THE LUMINOS FUND

LIBERIA 2021-22 ENDLINE EVALUATION REPORT

DECEMBER 2022

Absalom, pictured with his father, Stanley, attended school for the first time this year through the Luminos program. By the end of the program, Absalom was among the top students in his class, reading 59 correct words per minute — the equivalent of short stories. (Photo: Luminos Fund/Mara Chan)

Executive Summary

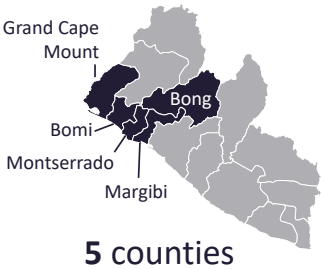
In 2016, the Luminos Fund launched its accelerated, catch-up learning program in Liberia to help address the country's urgent education needs – including one of the world's highest recorded rates of out-of-school children. To date, Luminos has helped 12,650 Liberian children catch up on learning and reintegrate into local government schools. In addition, Luminos has trained 497 young adults on our pedagogy and model, and supported them to deliver the catch-up program in classrooms.

During the 2021-22 school year, the Luminos program increased children's oral reading fluency (ORF) by 28 correct words per minute (CWPM), with girls progressing 3 CWPM more than boys. Students also made substantial gains in numeracy, with a 28 percentage point improvement in addition and a 20 percentage point improvement in subtraction. This report summarizes results from the 2021-22 endline evaluation conducted by Q&A Services.

Background: The Luminos Liberia Program

In Liberia, Luminos runs an intensive accelerated learning program that supports out-of-school children ages 8 – 14 to develop key literacy and numeracy skills, and transition back into the formal education system. The Luminos program employs a phonics-based approach to reading instruction. The pedagogy is student-centered and activity-based, incorporating a variety of local learning materials and stories. Teacher-led assessment ensures student learning stays on track. Students also received a school meal each day. Our teachers are young adults from the same communities as our students and have a high school education at a minimum. Luminos delivers intensive training (approximately 25 days annually) on our pedagogy and model and support teachers with scripted teacher guides and ongoing classroom-based coaching.

Luminos in Liberia
(2021-22 school year)



