the form of assessments, tests, etc. - may be compromised due to student copying, grade inflations, teacher-assisted manipulations, and the leakage of question papers prior to the day of assessment. For this reason, the Liberia NLAP will prioritize the secure administration of the assessment from its inception. A summary of research on STA is presented below:

**India:** Singh (2020) compared reported results from a ‘designated national best practice’ standardized test in the Indian state of Madhya Pradesh to students’ responses to the same test questions on an independently proctored and graded re-test. His work revealed that achievement levels were substantially overstated in the official data, so much so that scores in Hindi and Math from the retest indicated a doubling of reported achievement. This grade inflation, according to Singh (2020), is a reflection of student copying, teacher’s leaving the classroom unsupervised,



teacher's providing 'hints' to the correct answers, and the lack of external monitors. To follow up on these results, students were also tested in the Indian state of Andhra Pradesh using two treatment arms – standardized assessments administered using (i) paper-based tests and (ii) tablets. Results from this test showed that 38-43 percent of classrooms in the paper-based testing arm were flagged for cheating but only 2-5 percent of tablet-based test classrooms were flagged for the same. As a result, analogous to the Madhya Pradesh distortion, students scored higher in the paper-based test. The rationale being: tablet-based tests make it a) harder for students to copy from each other since students can only see one question at a time, b) for the same reason, teacher are unable to help all students or provide hints, and c) external observers were present at the time of testing to take the tablets to school and collect them after.

**Indonesia:** An evaluation of fraud prevention in national exams in Indonesia revealed that school-level exam scores decreased by an average of 5.2 points after the introduction of computer-based testing (CBT) (Berkhout et al., 2020). Since CBT tests vary across students and classrooms as questions are drawn directly from a server, this drop was attributed to students not knowing the questions beforehand, not having a reason to work with other students, and the computer program grading exams, as compared to teachers.

**Honduras:** A USAID study on early grade reading skills in Honduras addressed the following question; what is the impact on test integrity in different test-taking and scoring conditions i.e. administration of tests by census and by STA. Scores from the STA-based tests – where trained external monitors were present, test booklets were sent to the school on the day of or one day before, and the tests were scored off-site by a third party – were significantly lower than the census-based test, particularly in reading and math. For Grade 2 reading, the mean percentage of STA scores was 61 percent and 77 percent for census testing. Likewise in math, Grade 2 mean percentages for STA scores were 62 percent and 79 percent for census testing. This difference was attributed to the inflation of census scores by teachers, who feared the repercussions of poor test results (lower salaries for example) from principals and local authorities.

The aforementioned reports underscore several issues related to examination malpractice. In particular, the role of teachers, supervisors, and stakeholders in ensuring test integrity. Given the Liberian context, addressing these challenges will strongly influence the success of NLAP as well as data gathered from national assessments at the primary school level.

#### **4.6.2 ADMINISTRATION PLAN**

##### **4.6.2.1 Assessment Administration Model**

Based on the field-testing of two models, i) oral direct assessments and ii) written self-administered assessments, undertaken for the development of national assessments, the NLAP mandates a **group-administered model of paper-based assessments**. The NLAP, further, distinguishes the model per grade level pertaining to the role of the assessor conducting the assessment:

- **Grade 3:** Group administered paper-based assessment with assistance from the assessor to read instructions and questions, excluding reading comprehension passages.
- **Grade 6:** Entirely self-administered paper-based assessments with no assistance from the assessor.

By employing paper-based assessment in line with the assessment principles (**Section 2.2**), it enables the MOE to:

- Assess a wider range of skills in both literacy and numeracy in a scaffolded manner.
- Mitigate ceiling effects by including higher-level assessment items that might not be possible to administer in oral assessments.
- Incorporate different types of assessment stimuli (data tables, pie charts, informative texts, etc.).
- Administer the assessment in both a cost-effective and standardized manner.
- Use international (eg. TIMSS, PIRLS, Rosetta Stone Initiative, and Learning Index) and regional (eg. SACMEQ, and PASEC) assessments to compare learning outcomes of Liberian students to their peers

However, it is critical to note that paper-based assessments also have their own limitations. Namely, these assessments are unable to effectively capture pre-literacy skills, such as phonological awareness, oral fluency, and listening comprehension. As per the recently approved literacy benchmarks, paper-based tests can only capture one of the two benchmarks set by the MOE, which is *“percentage of correctly answered questions”* for reading comprehension. Unfortunately, the oral fluency benchmark of *“correct words per minute”* cannot be determined through the NLAP as currently recommended. In light of this, the NLAP encourages existing efforts pertaining to oral assessment (EGRA and GALA) to continue to complement learning data that can be achieved for Liberia.

