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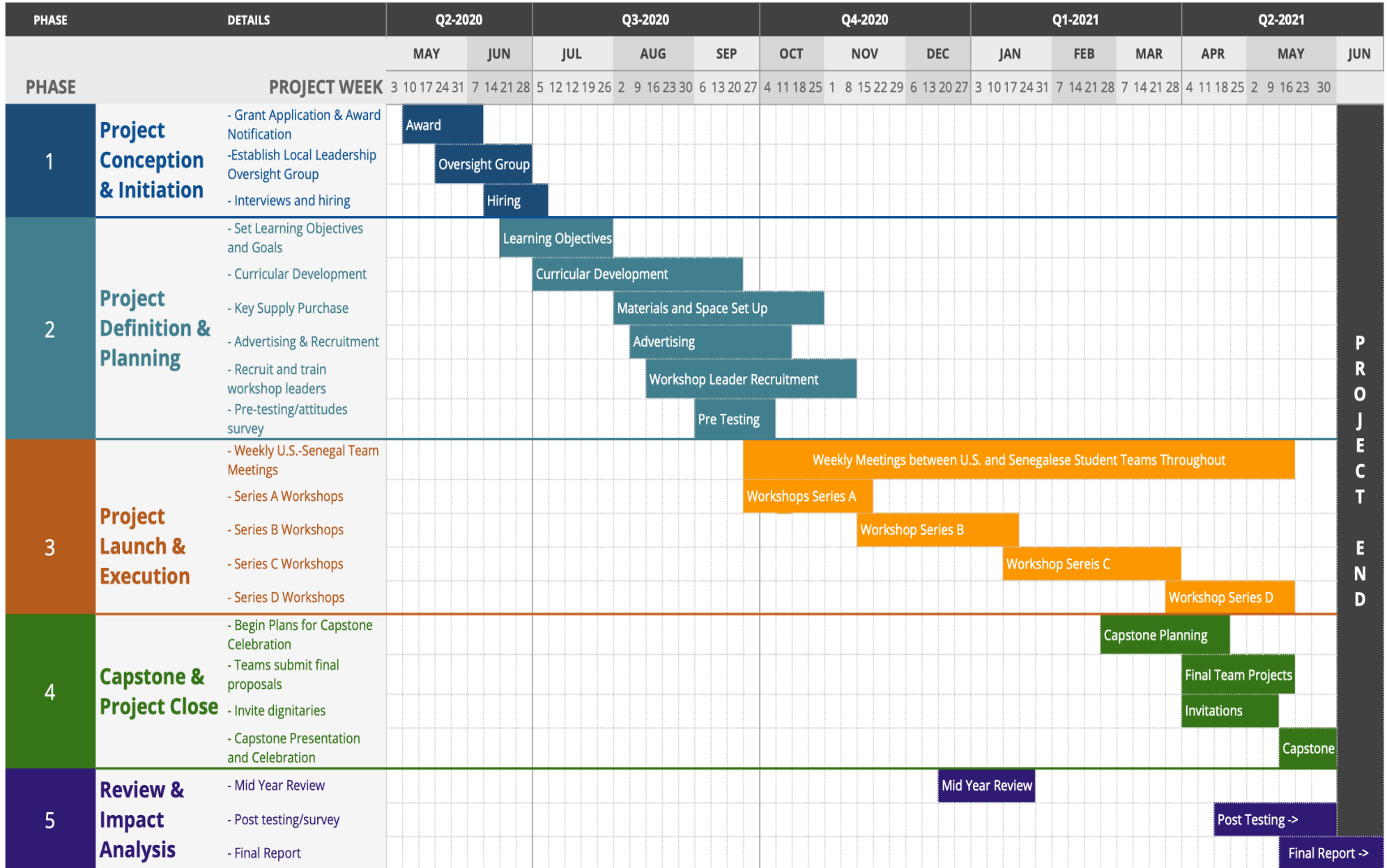
Supplemental Documents and Sample Curriculum

The current proposal is based off a program already under development at the Lambaye Learning Center, the **Lambaye Innovation Challenge** which is aimed at increasing access to science, technology, engineering, arts, and math (STEAM) to elementary and middle school students. In this document you will find a description of the 5 phases of this program's development and execution, key performance measures, and a timeline of events.

Please note, while the program we are proposing in this grant application is very similar to the one outlined below, several modifications will be made if SCILLS funding is provided, including an expanded scope, increased ability to provide specialized training programs for women, an entrepreneurial focus, and the timeline would be modified to account for the timing of the grant and these new programs.

Additionally, the timeline here outlines our plans for a 1-year program that can be replicated each academic year. Some items of course would not need to be repeated year after year, however this is only meant here to serve as a model of what could be implemented.