5 counties

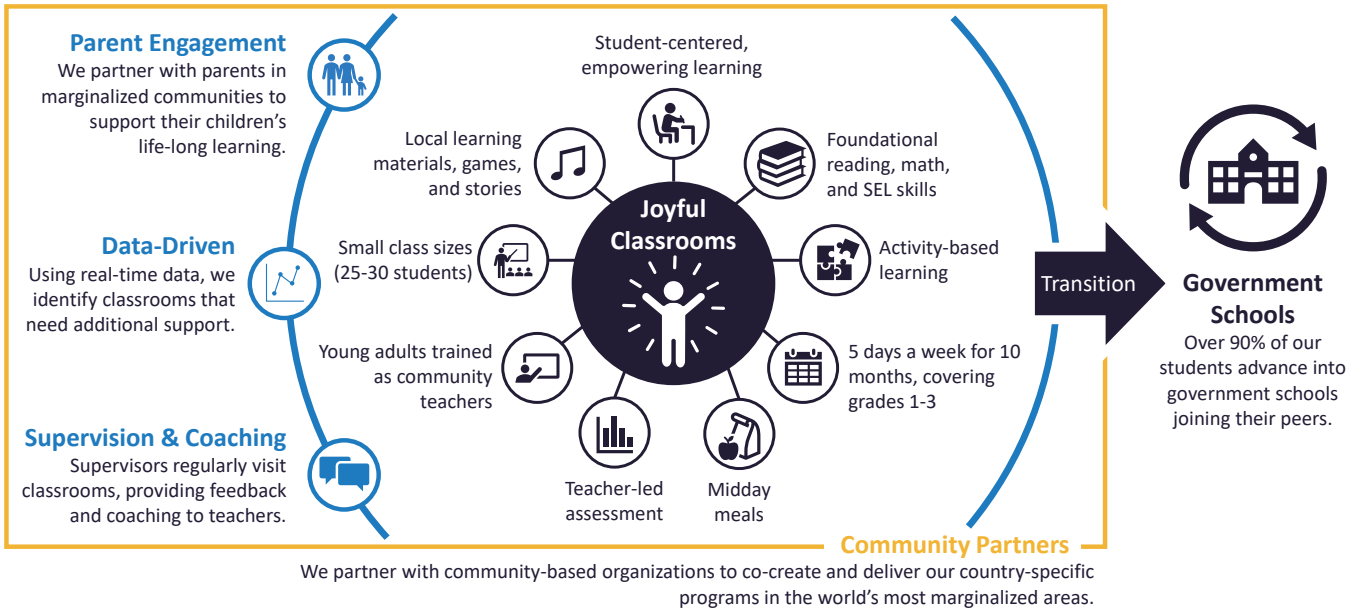
3,150 students

105 Luminos classes

3 community partners

In 2021-22, the Luminos program ran for 9 months—from November to August— in line with the Ministry of Education's 2021-22 official academic calendar; this calendar was shifted slightly compared to a standard, September – June calendar due to COVID-19. In the 2021-22 program, Luminos students attended class for 7 hours per day from Monday to Friday. Approximately 5 hours per day were devoted to reading and 2 hours to numeracy. Please see Figure 1 below for a summary of the Luminos program model.

Figure 1: Luminos Liberia Program Model 2021-22



Government Partners: We partner with ministries of education to strengthen education systems: sharing best practices, prioritizing shared goals, building capacity, advising on national education policies, and supporting research.

In 2021-22, Luminos supported 3,150 out-of-school students across 105 classes and five counties (Bomi, Bong, Grand Cape Mount, Margibi, and Montserrado) in Liberia. Every year, Luminos works closely with a small group of community-based partners,[1] each of which manages a cluster of classrooms, to deliver the program.

One partner ran 20 Luminos classes exclusively in government schools. These classes used a slightly condensed version of the Luminos curriculum and ran a slightly shorter school day (7:30 am-2:30 pm vs 7:45 am-3:45 pm), which mirrored the government school calendar.

Evaluation Overview & Methods

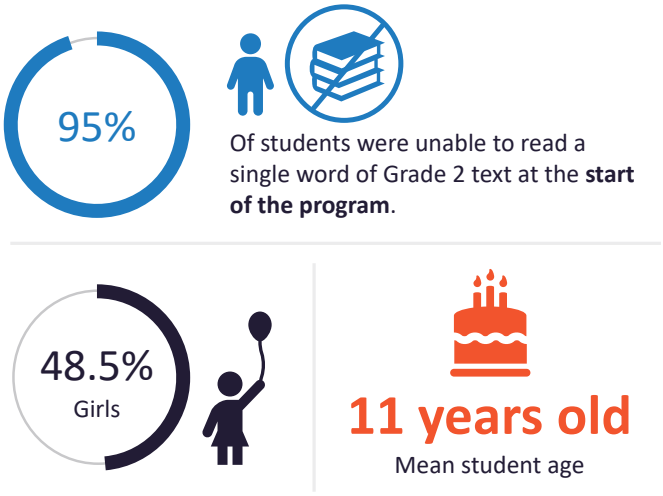
The evaluation aimed to demonstrate the impact of the Luminos Liberia program on student literacy, numeracy, and socio-emotional outcomes during the 36-week 2021-22 program. Q&A Services assessed the literacy and numeracy levels of a random sample of students across all Luminos classes in the first two weeks of the program (baseline) and again in the final week of the program (endline). The RTI/USAID-developed Early Grade Reading Assessment (EGRA) and Early Grade Mathematics Assessment (EGMA) tools, adapted for Liberia, were used at both baseline and endline to assess students on a variety of early grade reading and math skills. A socio-emotional learning (SEL) assessment was also conducted with a subset of the student sample using the International Social Emotional Learning Assessment (ISELA) tool. Instruments were digitized using KoBoCollect. Enumerator training and tool piloting were conducted over three days just prior to data collection at both baseline