#### 4.6.2.2 Assessment Processes

With the assessment model established, the NLAF highlights various administrative and logistical processes that would determine the smooth implementation of the NLAP. Careful consideration and detailed planning will be required in the following areas (Anderson & Morgan, 2008; Greaney & Kellaghan, 2012):

- Coordination with schools at different stages of the assessment process. See **Section 4.7.1** below for further details.
- Organizing assessment instruments, which should budget time for:
  - Proof-reading and checking for grammatical and layout errors,
  - Preparing assessment booklets and manuals,
  - Printing of assessments with additional copies for replacements.
- Packing assessments during transition requires set procedures to be established. **Table 4.11** provides an illustration of what a packing checklist could compose.

**Table 4.11: Example of a Packing Checklist**

<b>Packing Assessments</b>
----------------------------

The following are typical procedures for packing instruments:

- Group booklets in units of 20.
- Arrange units in order before packing into envelopes.
- Manually check a number of samples when booklets are machine counted.
- Include additional tests for unexpected circumstances (e.g. additional pupils).
- Use strong but affordable packing materials (e.g. plastic envelopes).
- Record the contents of each package and add packers' signatures to the sheets as each set of items is packed.
- Label each package clearly and boldly.
- Add a colored sticker or mark to show that packing has been completed.
- Label each carton on at least two sides.
- Prepare a packing checklist so that test administrators can check that they have the necessary materials.
- Make one bundle of materials for each school.
- Pack the materials for one district in a strong carton or bag.

Source: Greaney, V., & Kellaghan, T. (2012). *Implementing a National Assessment of Educational Achievement*. The World Bank.

- Delivery of assessments should consider the most appropriate and cost-effective method of delivering and collecting materials for the national assessment.
- All tests and additional materials, used and unused, are kept securely and returned to a collecting location determined by the central team. Clear instructions should be provided on how returns from schools to the national assessment center should be organized. A quality assurance plan of assessment administration should be developed, and a dedicated team should be tasked to randomly visit 10-20% of the sampled schools.
- Assessment marking will need clear scoring guidelines and time considerations for quality checks and training for raters. See **Table 4.8** above for the multiple-choice item format.

#### 4.6.3 ROLES AND RESPONSIBILITIES

The implementation of the NLAP shall be the responsibility of various government departments and agencies acting in coordination. These various departments should ensure that assessment information derived from the national early grade national assessment is used to provide a measure of quality against national and international benchmarks. **Table 4.12** provides different stakeholders and their responsibilities at different stages of the assessment process.

**Table 4.12: National Learning Assessment Policy Roles and Responsibilities of National Stakeholders**

NLAP Roles and Responsibilities

Phase	Stakeholder	Responsibilities
<b>Assessment Preparation and Launch</b>	Center of Excellence for Curriculum Development and Textbook Research	<ul style="list-style-type: none"> <li>Coordinate with stakeholders to form a monitoring team</li> <li>Institute Learning Assessment Technical Team</li> <li>Oversee training and workshops on assessment administration</li> <li>Coordinate in the development of the assessment sampling framework, administration, M&amp;E plan, and logistics of the assessment</li> </ul>
	EMIS	<ul style="list-style-type: none"> <li>Monitor program activities continuously</li> <li>Custodian of assessment data</li> <li>Coordinate with the Department of Planning and Research in the development of questions structure</li> <li>Conduct research on test development</li> </ul>
	Bureau of Planning, Research, and Development	<ul style="list-style-type: none"> <li>Design, develop, manage, and coordinate policies/procedures for assessment</li> <li>Spearhead the development, review, revision, pilot testing, and updating of the national assessment</li> </ul>
	Bureau of Basic and Secondary Education	<ul style="list-style-type: none"> <li>Supervise District Education Officers (DEOs) and County Education Officers (CEOs) during assessment implementation</li> <li>Ensure delivery of Primary/Secondary learning assessment</li> </ul>
	WAEC	<ul style="list-style-type: none"> <li>Coordinate the development and administration of assessment</li> <li>Assist in security and distributions of assessment logistics</li> </ul>
<b>Financial Management</b>	Bureau of Fiscal Affairs and Human Resources Development	<ul style="list-style-type: none"> <li>Manage budgets and finances</li> <li>Ensure smooth funding flow within the MOE for implementation and monitoring</li> </ul>
<b>Data Collection</b>	Center of Excellence for Curriculum Development and Textbook Research	<ul style="list-style-type: none"> <li>Train test administrators</li> <li>Monitor test administration through CEOs, DEOs</li> </ul>
	EMIS	<ul style="list-style-type: none"> <li>Undertake data collection</li> </ul>
	CEO/DEO	
	School Management Team	<ul style="list-style-type: none"> <li>Coordinate assessment day details with school community: students, teachers,</li> </ul>

