

ALL DENOMINATIONS CHURCH

LET THE CHURCH
SAY AMEN TO STEM



GUIDEBOOK TO LAUNCHING AND GROWING
EXTRAORDINARY YOUTH PROGRAMS

Natalie S. King

Foreword by Rose M. Pringle

LET THE CHURCH SAY AMEN TO STEM

**GUIDEBOOK TO LAUNCHING AND GROWING
EXTRAORDINARY YOUTH PROGRAMS**

Natalie S. King

Foreword by Rose M. Pringle



**I AM STEM, LLC
Atlanta, GA**

Copyright © 2019 by Natalie S. King.

Without limiting the rights under copyright reserved above, no part of this publication may be reproduced, stored in or introduced into a retrieval system, or transmitted, in any form, or by any means (electronic, mechanical, photocopying, recording, or otherwise), without the prior written permission of both the copyright owner and the publisher of the book.

All scriptures included in this book are taken from the King James Version of The Holy Bible. Public Domain.

LET THE CHURCH SAY AMEN TO STEM

**Published by I AM STEM, LLC *in partnership with*
The Literary Revolutionary.**



www.theliteraryrevolutionary.com

ISBN #: 978-1-950279-07-4

Edited + Formatted by The Literary Revolutionary + Team

Cover Design By: Nikola Nikolic and Natasha Jackson

Manufactured in the United States of America

Follow the Author!

Twitter and Instagram: @DrNatalieKing

www.drnatalieking.com

**LET THE CHURCH SAY AMEN
TO STEM**

**GUIDEBOOK TO LAUNCHING AND GROWING
EXTRAORDINARY YOUTH PROGRAMS**

This book is dedicated to all pastors, youth leaders, educational directors, and those who are interested in enacting change within your communities! I have specifically written this book for ambassadors for Christ and ordinary people who seek to carry out God's extraordinary plan for your lives.

Tony, Antonio, and Angelo, this is for you!

*Do not go where the path may lead, go instead where there
is no path and leave a trail. – Ralph Waldo Emerson*

*As we have therefore opportunity, let us do good unto all
men, especially unto them who are of the household of
faith. – Galatians 6:10*

CONTENTS

Foreword - Dr. Rose M. Pringle	ix
Introduction	
Prologue - Who Am I?	1
Getting on the Same Page	15
The Biblical Practices	
1 - Creativity Is God's Specialty...And Yours Too!	17
2 - Love Thy Neighbor as Thyself	37
3 - We Are Laborers Together with God	53
4 - Let Your Light So Shine Before Men	73
5 - Learn How to Be A Good Steward	93
6 - Your Gifts Will Make Room for You	107
7 - Let Everything Be Done Decently and in Order	121
8 - Despise Not Small Beginnings	145
Conclusion	
Epilogue - Who Are You?	159
Ending on the Same Page	169
Appendix	174
References	183
Acknowledgements	184
About the Author	188

FOREWORD

In a tiny country district in Jamaica, my local pastor introduced me to the world of education. She was devoted to teaching youth the basics of arithmetic and reading in exciting ways. By the time I started primary school, I functioned at a third-grade level in reading and mathematics. Within the first week, I was promoted out of the first grade. My church literally provided me with the academic foundation that has shaped the trajectory of my life. Upon reflection, I realize that the seeds of success were planted and nurtured within a church culture that valued Christian living, educational achievement, and offered community support. While scriptural teaching prepared us for heaven, the educational achievement was encouraged as the route for social and economic mobility. The church was responsive, and through its socio-religious and educational programs, provided a bedrock of faith in training children in the way God intended for them to grow to become functional members of society.