1 The Luminos partners in the 2021-22 school year included Liberia Institute for the Promotion of Academic Excellence (LIPACE), Restoring Our Children's Hope (ROCH), and UMOVEMENT.

and endline. The majority of enumerators had worked as part of the data collection team in previous evaluations of the Luminos Liberia program and were familiar with EGRA and EGMA administration.

During the first day of the baseline evaluation, one student per classroom was assessed by an enumerator while being observed by another enumerator who also scored the same student in order to ensure inter-rater reliability. Each assessment lasted approximately 45 minutes (15 minutes for EGRA, 15 minutes for EGMA, and 15 – 17 minutes for the SEL assessment). At both baseline and endline, data was collected over ten days. Data was analyzed using univariate, descriptive analysis disaggregated by gender, community partner, and county. Regression analysis was performed using demographic data collected at baseline. Despite some attrition, two-tailed t-tests were used to demonstrate that the results were definitive.

While Ark started attending Grade 1 several years ago, she had to drop out when her family could no longer afford the school fees. Ark advanced rapidly in her Luminos classroom and can now read full stories with ease. She ended the school year reading an impressive 83 CWPM. (Photo: Luminos Fund/Mara Chan)



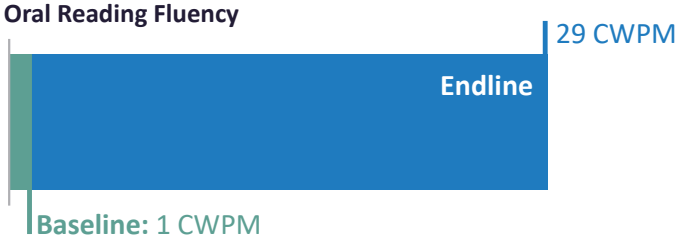
Sample Description

The target sample included four randomly selected students from each of 105 Luminos classes (assessment sample target: n=444), spread across the five counties (Bomi, Bong, Grand Cape Mount, Margibi, and Montserrado) and classes run by Luminos and three community partners. Students were randomly selected at baseline using teacher class rosters and a random number generator software for Android by RandomAppsInc.

The final sample included 359 students (174 girls and 185 boys), who were assessed at both baseline and endline. The mean age was 11.0, and on average male and female students were the same age. At baseline, 95% of students could not read a single word of Grade 2 level connected text, and 73% were not able to read a single familiar word.

Results

The results of the evaluation show that the Luminos program positively impacted student achievement in both reading and math. On reading, students showed improvement across every EGRA subtask, including an improvement of 50 percentage points on letter