		parents
<b>Data Quality</b>	EMIS	<ul style="list-style-type: none"> <li>• Maintain a quality standard of assessment across various school districts</li> </ul>
<b>Data Analysis</b>	EMIS	<ul style="list-style-type: none"> <li>• Analyze and draft assessment results</li> </ul>
<b>Monitoring</b>	Learning Assessment Technical Team	<ul style="list-style-type: none"> <li>• Meet monthly to monitor NLAP progress</li> </ul>
	County Monitoring and Evaluation Committee	<ul style="list-style-type: none"> <li>• Monitor county-level, in-field activities through CEOs, DEOs, and County Monitoring and Evaluation Officers</li> </ul>
Reporting Assessment Results	Center of Excellence for Curriculum Development and Textbook Research	<ul style="list-style-type: none"> <li>• Facilitate report dissemination to schools, teacher, students, international stakeholders, and media (within the stipulated time period)</li> </ul>
	National Education Advisory Board	<ul style="list-style-type: none"> <li>• Organize education sector dialogues on assessment results</li> </ul>

## 4.7 Coordination and Reporting Results

Detailed planning of both coordination procedures and the reporting of results are cornerstones of the overall success of a national learning assessment. While coordination between implementing actors is a prerequisite for a smooth implementation, decisions on the reporting of results have a consequential impact on how assessment data can inform policy. **Section 4.7.1** navigates through steps and best practices to be considered when coordinating with and preparing the sampled schools for the administration of the national assessment. **Section 4.7.2** then outlines the analysis framework for reporting results as well as guidelines for appropriate reporting methods and dissemination strategies.

### 4.7.1 COORDINATION PRIOR TO ASSESSMENT ADMINISTRATION

After the sampling procedure is complete, sufficient coordination with the selected schools is crucial for a smooth assessment administration. Cooperation from principals and teachers is essential to help ensure that students feel encouraged to participate and are motivated to try their best. Schools are thus to be informed about the purpose of the assessment well in advance of the test administration. Throughout the process, it is advisable to be honest and clear about how data are being collected in the assessment and how these will be reported and used. When timelining, ample time should be devoted to coordination and preparation steps, as these are critical to balance out potential unforeseen challenges. Based on recognized best practices (see Anderson & Morgan, 2008; Greaney & Kellaghan, 2012), key preparatory steps in the administration of a national assessment include contacting and informing schools, installing a replacement strategy, establishing an informed consent procedure, and preparing schools for hosting the assessment.

### Contacting and Informing Schools

- Insights from the pilot testing undertaken for the development of the NLAP and NLAF highlight the importance of planning ahead sufficiently. This includes regularly updating data on accurate school

location, and composition. The national assessment team must ensure ahead of time that the selected schools have grades from the target population (i.e. Grades 3 and 6) currently operating.