The saying, “it takes a village” has not lost its meaning in the life of today’s communities. Rather, it has become even more critical as society changes and is being driven by advances in science, technology, engineering, and mathematics (STEM). When we examine our communities, it is evident that many of our children are entering adulthood unprepared to be functional citizens. Schools and other educational institutions are failing to meet the diverse

needs of our children; neither are they adequately preparing them in areas of study that include STEM. Furthermore, local, state, and national statistics clearly reveal deleterious educational disparities in general, with specific emphasis on the persistent underrepresentation of certain populations in STEM. Too often members of our church communities become trapped perpetuating the cycles of intergenerational poverty. Certainly, the church as one group of stakeholders, still has a foundational role to play in promoting educational excellence and social and economic development within communities. However, new approaches are now required. Daniel envisioned a time of great increase in knowledge, and I believe that we are currently living in that time. So, how should the church respond to the knowledge increase particularly related to STEM? What leverage does the church have in supporting STEM education within community-based ventures? Can church leaders develop effective educational programming within their communities?

For generations, churches have been given the authority and power to shape lives and thus the future of members of the community. Therefore, we must seek to create and maintain a 21st Century Christian culture that caters to the holistic development of our congregations and the communities that we serve. This includes preparing children to develop in ways that will allow them to take their rightful place, while positively contributing to the welfare of society. The conversation in John 21:17 and the charge given to Peter after declaring his love for Jesus was to “Feed my sheep.” This charge is still very pertinent today and I believe should be one of the stated missions of the church. As the good shepherd, Peter, was to provide the

necessities for his sheep that would allow them to exist in the pastures. As church leaders, consider following the fearless example of my country town pastor by responding to the spiritual and secular (educational, socioemotional, and intellectual) needs of people in your care.

At a time when society is driven by advances in the STEM disciplines, with certain populations being excluded or marginalized, Dr. King's practical, hands-on guide provides you with resources and recommendations to extend and transform your place of worship to include a dynamic community for STEM learning. She infuses biblical principles with her own personal experiences so that it's genuine and meaningful. She candidly acknowledges the challenges and difficulties of engaging in this type of work, yet is hopeful about the results of rich partnerships that bridge the divide across institutions. This is timely! There is no doubt that the church's involvement in STEM learning has the potential to change the trajectory of demographics who have traditionally been excluded – such as children of color, children with disabilities, females, and those from low socioeconomic backgrounds. *LET THE CHURCH SAY AMEN TO STEM* contains cutting edge strategies for achieving the God-given charge to “feed my sheep.”

Utilizing the wisdom and resources Dr. King provides, you too can create positive educational opportunities for STEM learning within and beyond the four walls of your edifice. This book allows you to examine your own specific contexts through reflections in order to design STEM programs in accordance with your community's needs. The church is certainly poised to bring sustainability and social

justice to our nation through the development of educational programs consistent with the vision of the church as a light in dark places.

Rose M. Pringle, PhD

Associate Professor, Science Education

University of Florida

PROLOGUE WHO AM I?

*Who Am I?
A child, a student, a lady
I am 10 years old and try hard to accomplish my goals
I grew up in Queens
Eating hot dogs, hamburgers, and beans
I admired the weather each year
Spring, summer, fall, and snow everywhere
I have had heartache
Especially when my parents told us we would relocate
I did not want to leave my friends
These things I failed to comprehend
With broken hearts and tear-stung faces
We all headed to these new places
Palm Bay, University Park,
New friends, new faces, stone hearts
I am trying to cope as the years go by,
Soon I will be attending junior high
Things will get better, I know God cares
I will achieve my goals,
Someday, somehow, somewhere*

As a 10-year old child, I wrote this original poem grappling with the question, “Who am I?” From that moment on, I have sought answers to this very question,

redefining who I am - my purpose, passions, and dreams with each passing day. This poem was written while I was in a state of discontentment and despair as my family decided to relocate from Queens Village, New York to Palm Bay, Florida. I have fond memories of growing up in New York, although it was laced with tribulation and struggle. We rented the top floor of someone else's home - two adults and five small children occupying a one-bedroom one-bath pseudo apartment. Many people see the close relationship between my siblings and I and are often envious. Unbeknownst to them, the first years of our lives were spent sleeping head-toe on the same bed.