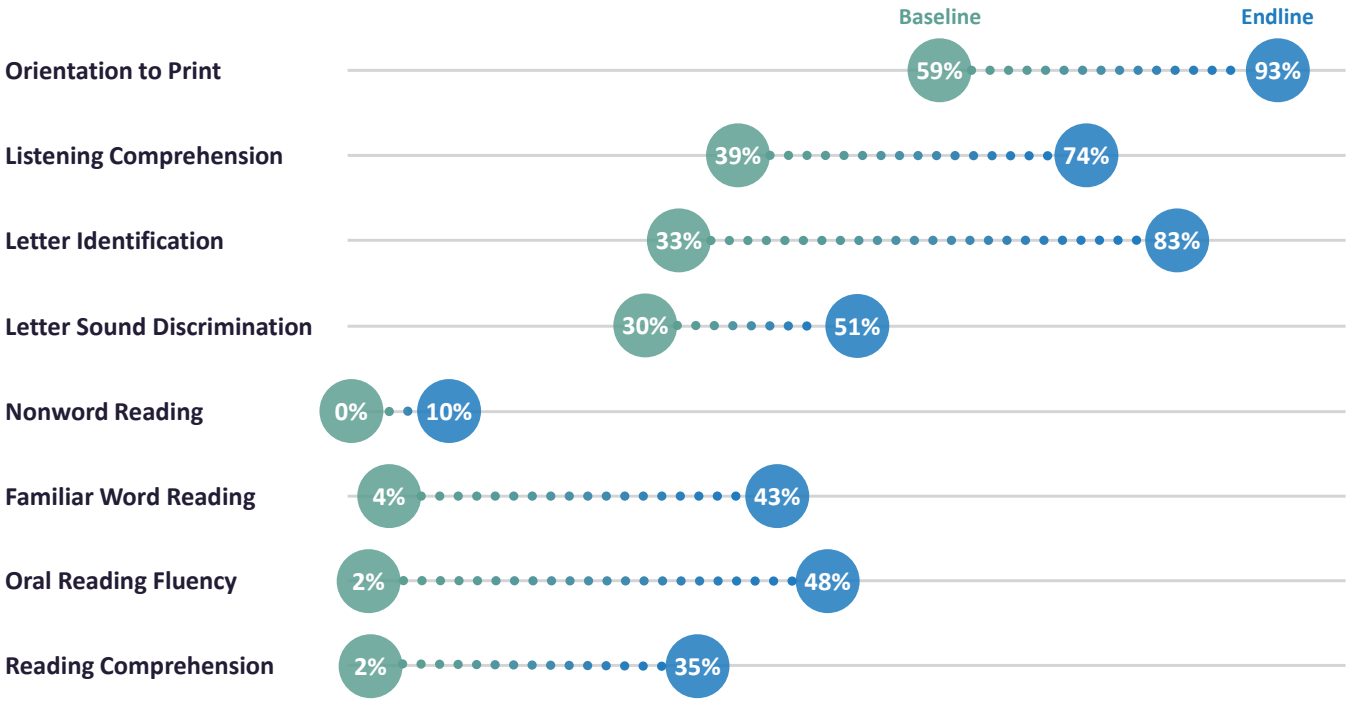


identification, 46 percentage points on oral reading fluency (ORF) of Grade 2 level text, 39 percentage points on familiar words, and 33 percentage points on reading comprehension. For ORF, students could read 29 CWPM at endline, compared to 1 CWPM at baseline, an improvement of 28 CWPM. Please see Table 1 and Figure 2 for more details; for a full description of the EGRA subtasks see the Appendix on page 8.

Table 1: Luminos Liberia 2021-22 Reading Results

Stage	EGRA subtasks	Max score	Baseline		Endline		Difference between baseline and endline	
			Mean score	% correct	Mean score	% correct	Score	Percentage Point (PP) Improvement
Pre-Reading	Orientation to Print	15	8.8	59%	14.0	93%	+5.2	+34 PP
	Listening Comprehension	3	1.2	39%	2.2	74%	+1.0	+35 PP
Initial Reading	Letter Identification	100	33.0	33%	82.7	83%	+49.7	+50 PP
	Letter Sound Discrimination	10	3.0	30%	5.1	51%	+2.1	+21 PP
	Nonword Reading	50	0.2	0%	4.9	10%	+4.7	+10 PP
	Familiar Word Reading	50	2.2	4%	21.6	43%	+19.4	+39 PP
Fluency and Comprehension	Oral Reading Fluency	60	1.4	2%	29.0	48%	+27.6	+46 PP
	Reading Comprehension	5	0.1	2%	1.8	35%	+1.7	+33 PP

Figure 2: Percent Correct Scores for Reading Subtasks



On numeracy, students again showed improvement across every single EGMA subtask, including an improvement of 35 percentage points on number identification, 33 percentage points on number discrimination, 28 percentage points on addition, 20 percentage points on subtraction, and 22 percentage points on word problems. While the program impacted student achievement on mathematics, improvement was less significant than for literacy. This makes sense given that 5 hours of the Luminos school day (approximately 70% of instructional time) is devoted to literacy and 2 hours each day (30% of instructional time) is devoted to numeracy. Please see Table 2 for more details; for a full description of the EGMA subtasks see the Appendix on page 9.