- The national assessment coordinator should contact schools as soon as possible after the sample selection is completed and has been confirmed by the MOE.
- Initial communication, informing schools that they have been selected to participate in the national assessment, should occur through letters to the schools and the respective district education offices and be followed up by telephone calls. This should also include information on the provisional assessment dates.
- When invited and contacted, schools should be requested to confirm receipt of the invitation.
- In some countries, schools are given the option to refuse participation in the national assessment but past experience has shown that the vast majority of invited schools are willing to participate, as an invitation is to be viewed as a courtesy.
- Schools should be asked to appoint a liaison person, responsible for the communication with the national assessment team to coordinate the assessments in their school.
- Following initial contact, regular communication should be upheld right up to the day of the assessments.
- Around one month before the administration of the assessment, schools should receive a reminder letter, indicating the exact date as well as more details on the assessment procedure.
- It is advisable to confirm a school's participation two weeks ahead of testing as well as again the day before.
- Throughout the process, the national assessment team should keep an updated list of participating schools to help track fieldwork progress.

### **Replacing Schools**

- Once selected, schools should, if possible, not be changed; however, unforeseen challenges might occur, requiring the replacement of schools in the sample.
- Potential challenges requiring replacements include: attempts to contact or locate the sampled school remain unsuccessful (e.g. due to outdated contact information), the sampled school is closed, target population grades are not operating in the sampled school (or are not of sufficient size), or the sampled school is located in a difficult to access or remote area.
- The dropout of sampled schools should be anticipated by preparing a sufficient replacement strategy.
- A typical replacement strategy is to use proxy responses: For each sampled school, also a replacement school is selected. To keep proportions upright, the replacement school should be randomly selected from the same county as the original school. If the original sampling involved stratification based on other characteristics, these should be considered as well when selecting a replacement school. An alternative replacement strategy could be to select a number of buffer schools for each county (instead of one for each sampled school).
- While replacement schools can be a reassuring fallback, the national assessment team can limit sample dropout (especially non-response) and increase cost-efficiency by taking sufficient steps beforehand to ensure that EMIS data on schools is accurate and up to date.

### **Informed Consent Procedure**

- Decisions about the assessment intake and consent procedure are critical for the success of the national assessment.

- After having selected sample schools (including replacement schools) to participate in a national learning assessment, written consent from each selected school (i.e. the school principal) should be taken weeks in advance of the assessment administration.
- Even though it might not be legally required, it is advisable for principals to seek parental consent prior to the assessment administration. Asking parents to respond only in the case of permission refusal may be sufficient.
- Additionally, school administration, students, and parents should be sufficiently informed on the purpose of the assessment using a standard consent form (IPA, 2018) that captures:
  - *Purpose*: the assessment is used to help improve teaching and not to judge students individually.
  - *Procedure*: information on assessment length and testing procedure.
  - *Risks and rights*: there are no anticipated risks from taking part in the assessment. Scores achieved in the national assessment have no effect on students' marks or their passing on to the next grade. Students are free to decline participation or withdraw from the assessment at any time.
  - *Confidentiality*: all test data and questionnaire responses are treated confidentially and will be anonymized.
  - *Contact information*: in case students or parents have questions.

## Preparing Schools

- To help ensure smooth coordination with the participating schools, the assessment administrators should be provided with an assessment manual capturing key information related to timing, student preparation, packing and returning of tests and questionnaires, and instructions for administration.
- School principals and teachers should be approached to help ensure that schools have high attendance on the day of the assessment.
- School administration should be provided with tentative dates for test administration per the assessment timeline. A recognized best practice is to give a range of dates or indicate the week in which the assessment is expected to take place. This helps account for unaccepted delays.
- School administration should be informed to make available updated enrollment logs for the national assessment team to access. The logs will be used for random sampling.
- The national assessment team should coordinate with schools well in advance to identify a suitable location in school premises for test administration.
- The national assessment team should ensure principals inform teachers from participating grades (Grade 3 and 6) about the purpose of a national learning assessment for utmost cooperation and smooth administration.

## 4.7.2 REPORTING AND DISSEMINATION OF RESULTS

### 4.7.2.1 Analysis Framework

The success of the NLA will depend upon a clear and compelling analysis framework defined by the following characteristics:

- Analysis should be fully transparent, documented, and reproducible to ensure that the results are credible and that secure test administration is upheld across all aspects of the NLAP
- Analysis will enable valid and useful inferences about the population(s) of interest (such as overage students) and support a range of useful comparisons, such as between:

- Boys and girls
- Urban and rural populations
- Private, public, faith-based, and community school types
- Analysis will clearly communicate information that is meaningful to a range of users and audiences. Analysis will be aimed to
  - Inform key actors and decision-making processes at the Ministry
  - Provide relevant information to stakeholders throughout the education system: teachers, CEOs, development partners, etc.
  - Communicate to the Liberian population at large

For general audiences, providing basic qualitative descriptions of what participants know and can do, such as read at a second grade level or perform single digit addition, will help a large range of users better understand, interpret, and ultimately respond to the results of analysis. More complex analysis, such as item response theory (IRT) should be targeted towards decision makers and the assessment team to regularly analyze the performance of the assessments and to make any necessary modifications in response.