We experienced tremendous hardships, but at the center of our lives was our faith in God and our love for each other. Some of my happiest moments were spent in the house of the Lord. I vividly remember peering through the blinds on Sunday mornings, eagerly waiting to hear those two honks indicating that the church van was outside. I would seemingly fly down the stairs to accompany our landlord, Mrs. Graham, to church while Mommy got the younger children dressed. Whenever the weather was beautiful, I often walked to church with Mrs. Graham. If I were not in school, you would often find me in the house of the Lord or at a church-related function. I can recall my four siblings and I squeezing into my mother's Hyundai traveling across the New York boroughs for church rallies, conventions, and revivals. We went on outings with the youth group to places such as the Bronx Zoo, Dorney Park, Hershey Park, or Coney Island. My mother played cassette tapes of her favorite southern gospel songs from The Gaithers or Jimmy Swaggart, interspersed with Jamaican gospel by The Grace Thrillers. We belted out every word;

they seemed to be ingrained into our very souls. Mommy's favorite song was

Something beautiful, something good.

All my confusion He understood.

All I had to offer Him was brokenness and strife,

But He made something beautiful of my life.

I would not truly understand the profound meaning of these words until I got older and experienced a few life lessons of my own. Whether it was playing “Sword in Hand”, competing to see who could find the bible verses first, learning how to do a simple two-beat on the drums, or falling asleep under a pew during a sermon that I was too young to comprehend; church was my second home. The practice of attending church and assembling myself with believers was instilled in me as a young child.

After we moved to Florida, I became even more involved during my tween and teen years by participating in bible quizzing, serving as the praise dance leader, and singing soprano on the praise and worship team. My mother oversaw vacation bible school, which we attended during the summer months. She also taught Sunday School and facilitated the Young Ladies Ministry. I grew up in the church and have served the Lord my entire life. Despite the mistakes I made along the way, I always found a way to recenter and get back on track, living life to the fullest with the heartiest of laughs that I inherited from my maternal grandmother.

In school, I became passionate about science and mathematics because these subjects bridged my natural

inclination of being curious with my analytical way of thinking and making sense of the world. Two notable elementary school teachers tapped into my interests and giftedness in these subjects through their pedagogical approaches: Mrs. Paleta and Mr. Bihanna. My fifth-grade teacher, Mrs. Sherry Paleta, was full of energy and created ways to meaningfully engage her students in science. One particular activity that resonates with me is the owl pellet dissection to learn about the eating habits of birds. It was Mrs. Paleta's expectation that we asked questions, made predictions, and engaged in conversation and critical thought. She came to class with a sense of urgency each and every day, which produced an enthusiastic love for learning. Mrs. Paleta provided opportunities for us to explore the natural world around us. In the 6th grade, I had an excellent mathematics teacher, Mr. Bihanna. He typically lectured for about fifteen minutes where he called students to the whiteboard to work out problems and sat at his desk for the remaining class period as we practiced problems independently. If students needed scaffolding, he provided one-on-one assistance. If too many students asked the same question, he used it as a teachable moment for the class and returned to the whiteboard. Mr. Bihanna taught me not to fear math word problems, to trust the process, and struggle through them at my own pace to gain deep conceptual understandings.

What I loved most about Mr. Bihanna was that he always facilitated competitions on Fridays like "All Around the World". I looked forward to opportunities to compete against my peers to measure the extent to which I mastered that week's content. Not only was I expected to be accurate in figuring out simple algebraic problems mentally, but I

had to solve them with agility. I did not win every week, but I made it around the world enough times to internalize my brilliance in mathematics. Before starting middle school, I had realized my true passion for mathematics and science, although I still did not project myself into the image of a scientist or mathematician. In the seventh grade, I joined the international math team at Southwest Middle School sponsored by Mr. Lewis. I was the only Black student on the team with predominantly White and Asian males and I began to compete in local and statewide competitions surrounded by others who resembled my teammates. I did not consider myself to be the smartest team member, but I could solve basic arithmetic and convoluted word problems in my head within seconds, utilizing those same skills that I developed in Mr. Bihanna's class.