Thank you for your consideration and please do not hesitate to contact us with any questions.

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PHASE		DETAILS	Q2-2020		Q3-2020			Q4-2020			Q1-2021			Q2-2021		
			MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
PHASE		PROJECT WEEK	3 10 17 24 31	7 14 21 28	5 12 19 26	2 9 16 23 30	6 13 20 27	4 11 18 25	1 8 15 22 29	6 13 20 27	3 10 17 24 31	7 14 21 28	7 14 21 28	4 11 18 25	2 9 16 23 30	

1	Project Conception & Initiation	- Grant Application & Award Notification
		-Establish Local Leadership Oversight Group
		- Interviews and hiring

Award (MAY)
Oversight Group (JUN)
Hiring (JUN)

2	Project Definition & Planning	- Set Learning Objectives and Goals
		- Curricular Development
		- Key Supply Purchase
		- Advertising & Recruitment
		- Recruit and train workshop leaders
		- Pre-testing/attitudes survey

Learning Objectives (JUL)
Curricular Development (AUG–SEP)
Materials and Space Set Up (SEP–OCT)
Advertising (SEP–OCT)
Workshop Leader Recruitment (OCT–NOV)
Pre Testing (NOV)

3	Project Launch & Execution	- Weekly U.S.-Senegal Team Meetings
		- Series A Workshops
		- Series B Workshops
		- Series C Workshops
		- Series D Workshops

Weekly Meetings between U.S. and Senegalese Student Teams Throughout
Workshops Series A
Workshop Series B
Workshop Sereis C
Workshop Series D

4	Capstone & Project Close	- Begin Plans for Capstone Celebration
		- Teams submit final proposals
		- Invite dignitaries
		- Capstone Presentation and Celebration

Capstone Planning
Final Team Projects
Invitations
Capstone

5	Review & Impact Analysis	- Mid Year Review
		- Post testing/survey
		- Final Report

Mid Year Review
Post Testing ->
Final Report ->

PROJECT END

Lambaye Innovation Challenge Project Timeline (12 months)

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Lambaye Innovation Challenge Program Outline

Phase	Name	Key Points
1	Project Conception & Management Structure Creation	- Establish **Lambaye Leadership Oversight Group (LLOG)**, led by LLC director Assane Fall, and consisting of parents, teachers, and local leaders. - This group will be responsible for the on-the-ground planning and oversight of the project and will report directly to the Students for Senegal Board of Directors - Identify and hire a Director of Technology who will have a background in STEAM education and will be responsible for co-design of the curriculum, recruiting Senegalese mentors, and running workshops along with Director Fall.
2	Curricular Planning and Supplies	- Write a detailed curriculum for each workshop, recruit all expert leaders. - Purchase supplies, including tablet computers for remote work - Recruit and train additional workshop leaders - Advertise the LIC and recruit students during the summer for fall 2020 start date - Meet with all stakeholders and faculty to discuss the program
3	Lambaye Innovation Challenge Workshop Series **Please view the attached <u>Curricular Outline</u> document.**	The core of the LIC is a 16 part workshop series that follows a *Genius Hour*[1] style curriculum to foster innovative thinking and problem-solving skills as students undertake the task of first building a team, researching, identifying and articulating a problem they are passionate about in their community, proposing and implementing a solution, and finally presenting their work. Outlined here is our initial plan for the workshop series. This will be updated and modified as we refine the curriculum (in Phase 2) and draw on the expertise of educators and field experts further. Throughout this entire period students in Senegal are meeting weekly with their peer mentors in the U.S.

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[1] https://geniushour.com/; https://www.edutopia.org/article/genius-hour-elementary-school