A critical part of analysis will be to clearly define the limits of any conclusions. In particular, the ability to identify and attribute causes of trends over time will be limited. Including standard errors and measures of accuracy will be one strategy for conveying the uncertainty of conclusions. The Analysis Framework should highlight the difficulty of determining whether results are defined by changes in policy and practice or additional factors such as demographic changes.

The Analysis Framework will reflect the priorities of the ministry and accordingly the key focus will be on foundational skills of literacy and numeracy. Analysis will track performance on the ministry's benchmarks and standards and can be used to help redefine and update these standards and benchmarks over time.

Analysis will also speak to the curriculum and as previously mentioned its emphasis on core competencies such as reading comprehension. While the focus will be on literacy and numeracy, which will always comprise the core of both the assessments and accordingly analysis, additional topics can be added at various points in order to consider additional content from the curriculum or new initiatives in the education system. In this way the analysis will be defined by continuity - monitoring foundational skills of literacy and numeracy - and also periodic investigation into additional topics to reflect new initiatives and directions for the education system.

Finally, as sampling for the NLA utilizes existing EMIS data, systems, and structures, the Framework for Analysis for the NLA will include connecting assessment data to other existing data to allow for more detailed and expansive analysis. In particular, recent school census data collection and initiatives to measure school quality will enable critical work to identify what factors are associated with higher learning levels. For example - do schools with higher percentages of registered teachers score better on the learning assessment and are major infrastructure investments associated with learning levels? This investigation can also be used to identify positive deviants - schools or districts that despite facing the same challenges of other schools and districts are successfully promoting children's learning - which can then be used to generate new ideas and innovations in policy and practice.

#### **4.7.2.2 Reporting and Dissemination**

Appropriate reporting methods and dissemination strategies are vital elements that require equal planning and execution for the overall success of the NLAP. To ensure the assessment data actively inform decision-making on various fronts, the central objective is to (i) develop appropriate reports as



well as strategies to reporting and dissemination of assessment results (ii) that are tailored to a wide variety of stakeholders, and (iii) endorse appropriate and effective use of the assessment results by those groups. The following efforts should be made to achieve this objective (ACER, 2017):

**1) Assess decision-making objectives of different stakeholders** - Various stakeholders can use assessment results differently, which then allows discourse about the results and possible policy responses. This requires key consideration of the information needs of the target audience, their expected technical knowledge, and opting for the most effective communication method. In light of this, the following steps should be taken when assessing the different needs of the stakeholders:

- a) Timely consultation throughout the assessment program with key stakeholders who form the target audience group. The representatives from such groups can assist in establishing the stakeholder's need for information. The following groups can be considered:
  - i) MOE - Centre for Curriculum Development and Textbook Research; Department of Planning Research and Development, Department of Instruction
  - ii) Education Monitoring Officers (county and district level)
  - iii) Education implementing partners
  - iv) Teacher training institutions and unions
  - v) Parent associations
  - vi) Journalists (print and radio)
- b) The MOE and the Central Team are responsible to ensure an agreement is reached by the intended target audience and the development of a comprehensive list ahead of the reporting period of key purposes and potential decision-making. Such engagement and coordination will assist in the clear mapping of the decision process of various groups and the stage at which the assessment data will be used for their intervention. Further, it allows the identification of appropriate dissemination products and the timeline for effective up-take of results and action.

To facilitate this process, the following strategies are recommended:

- i) Share the assessment objective, administration model, and broad outline of the assessment domains (content, cognitive) and other indicators it will capture with stakeholders. This can be in the form of an inception report and meeting at the commencement of the periodic national assessment.
- ii) Request key stakeholders to list their information needs or key purpose for assessment data in a standard template for the central team to review.
- iii) Facilitate at least one workshop with overlapping stakeholder groups who identify similar purposes to engage in early discourse to inform the bigger dissemination strategy and products that would be meaningful for their decision-making.