At church, my sisters and I participated in Bible quizzing where we memorized hundreds of verses each year and traveled across the state and nation competing. My ability to answer questions quickly and efficiently contributed to our success during the bible quizzing competitions. My church involvement resulted in academic success in school, while my school experiences promoted my effectiveness in church-related activities. There were many gray areas for me that could not be reduced to purely black or white. My identity and who I was at school was influenced by my Christian values, biblical teachings, and scriptures hidden in my heart; while my ability to learn and quote scriptures and answer higher order questions were mainly a result of my formal school experiences. As I grew older, I was perplexed and agitated because my love for the Lord and passion for mathematics and science never had an

opportunity to unite in meaningful ways. I felt the need to neglect pieces of who I was to avoid disrupting the social norms of each setting.

Many of my peers in church struggled with science and mathematics. In fact, I learned that countless adults feared these subjects as well. I remember when a member of the prayer group, Minister Shirley Francis, asked Mommy who was a teacher at the time, to tutor her in mathematics. Minister Shirley was a middle-aged woman who was studying to pass a college algebra course that was a prerequisite for the nursing program. Acknowledging my talents, Mommy passed on the baton to me and recommended that I serve as her tutor. Not only did this provide me with an opportunity to put my mathematical skills to the test, but also it allowed me to earn a little pocket change during the process. I became nervous because the stakes seemed so high. Each week, I visited Minister Shirley's home, sat around her kitchen table talking her through how to solve problems while modeling the process and giving her opportunities to solve problems independently. Minister Shirley ended up passing the course and got accepted into the nursing program, which were great victories for her, but also a confidence booster for me. My ability to teach the content in such a way that someone else could master it, without formal training or educational degrees, revealed to me that I possessed a gift from God. I was unsure of how that gift would materialize and make room for me, but I gleaned in seeing a church sister succeed and reach new milestones in her career because I had the courage to say "yes".

It should come as no surprise that when I turned 16, my first job was cashiering at a local Winn-Dixie grocery store. I applied for the job and the store manager at the time, Mr. Casey, told me that he did not have any openings. I wrote a letter thanking him for giving me an opportunity to interview and hand delivered it to the store. Mr. Casey called me back into the store and explained that in his career as a manager, no one had ever written a “thank you” note after being denied employment. He noticed that something was different about me and offered the cashier position even though there were no available openings. I strove to be the most polite cashier, greeting all customers with a smile and friendly conversation. I was elated whenever my till was perfectly balanced matching the manager’s figures to the penny!

In high school, I traveled thirty-five miles for the International Baccalaureate Program at Cocoa Beach High School. My older sister, Nicole, and I were determined to pursue medicine and open a practice together where I would serve children and she would be the primary care physician to their families. After all, becoming a pediatrician was the correct career path for someone who loved children and was proficient in science and mathematics, right? Even after I graduated with my bachelor’s degree and taught high school science for three years, I was determined to pursue medicine and viewed my time in education as a form of service to the community prior to embarking on my lifelong career in medicine. Nicole and I are only one year apart, so I spent the first two decades of my life following her footsteps until God diverged me on my own path. After Nicole completed her undergraduate degree, she spent two years teaching high

school science in Atlanta, GA prior to starting medical school. I was committed to teaching for a few years as well, but wanted to serve in the same city where I received my degree - Gainesville, FL.