SCILLS Supplement

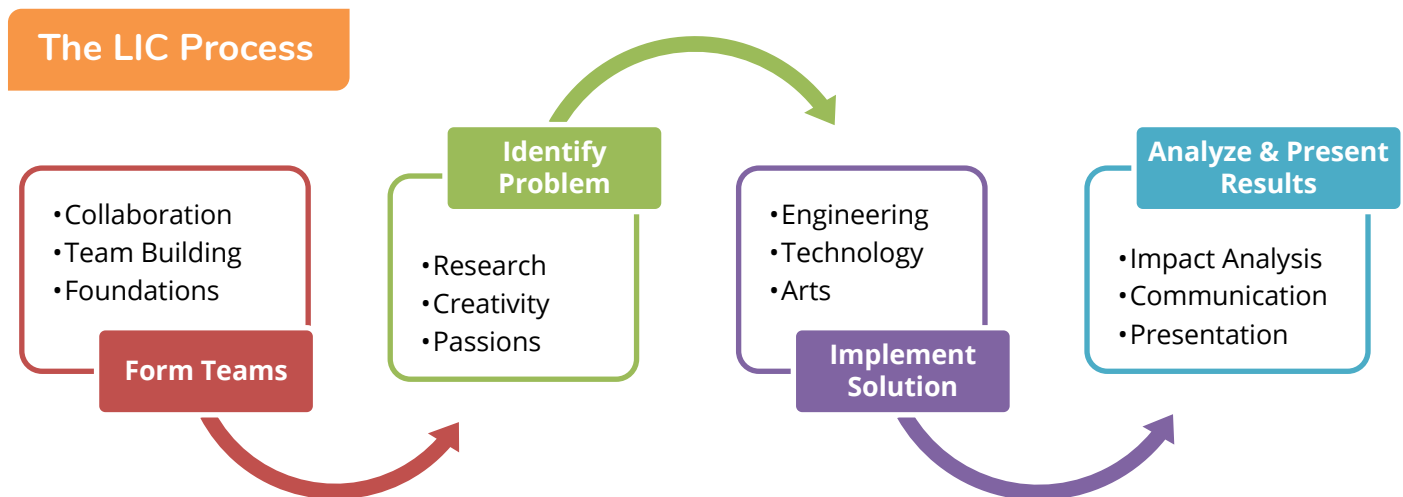|		

	Example Project
	
	Example Project Continued
		The concept of the Lambaye Innovation Challenge and a *Genius Hour* Curriculum is best illustrated with an example project to see how the workshops guide students through this process and show just one of the hundreds of possible ways students may take on this challenge:
		1. **Workshop Series A:** Suppose a team of students is brainstorming and realizes that there is only one sports field in town, but students often get into disagreements and arguments because multiple groups of them want to use the field at the same time.
		2. **Workshop Series B:** They would first attempt to research and articulate this problem and its root causes into a concise statement such as: *"There are not enough sports facilities for everyone who wants to use them to be able to at the same time."*
		   a. They might survey other members of their community, write up case studies on their own experiences, or provide other types of evidence to support their problem statement.
		3. **Workshop Series C:** Now, they would propose a solution that utilizes STEAM methods such as, *"We will use computer coding to create a scheduling tool for teams to choose times to use the field."*
		   a. With expert help, they would learn about computer coding and work towards ultimately making this software tool.
		4. **Workshop Series D:** Here, they would analyze the impact they made perhaps by reporting the use of their tool and any challenges faced or surveying teams about how happy they are with the new system.
		   a. They will also make adjustments to their implementations based on this data.
		5. **Capstone Presentation:** Finally, they would present their work and findings at the final Capstone Celebration

4	Culminating Activity/Presentation and Celebration	The final series of workshops will prepare students to present and explain their complete project and attempted solutions to the community. Particular emphasis will be placed on what students learned by going through the process of problem identification, solution creation, and outcome measurements. A large celebratory event will be held at the end of the program and would be expected to be attended by community leaders and visiting dignitaries. The original plan had been for many of the U.S. students to attend personally, however, given COVID-19, it is not possible to plan for any international travel with any certainty at this time.
5	Stakeholder Review and Program Impact Evaluation	The entire idea of the Lambaye Innovation Challenge is to inspire students to dream big and provide them the resources and tools in order to do so. **Key measures for us are changes in students' attitudes and opinions regarding entrepreneurship, civic activism, gender equality, and science, math, and technology.** The LLOG will measure these changes with surveys and provide a final report to the Board of Directors of Students for Senegal.

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The Lambaye Innovation Challenge Curricular Outline

Background

The specific curriculum outlined here, as stated in the beginning of this document, is similar to what would be implemented in the project proposed to SCILLS, however this program is focused entirely on science, technology, engineering, arts and math education for elementary and middle school aged students. The SCILLS proposal would significantly expand the scope and provide the funding needed to make this a truly sustainable program for years to come.

The Process

The guided workshop series is crafted to allow for **student driven learning with expert support**. This method means that each team of students will take a slightly different path through the curriculum and will focus on the areas must relevant to their project, but each will meet all key foundational learning objectives.

The LIC Process

Form Teams
- Collaboration
- Team Building
- Foundations

Identify Problem
- Research
- Creativity
- Passions

Implement Solution
- Engineering
- Technology
- Arts

Analyze & Present Results
- Impact Analysis
- Communication
- Presentation

The entire program is being and will continue to be developed in close collaboration with the leadership in Lambaye. The establishment of the Lambaye Leadership Oversight Group will allow for the organized creation and implementation of detailed lesson plans for each workshop series as well as the procurement of resources and supplies before the student portion of the program begins in the fall.