Prior to the 2021-22 school year, Luminos updated the numeracy curriculum to further embed activity-based learning, formative assessment, use of local materials, and other student-centered pedagogies. In addition, more emphasis was placed on math during teacher training. The numeracy results show the impact of these efforts, as students made larger improvements on two numeracy subtasks compared to the previous school year. In the 2021-22 school year, students improved by 20 percentage points on the subtraction subtask, and by 22 percentage points on the word problem subtask, compared to an improvement of 16 and 17 percentage points, respectively, last year. Improvements on other subtasks were similar between the 2020-21 and 2021-22 school years.

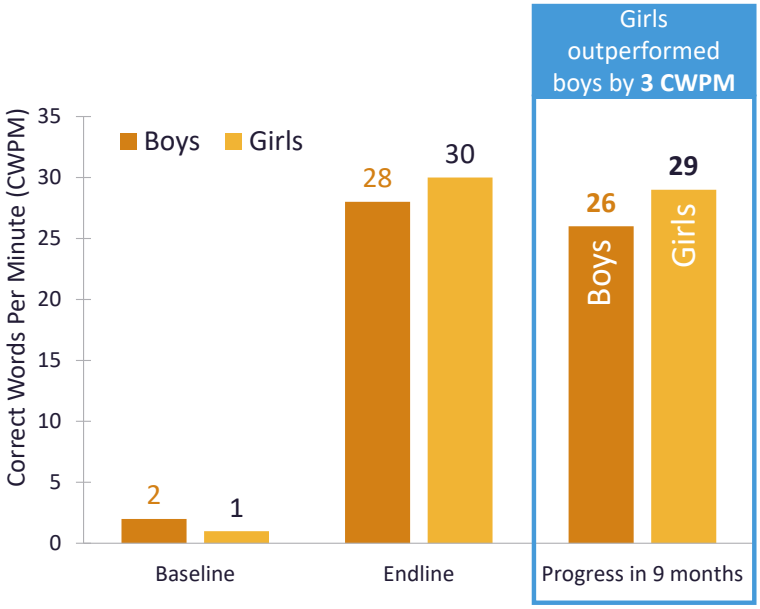
Table 2: Luminos Liberia 2021-22 Math Results

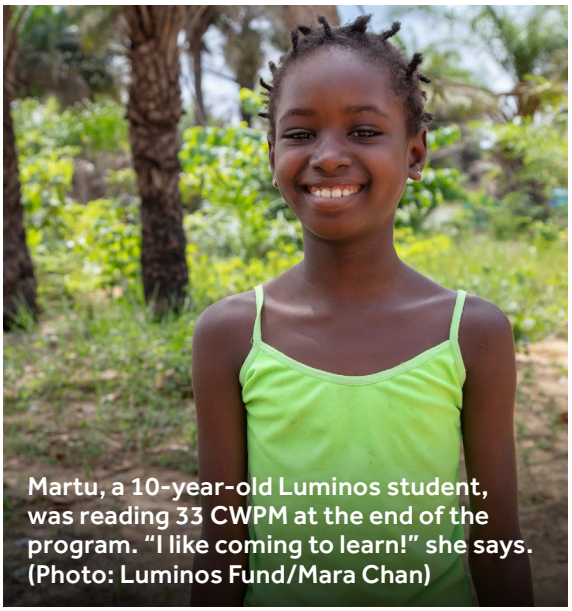
EGMA subtasks	Max score	Baseline		Endline		Difference between baseline and endline	
		Mean score	% correct	Mean score	% correct	Score	Percentage Point (PP) Improvement
Number Identification	30	6.9	23%	17.5	58%	+10.6	+35 PP
Number Discrimination	10	2.0	20%	5.3	53%	+3.3	+33 PP
Missing Number	10	0.4	4%	2.4	24%	+2.0	+20 PP
Addition	15	2.7	18%	6.9	46%	+4.2	+28 PP
Subtraction	15	1.3	9%	4.3	29%	+3.0	+20 PP
Word Problems	5	1.4	29%	2.5	51%	+1.1	+22 PP