I can share countless stories of my time in teaching. The lessons learned from those experiences are probably deserving of their own book. In retrospect, my approaches were liberal and unorthodox where I often chose to ask for forgiveness rather than permission to provide students with excellent learning opportunities even with the reality of having limited resources. They learned science in ways that were authentic and applicable to their lives. Imagine five or six electric skillets running with French toast, pancakes, eggs, bacon, and sausage! I used food to teach many of the core concepts in biology and chemistry. We learned the structure and functions of the four basic biological macromolecules, physical and chemical changes, human body systems (focusing on digestive and excretory), caloric intake, and so much more - all while making breakfast in the classroom. The students quickly realized the importance of bringing in an extension cord to plug the skillet with bacon outside so that when the smoke rose, it would not set off the fire alarm. I did not believe in teaching to the test, but rather focused my attention on students' mastery of the content to position them favorably to pass any test.

One memorable experience was when I entertained students' request to have their biology final exam at Disney's Animal Kingdom. I put the onus on the class to figure out how to navigate the bureaucratic channels to take the idea from conception to implementation. They spoke with the secretary to schedule a meeting with the principal

and prepared a presentation and packet of information that contained the proposed activities. When the principal arrived in the classroom, he was greeted and escorted to his seat, which contained the proposal and light refreshments. The whole class took turns sharing how this field trip aligned with the standards. They outlined the culminating project that would result from this experience and provided a clear argument for why it would be beneficial. They were not only successful in getting permission but secured enough funds for the whole class to attend. While their peers were taking a traditional pencil/paper final, we were at “the happiest place on earth”. My willingness to be receptive to the students’ methods of resisting conventional schooling was what made me an effective educator. I believed in providing the highest quality learning experiences where students could make connections between the activities, learning goals, and their everyday lives.

Teaching presented its own challenges. Although I was young and Black, many students felt like they could not readily relate and that I was “born with a silver spoon in my mouth”, as one of them so boldly declared. I remember teaching high school biology and chemistry, but always reserved time in the spring semester to show them how to write resumès, apply to colleges, and complete the free application for federal student aid (FAFSA). I ministered to children who endured great trauma, carried adult responsibilities, and were well on their way to becoming another statistic. Some were pushed through school without anyone saying, “I love you” or showing them through their actions. Many internalized that they were not good in science and had lofty goals of simply completing high

school; college was an afterthought. Some students were already addicted to drugs and involved in gang-related activities, while others did not have a stable place to call home and rotated through shelters and distant relatives' apartments.

Although I could not relate to many of their stories, I saw how brilliant my young scholars were, and was determined to help them become a better version of themselves. I often reminisce about my humble beginnings and the many nights I cried myself to sleep praying that God would change my family's situation. Through my transparency and compassion, I reached many children before they could self-destruct. I chose not to ignore their silent cries for help or their desires to defeat intergenerational poverty. Many times, I closed my classroom door and encouraged students to look beyond their current conditions and use education and their faith in God as tools to rise above their circumstances. I held on to my faith and often invited students to church noting the importance of spiritual health in becoming holistically sound.

In retrospect, I have discerned that my life's experiences really do blur the lines between institutions. Yet, social conventions and societal norms have forced me to experience a disconnect between my love for the Lord and my passion for science. I wrestled to understand the true purpose of my life here in the earth realm, because science did not include the existence of God, and the sermons seemed to oppose or sometimes ignore the very presence of science. If I love science, does that mean that I am not a Christian or that I do not love God? My humble attempts to

connect my two passions seemed to consistently fail as I embodied two oppositional forces like repelling magnets. As an adult, I continue to ask the same question, “Who am I?” to find my true identity as I toggle between institutions where corporate prayer is banned and ones where science is not openly welcomed.

Is there something wrong with me? Am I trying to connect two entities that were designed to be separate or are there some underlying truths and biblical principles that have allowed me to coexist in both spaces - staying true to my God without ignoring the reality of science? In this book, I share 8 biblical principles that have informed my journey. Each chapter includes several seeds of wisdom that provide deeper revelations into each principle. Allow these seeds to take root so that they can germinate and bring forth fruit to produce tangible results for children and families in your communities. At the end of each chapter are contemplative questions to help you delve deeper into the essence of each seed, and its applicability to your unique context. Engage with those questions individually and use them as discussion points for your church and community groups.