**Table 4.13** provides an illustrative list of purposes and potential decision-making by key stakeholders informed by the assessment data.

**Table 4.13: Key Purposes and Use of Assessment Data**

Purpose	Decision-making	Stakeholders
Provide periodic feedback on the National Curriculum for ECE and primary grades	- Review and re-prioritize proposed learning objectives in NCF 2019 to strengthen foundational literacy	- Centre for Curriculum Development and Textbook Research

	<ul style="list-style-type: none"> <li>- and numeracy skills in early grades. Reform curriculum subject objectives and propose revised teaching materials, activities, and alternate assistance programs for learners falling behind in the learning cycle</li> </ul>	<ul style="list-style-type: none"> <li>- Teachers Association</li> <li>- Deputy Minister of Instruction</li> <li>- Deputy Minister of Planning Research and Development</li> <li>- Curriculum and Pedagogy Experts</li> </ul>
Monitor progress towards national benchmarks	<ul style="list-style-type: none"> <li>- Assess the trend in achieving national literacy benchmark</li> <li>- Develop benchmarks in line with regional and international benchmarking efforts for numeracy.</li> </ul>	<ul style="list-style-type: none"> <li>- MOE</li> <li>- Education Partners</li> <li>- Donor Partners (USAID, World Bank)</li> </ul>
Monitor progress towards international goals and indicators	<ul style="list-style-type: none"> <li>- Monitor Liberia's progress towards Sustainable Development Goal (SDG) Target 4.6</li> <li>- Report learning outcomes data for Learning Poverty Index</li> </ul>	<ul style="list-style-type: none"> <li>- MOE</li> <li>- Ministry of Finance and Development Planning</li> <li>- Development Partners</li> <li>- World Bank and UNESCO</li> </ul>
Review and reallocate resources to achieve national education strategy	<ul style="list-style-type: none"> <li>- Use assessment data to monitor progress towards Liberia's development plans i.e. Pro-Poor Agenda for Prosperity and Development, 2018-2023, 10-year Strategy for Education Transformation, Liberia Rising 2030</li> <li>- Formulating policy goals and priorities to be addressed with the learning assessment</li> </ul>	<ul style="list-style-type: none"> <li>- MOE</li> </ul>
Support reform in teachers' everyday practice in the classroom	<ul style="list-style-type: none"> <li>- Align assessment results with teacher training and formative and summative evaluations used in the classroom.</li> </ul>	<ul style="list-style-type: none"> <li>- MOE</li> <li>- Teachers Association</li> <li>- Centre for Curriculum Development and Research</li> <li>- Deputy Minister of Planning Research and Development</li> <li>- Deputy Minister of Instruction</li> </ul>
Targeted teaching at the right level	<ul style="list-style-type: none"> <li>- Use assessment data to inform pedagogical interventions focused on basic skills</li> <li>- Establish learning camps throughout the year, based on NLAP results, where learners are grouped based on learning levels instead of grade level</li> </ul>	<ul style="list-style-type: none"> <li>- MOE</li> <li>- Teachers Association</li> <li>- Centre for Curriculum Development and Research</li> <li>- Deputy Minister of Planning Research and Development</li> <li>- Deputy Minister of Instruction</li> </ul>
Engage in positive deviance analysis to inform best practices in classrooms	<ul style="list-style-type: none"> <li>- Identify schools that are performing well and identify those techniques that best support children's learning</li> </ul>	<ul style="list-style-type: none"> <li>- MOE</li> <li>- EMIS</li> <li>- WAEC</li> <li>- DEOs and CEOs</li> </ul>

**2) Dissemination Strategy** - The development of a dissemination strategy early in an assessment program allows for dissemination methods to be planned throughout the program to maximize stakeholder engagement. Ensuring that dissemination products can be easily and broadly accessed by a variety of stakeholders increases the likelihood that results will be considered and used by a variety of stakeholders in decisions about education policy and practice. An adequate dissemination strategy must:

- a) Use simple language and consistent messaging in all dissemination methods to aid understanding, whereas technical information should be available to validate all statements made.
- b) Propose recommended solutions as well as build capacity in using results.
- c) Hold consultative meetings upon the development of the dissemination strategy to ensure buy-in from target stakeholders on specifications.
- d) Mitigate criticism and negative media coverage, as assessment results can reveal large learning gaps between curricular objectives and the actual learning levels of students. Results could be framed as a diagnostic or a monitoring process that feeds back into education reforms.
- e) Establish clear guidelines and processes in the development strategy to (i) maintain the objectivity of results interpretation and (ii) mitigation of negative publicity. Careful consideration and adequate time ahead of dissemination to account for unintended consequences of reporting results on stakeholders such as the students, school, teachers, and parents. Strategize the release of various dissemination products over a period of time. This allows to not only maintain interest and momentum in the assessment but also to instill a culture that views growth and change requires monitoring and sustaining over an extended period.

For the NLAP, the central team must identify human resources with technical acumen and allocate appropriate funding to lead as well as facilitate the development and implementation of the dissemination strategy. It is recommended that selection must follow the steps listed below:

- a) Clearly map the in-house technical capacity of key MOE members who can lead policy and dissemination efforts for the NLAP.
- b) Quickly identify additional technical support that may require the hiring of an external partner.
- c) Allow adequate time for hiring and onboarding all technical staff (within MOE and external) ahead of the development of the dissemination strategy and dissemination of products.

See **Table 4.14** for a description of reporting and dissemination products and approaches to consider when developing dissemination strategy plans.

**Table 4.14: Dissemination Methods**

Dissemination method	Description and purpose	Main audiences and level of technical detail
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Executive summary report	Summarizes key findings and policy-related takeaways, emerging from the first data analyses. The purpose is to sustain interest in the assessment and drive the policy agenda in the period between data collection and publication of the main report.	All stakeholders, researchers, educational practitioners, media, and the public.  <b>Level of technical detail:</b> low
Main report	To address a variety of stakeholders, an overview of all aspects of the assessment should provide a clear understanding of the purpose, approach taken, results, and implications. Generally, all assessment programs publish the main report.	All stakeholders, researchers, educational practitioners, media, and the public  <b>Level of technical detail:</b> medium
Summary reports, pamphlets	Summarizes the important points from the main report to provide a fast way for stakeholders to learn about the most important assessment results. Length of the summary reports can vary.	May be produced for a variety of stakeholders, including teachers, policymakers, the general public, or key interest groups  <b>Level of technical detail:</b> low
Technical report	Details information about the assessment processes and data collected. It allows to judge the quality of the assessment and informs the interpretation of results. It also provides a record of activities that can inform future assessment phases. The publication of a technical report allows for some technical details to be left out of the main report, making it more accessible.	Key stakeholders and researchers  <b>Level of technical detail:</b> high
Assessment framework report	Adds details on the assessment framework that guided the development of the assessment (both cognitive learning domains and the contextual information collected). The framework usually provides a definition of the cognitive learning domains and a detailed explanation of how all aspects are measured (including example items). An outline of how the results of the assessment will be reported (e.g. described performance scales), may also be included in the framework. The main report may include a summary of the assessment framework; however, the full assessment framework may be published as a separate report. This may be done either before, during, or after assessment implementation.	Key stakeholders, researchers, educational practitioners, and the public  <b>Level of technical detail:</b> medium to high

Thematic reports	Reports that go into more detailed information than the main report around a particular thematic interest (e.g. a report on gender-related achievement patterns). Thematic reports can help raise awareness on certain priority areas.	Particular stakeholder groups, researchers <b>Level of technical detail:</b> medium to high
Policy briefings	Provide a concise summary of the main information and possible implications. These main messages are to be directed to decision-makers who do not have time to read a full report. Decision-makers can benefit from this information to identify possible next steps. Policy briefings can be either written or delivered by a presentation.	Ministers and policymakers <b>Level of technical detail:</b> low to medium
Media reports	May take various forms, e.g. newspaper articles, radio or television reports, blogs, videos, and press conferences. Promotes the spread of information to a wider audience in an accessible manner. NB: care must be taken, as media may greatly simplify results or turn the attention only to more controversial results.	The public <b>Level of technical detail:</b> low
Press releases	Provide the media with short written statements that succinctly communicate factual information about the assessment (what the program assesses and how it is conducted), and presents key findings from the assessment for the wider public to understand. Press releases are a cost-effective dissemination strategy that promotes more accurate and reliable dissemination of results through the media and allows to reach a wider audience in an accessible way. Enables better control in what is reported by the media, to support the appropriate use of results for informing policy and practice.	The public <b>Level of technical detail:</b> low
Assessment database	Public access (or access for certain stakeholders/organizations) to assessment data can be granted to enable further investigation of particular areas of interest. This usually requires training in the use and analysis of data.	Particular stakeholder groups such as government officials, researchers, and organizations <b>Level of technical detail:</b> high