Gender Comparison

Both girls and boys showed notable improvements in literacy. On oral reading fluency (ORF), girls' scores improved by 49 percentage points, rising from 1 CPWM on the baseline to 30 CPWM on the endline—a gain of 29 CPWM. By comparison, boys improved by 44 percentage points, increasing from 2 to 28 CPWM—a gain of 26 CPWM. In addition to ORF, girls also showed greater improvement than boys on orientation to print (38 vs 32 percentage point improvement) and reading comprehension (35 vs 32 percentage point improvement). Both boys and girls also showed substantial improvement in numeracy skills, with boys outperforming girls at both baseline and endline. Boys also improved more than girls on all numeracy subtasks except two. On the word problem subtask, boys improved by 20 percentage points compared to a 22 percentage point improvement among girls; on the addition subtask, boys and girls experienced a similar improvement (28 and 27 percentage points, respectively).

Figure 3: Comparison of Girls and Boys Progress on Reading Fluency




Martu, a 10-year-old Luminos student, was reading 33 CWPM at the end of the program. "I like coming to learn!" she says. (Photo: Luminos Fund/Mara Chan)

Results by County

Counties where Luminos had worked in previous years (Bomi, Grand Cape Mount, and Montserrado) performed better than counties that were added to the program in the 2021-22 school year (Bong and Margibi). For literacy, the largest gains were seen in Montserrado, where children's ORF increased from 3 to 35 CPWM, an increase of 32 CPWM, and in Grand Cape Mount, with an increase of 31 CPWM. This is compared to an average improvement of 28 CPWM across all counties, and increases of 21 and 25 CPWM, respectively, in the new counties of Bong and Margibi. For reading comprehension, children in Montserrado and Grand Cape Mount also experienced the largest gains, improving by 38 and 36 percentage points, respectively, compared to an average improvement of 32 percentage points across all counties. In Margibi and Bong, children improved by 30 and 22 percentage points, respectively. On listening comprehension, however, children in Bong, Margibi, and Montserrado all made gains of 40 percentage points on average, with children in Bomi gaining 37 percentage points on average, and children in Grand Cape Mount making the smallest improvement of 27 percentage points.

EGMA subtasks showed a similar pattern. Children in Grand Cape Mount and Montserrado improved by 33 and 31 percentage points, respectively, on the addition subtask, and by 22 and 25 percentage points, respectively, on the subtraction subtask. By contrast, children in Bong and Margibi improved by 22 and 23 percentage points, respectively, on the addition subtask, and by 11 and 15 percentage points, respectively, on the subtraction subtask. Interestingly, on subtraction, children in Bomi performed on par with their peers in the other two countries where Luminos previously worked, Grand Cape Mount and Montserrado (with an improvement of 22 percentage points), though on addition Bomi children performed similarly to students in the new counties of Bong and Margibi (with an improvement of 23 percentage points). However, the largest improvement on the word problem subtask was seen in the new county of Margibi, where children improved by 24 percentage points, compared to a 22 percentage point improvement in Montserrado and a 20 percentage point improvement in both Grand Cape Mount and Bomi.

The general trend of stronger improvements in counties where Luminos had worked previously can be attributed to the fact that, in such counties, there is an existing cohort of trained facilitators and supervisors, and existing relationships with parents and community members that support the program. When Luminos launches our program in a new county, these foundations must be developed from scratch. Going forward, launching in a new county should be considered a long-term investment, and additional resources may be needed to support the program in new geographic areas.