As a science educator, I am guided by the Framework for K-12 Science Education and the Next Generation Science Standards (NRC, 2012; NGSS Lead States, 2013) where students examine scientific phenomena as they deepen their understandings of crosscutting concepts, disciplinary core ideas, and science and engineering practices. There are eight science and engineering practices that represent behaviors of scientists and engineers as they investigate their natural world and design models, systems,

and solutions. This book shares eight biblical “practices” presented in God’s word that has informed my development of programming for youth. I hope that they will provide a strong foundation to launch and grow your own extraordinary community-based programs that will build the Kingdom of God.

I conclude by sharing my own personal testimony in the Epilogue - not about how I developed a STEM program, but how I was developed through the process of bringing the program to fruition. As a result of my obedience and willingness to be a vessel, countless children and their families have been impacted. God has shown me how to leverage community resources to start programming from the ground up. My hope is that you will apply these same principles to continue the great work within your churches and communities, so that young people can openly love science and God without feeling the need to choose.

Furthermore, our youth will have opportunities to engage with science in faith-based institutions thus broadening our understandings of the purpose of the Church and we can truly impact communities. I am in deep pursuit to fulfill my kingdom assignment in my career as an academic and science educator through community-based scholarship. This book is designed to spark conversation so that the people of God can broaden and transform their thinking. No more separation! No more operating in silos! No more excuses!



GETTING ON THE SAME PAGE

In the prelude, I shared select personal life experiences that inspired me to write this book. I want to also offer a few clarifications before we proceed to share what this book is NOT designed to do. This is not your typical guidebook providing a step-by-step linear process regarding the logistics behind starting youth programs. Procedures and policies vary between states, cities, and institutions. Therefore, I choose not to delve into the intricacies of those details. This book is birthed out of love so that we can get back to the basics. If you are already implementing programs, I hope that you can rethink how your programs and interventions are serving the community. If you do not currently offer outreach programs but desire to do so, this book provides insights into a few lessons that I have learned along the way. I highlight the nuts and bolts of some of the more elusive considerations that are often overlooked as you build and facilitate programs for youth and their families.

The title, *LET THE CHURCH SAY AMEN TO STEM*, is not meant to glorify science, technology, engineering or mathematics (STEM), but rather embrace these disciplines

as tools to develop holistic youth programs. I refer to “the Church” as the body of Christ and not an edifice and understand that many churches may decide to collectively implement STEM programs for youth. These biblical principles are human-centered and acknowledge the humanity in the charitable work that we do as believers. When I say “AMEN”, it insinuates an expression of assent or agreement. Typically, it is used to signal the culmination of a prayer. In some churches, saints may be moved to interject an “AMEN” while the pastor is preaching a sermon that speaks directly to their spirit or situation. Romans 14:11b states, every knee shall bow to me, and every tongue shall confess to God. I live by that scripture and am not worshipping the STEM disciplines by any means.

After deep reflection and prayer, God revealed the biblical principles that have undergirded my development and successful implementation of community-based STEM programs. I hope that these principles will provide a more useful, constructive, and accessible way for Christians to conceptualize possible roles to promote STEM education for youth. I do not intend to leave out or elevate one particular religion over another, but I am guided by my own personal experiences as a Christian and speak from that perspective. Even with the best of intentions, there will always be critics - which I welcome in hopes that we will break the silence and engage in conversations that go beyond Christian colloquialism. Let’s not fear the ridicule or backlash of engaging in these types of discussions. We need more individuals who are led by the spirit of God in the STEM professions to spearhead innovations and lead with a sense of urgency and purpose. As the Church, we

should encourage children to exercise their creativity and reconsider the types of programs and opportunities that we offer. Let us put aside denominational differences and come together to promote the greater good of communities in which we live and serve. Now that we are on the same page, let's embark on this journey together.