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Workshop Series

The core of the LIC Each series has a brief description of its key learning goals and a description here. More details and learning objectives for any section or workshop and/or a more detailed outline of the full curriculum can be provided if needed.

This program will be refined, and all details fully planned during Phase 2 of the Lambaye Innovation Challenge.

Workshop Number and Title	Key Learning Objectives & Milestones
Workshop Series A: Introduction, Team Building, and Problem Solving	
Series A Description	Students will engage in welcome activities to create a sense of community and purpose within the LIC. They will participate in teambuilding and group work centered lessons, focusing on developing skills that will allow them to work successfully with a team. Students will get to know one another, on the ground mentors, and U.S. peer mentors. Students will also be introduced to the concept of change and change agents.
1 — Welcome and Introduction	*Learning Objectives* 1. Understand the purpose and scope of LIC program 2. Begin building a community between participants and faculty 3. Discuss student interest and passions Project Milestones **Students submit areas of interest, similar interests grouped into teams for next session. Pre-test administered.**
2 — Team Building Skills & Team Formation	1. Describe fundamentals of teamwork 2. Apply newly developed team-building skills within the context of a small scale real-world problems **First team meeting; U.S. students assigned to teams**
3 — How Do Things Change?	1. Recognize their role in their own community 2. Understand individual's impact on larger systems 3. Introduce students to role model change agents within their community and world **Teams continue to work on small scale projects within workshop**
4 — What Is the Purpose of Government?	1. Describe role of government leaders 2. Analyze the role of the individual in a democratic society 3. Describe differences in governments within one country and between nations **Teams assigned to return next time with a list of 3 issues facing their community that a government could help with.**

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	Workshop Series B: Problem Identification, Research, Research Methods, and Strategization	
Series B Description	Students in the village will identify a problem that they are passionate about within their community and will learn the research skills needed to identify and solve it.	
5	**Problem Identification** *Part 1: Introduction to research methods Part 2: Application of research methods*	1. Articulate specific examples of problems and their root causes 2. Engage in preliminary field research to identify what community members see as problems 3. Analyze objective measures to find other potential problems **Teams will develop unique, focused problem statements based on their research and passions.**
6		
7	**Search For Solutions** *Part 1: Every problem has a solution Part 2: My problem has a solution*	1. Identify the relationship between problems and solution 2. Describe what makes a reliable source 3. Propose solutions to personal/local problems **Teams will submit a written plan with documents, drawings, and budgets for their proposed solutions. Teams may apply for supplemental funds as needed at this time.**
8		
	Workshop Series C: Engineering and Implementing a Solution	
Series C Description	Students will create a solution to their topic of choice. They will decide the most effective method to implement their solution in the village, with the guidance of their US mentors. Students will have the opportunity to reflect on their solution and revise, if necessary.	
9	Thinking Like a *Designer*: "Sketching" a Plan	1. Gain exposure to art-based scientific mediums (blueprints, design plans, etc) 2. Apply mediums to team problem 3. Explain the importance of thorough planning **Teams will use models to create the first draft of their solution**
10	Thinking Like an *Engineer*	1. Describe the concept of logical design 2. Propose *how* something can be created 3. List what materials are needed and why **Teams will begin construction or implementation of their proposed solution**
11	Thinking Like a (*Disciplinarian*)	1. Research a career that would be helpful in solving the team's problem 2. Understand the role of an expert in that field 3. Take on the role of field expert and modify their project accordingly **Teams will continue working on their solution and begin testing to see it's effects**

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12	How a Scientist Deals with Failure	1. Explain how failure can lead to success 2. Describe steps that can be taken after a failure **Teams continue work on solutions, addressing challenges as they arise**
	Workshop Series D: Redesign, Analysis, Re-implementation & Presentation	
Series D Description	The final series of workshops will focus on reflecting and measuring the work the students have accomplished to learn how to assess and reassess a process for success. Emphasis will also be on communicating their ideas to others to prepare them for the Capstone Presentation	
13	Testing a Hypothesis	1. Define what a hypothesis is 2. Articulate what they hypothesis their solution is testing **Teams will begin revising their solutions and preparing to reimplement**
14	Measuring Outcomes	1. Describe what makes a good measure 2. Describe basic statistical methods (mean, median, mode) 3. Practice making graphs and using spreadsheets **Teams will analyze data collected about their project for success**
15	Final Project Preparation	**Dedicated time for teams to prepare final presentation**
16	Communicating Ideas Effectively	1. Describe and hone the main idea of their project 2. List effective communication techniques 3. Rehearse final presentations **Continue preparing final presentation and practice delivering it**