Conferences and workshops	Allow for discussion and presentation of the assessment to stakeholders. Workshops generally provide a smaller and more participatory format than conferences. Encourage to gather feedback from stakeholders and to discuss possible policy implications.	Particular interest groups, such as teacher trainers or curriculum developers, Particular stakeholder groups, researchers, and organizations <b>Level of technical detail:</b> low-medium
Websites	A webpage enhances accessibility to different dissemination outputs (e.g. reports, press releases, and the assessment database) and also presents a suitable medium for an interactive display of the assessment database where users can easily access the information they require through various search and filter functions.	All stakeholders, researchers, educational practitioners, media, and the public. <b>Level of technical detail:</b> low-medium
Blogs and social media	Blogs and social media are suitable means for easy-access dissemination of assessment results and other assessment information in small packages to a wide-ranging audience. Allow for feedback from the public, enabling a direct link between the assessment agency/ministry and public discourse.	All stakeholders, researchers, educational practitioners, media, and the public. <b>Level of technical detail:</b> low
Sample items and contextual instruments	Some items can be shared with the public as samples to provide a better understanding of what the assessment entails. Items chosen should be of high quality as they will represent the assessment. Suitable field trial items that are not used in the main assessment due to there being too many items of that format are a possible source for sample items. It is advisable that a large proportion of the items remain secure so they can be used again in the future. Contextual instruments on the other hand do usually not require concealment and can be shared in their entirety. The release of sample items and contextual instruments is usually accompanied by information about the skills that an item is assessing, and how these are located in the framework.	All stakeholders, researchers, educational practitioners, media, and the public. <b>Level of technical detail:</b> medium
Manuals	Can be released to the public to provide a better understanding of what the assessment comprises. Manuals may inter alia cover sampling, data management, test administration, translations, etc., and might also be developed specifically for policymakers and researchers to help navigate the database.	All stakeholders, researchers, educational practitioners, media, and the public. <b>Level of technical detail:</b> high

Analytical services	Analysis services may be offered by the assessment agency to the public. Additional analysis will likely cover aspects not addressed in the final set of assessment reports. This allows for the data to be widely used, independent of the stakeholders' high level of technical expertise.	All stakeholders, researchers, educational practitioners, media, and the public. <b>Level of technical detail:</b> low-medium
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Source: ACER, & UNESCO Institute for Statistics (2017). *Principles of Good Practice in Learning Assessment*. ACER.

- 3) Reporting Templates and Products** - Dissemination products can entail different types of reports as highlighted in the table above. Beyond the reports, additional methods that allow the mass reach of results to a wider audience can include workshops, conferences, media appearances, ministry websites, and press releases. The public release of the anonymized database enables the uptake of assessment findings and results.

The NLAP should account for various issues that affect all dissemination products:

- a) Every assessment has limitations regarding what can be analyzed and the inferences that can be made. Reporting should make clear these limitations to ensure results are reported accurately and used appropriately by stakeholders.
  - b) Some reports may build upon the summary of findings and highlight the relevance of key results for broader policy, practice, and research through the inclusion of implications or recommendations. Implications may include general inferences suggested by the assessment results, while recommendations may refer to more specific suggestions. Dependent upon the key findings and availability of external data, implications and recommendations may be based on the assessment data alone, or may also draw on findings from other assessments, evaluations, or research.
- 4) Track Use of Assessment Data** - The central team should consider tracking different ways in which assessment data are and are not used by various stakeholders within the education system. This will help to evaluate the dissemination and reporting strategies and have a better understanding of how to target the policy and information needs for different stakeholders within the education system for future assessment cycles.

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