Social and Emotional Learning Results

During the 2021-22 evaluation, a SEL assessment was conducted in conjunction with the literacy and numeracy assessment, using the ISELA tool developed by Save the Children. The final sample included 149 students (68 girls and 81 boys) assessed at both baseline and endline. Results showed that self-concept scores increased among girls by 32 percentage points from baseline (0.43) to endline (0.75), and boys' scores increased by 19 percentage points (from 0.6 to 0.79). It is notable that girls improved dramatically more than boys on this subtask.

Conclusion

Results from the Luminos Fund's 2021-22 Liberia program show that the program positively impacted student reading and math outcomes across all EGRA and EGMA subtasks. **Results show that the average student improved by 28 CWPM within the 9-month program, with girls improving 3 CWPM more than boys.** These results are incredibly impressive given the short (9-month) timeframe for the Luminos program. Results for the SEL assessment show improvement on self-concept, particularly for girls, suggesting possible impact of the Luminos program on broader student development; however, further research is required. When compared with similar programs in Liberia and globally, year on year the Luminos program is showing strong learning outcomes, particularly on literacy.

Appendix

Early Grade Reading Assessment (EGRA)

Subtask	Reading skill	Description
Orientation To Print	Concepts of print	Students answer questions on how to hold a book and where the text begins.
Listening Comprehension	Oral language comprehension	Students are asked questions relating to a short text read aloud to them.
Letter Names	Alphabet knowledge	Students read letters and accurately speak their corresponding name in one minute.
Letter Sound Discrimination	Phonological awareness	Assessor reads three words aloud. Students select the word that begins with a different sound.
Nonword Reading	Decoding	Students read simple nonsense words in one minute.
Familiar Word Reading	Word recognition	Students read frequent grade level appropriate words in one minute.
Passage Reading	Oral reading fluency	Students read a short, written passage on a topic that is familiar to them in one minute.
Reading Comprehension	Reading comprehension	Students are asked to answer up to five questions relating to the text they read aloud for the oral reading fluency subtask.

Early Grade Math Assessment (EGMA)		
Subtask	**Numeracy skill**	**Description**
Number Identification	Number competence	Students are given one, two, and three-digit numbers and asked what the number is in one minute.
Number Discrimination	Comparing numbers	Students are given a series of problems where they are asked to identify which number is bigger.
Missing Number	Number patterns	Students are presented a series of numbers and asked to state the number that belongs in the empty box.
Addition	Addition fluency	Students are asked to solve a series of basic addition problems in one minute.
Subtraction	Subtraction fluency	Students are asked to solve a series of basic subtraction problems in one minute.
Word Problems	Real world problems	Students are asked to solve real world problems using basic addition and subtraction.

International Social Emotional Learning Assessment (ISELA)		
Subtask	**SEL Skill**	**Description**
Self-concept[2]	Concept and understanding of the self	Students are asked to imagine a hopeful future for himself/herself, and are asked to identify realistic supports and barriers to reaching this future self.

2 Self-concept refers to the understanding of and ability to express personal preferences, feelings, thoughts, and abilities. It also refers to a child's growing capacity for independence and confidence in a range of daily activities (Bandura, 2006).

THE LUMINOS FUND

The Luminos Fund is unlocking the light in every child. We're working to ensure all children have equal access to joyful, foundational learning, especially those shut out of education by crisis, poverty, or discrimination. To date, we've helped 172,957 children get a second chance at education in Sub-Saharan Africa and the Middle East.

In the Luminos program, we teach formerly out-of-school children learn how to read, write, and do math – *to learn how to learn* – through a joyful, activity-based curriculum. Our program allows out-of-school children to catch up to grade level, reintegrate into local schools, and prepare for lifelong learning.

71 Commercial Street, #232
Boston, MA 02109 | **USA**
www.luminosfund.org

CLS Building, Sekou Touré Avenue
Mamba Point, Monrovia | **Liberia**
+231 77-077-5455