The California State University
WORKING FOR CALIFORNIA

California State University
SUMMER ALGEBRA INSTITUTES

Presentation at the
2012 Dream Deferred Annual Conference
April 26, 2012

The California State University
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CSU African American Initiative

CSU SAI – A Culturally-Based Math Curriculum Development Project

- Jacqueline Mimms, Ph.D., CSUB, Principal Investigator
- Rehema Gray, Ph.D., CSUN, Project Coordinator
- Kyndall “Astenu” Brown, Ph.D., UCLA Math Professor
- Winston Doby, Ph.D., UCLA Consultant (*In Memoriam*)

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CSU African American Initiative (CSU-AAI)

Purpose and Goal

The CSU-AAI is a partnership with approximately 100 California churches serving predominantly African American congregations. It began in 2005 with the goal to increase college preparation and to improve college access and graduation rates for African American students.

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It Takes a Village…

- Church pastors emphasize the importance of students becoming academically prepared for college.
- Church pastors emphasize the importance of going to college.
- Church pastors provide a venue for CSU professionals to speak to students and parents about what they need to do to become admissible to a CSU.

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Making a Difference….
Shaping the Future of African American Students

- Closing the Achievement Gap
- Preparing students to meet the increasing demand for workers with postsecondary education
- Exposing students to and preparing them for STEM and health care careers

CSU African American Initiative

Summer Algebra Institutes

Students gain their confidence in resolving math and algebra problems.

Offered at churches in:

Bakersfield
Carson
Fairfield
Fresno
Irvine
Inglewood
Norwalk
Los Angeles
Sacramento
San Bernardino
San Francisco

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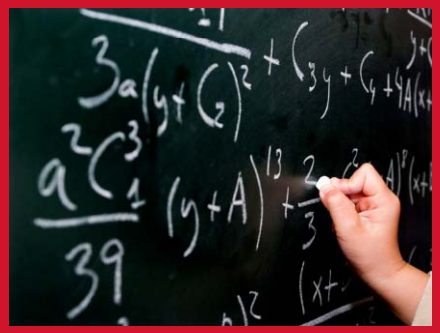
CSU Summer Algebra Institutes –
Shaping Students' Lives Through Math Education

Stanford and University of Chicago scholars recently reported that…



- ***"Math success is the best predictor of college success."***

Published by the National Bureau of Economic Research (NBER)

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Shaping Students' Lives Through Math Education…

Project Purpose and Goal

- To mobilize community partnerships and explore the efficacy of a culturally-based math curriculum to foster high academic achievement and college readiness among African American students.
- To prepare students for pre-algebra and Algebra I course work using instructional approaches and curricula modules that are aligned to California State Standards, STAR-California Standards Test, and the California High School Exit Exam.
- Personalize math so that African American students can visualize their cultural heritage connected to math and science

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Shaping Students' Lives Through Math Education ….

- Summer Algebra Institutes
  - Teacher Based
  - Technology Based
  - Alignment with STEM Industry Councils
  - Pre- and Post-Test Assessment and Year-Round Student Engagement
  - Church Site Ownership of Institutes

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Shaping Students' Lives Through Math Education…

- Targets African-American middle school (6th-8th grade) students and low performing 9th grade high school students.
- Students are selected through an application process (including letter of recommendation from counselor, teacher or school administrator).
- 87% of our students are African American; almost 50% are male

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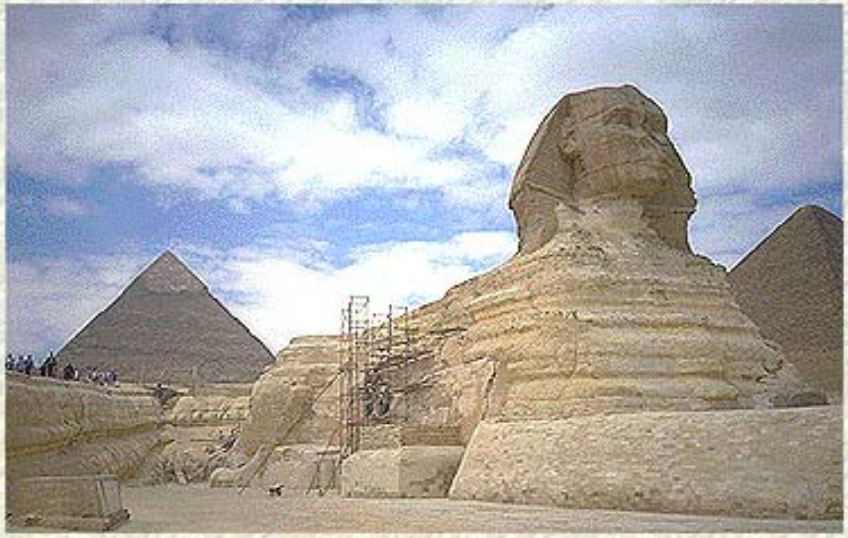
Shaping Students' Lives Through Math Education….

- Six week program – 5 hours/day.
- Instruction and tutorial services Monday – Thursday; Academic enrichment activities on Fridays (e.g., motivational speakers, completing academic planners, developing computer skills, field trips, etc.).
- Site supervisors and math teachers all have college degrees and/or math teaching credentials .
- All professional staff have prior experience working with African American students.
- All must attend professional development sessions.

II. INTERVENTION STRATEGIES

A. Afrocentric Perspective

History of Mathematics in Africa



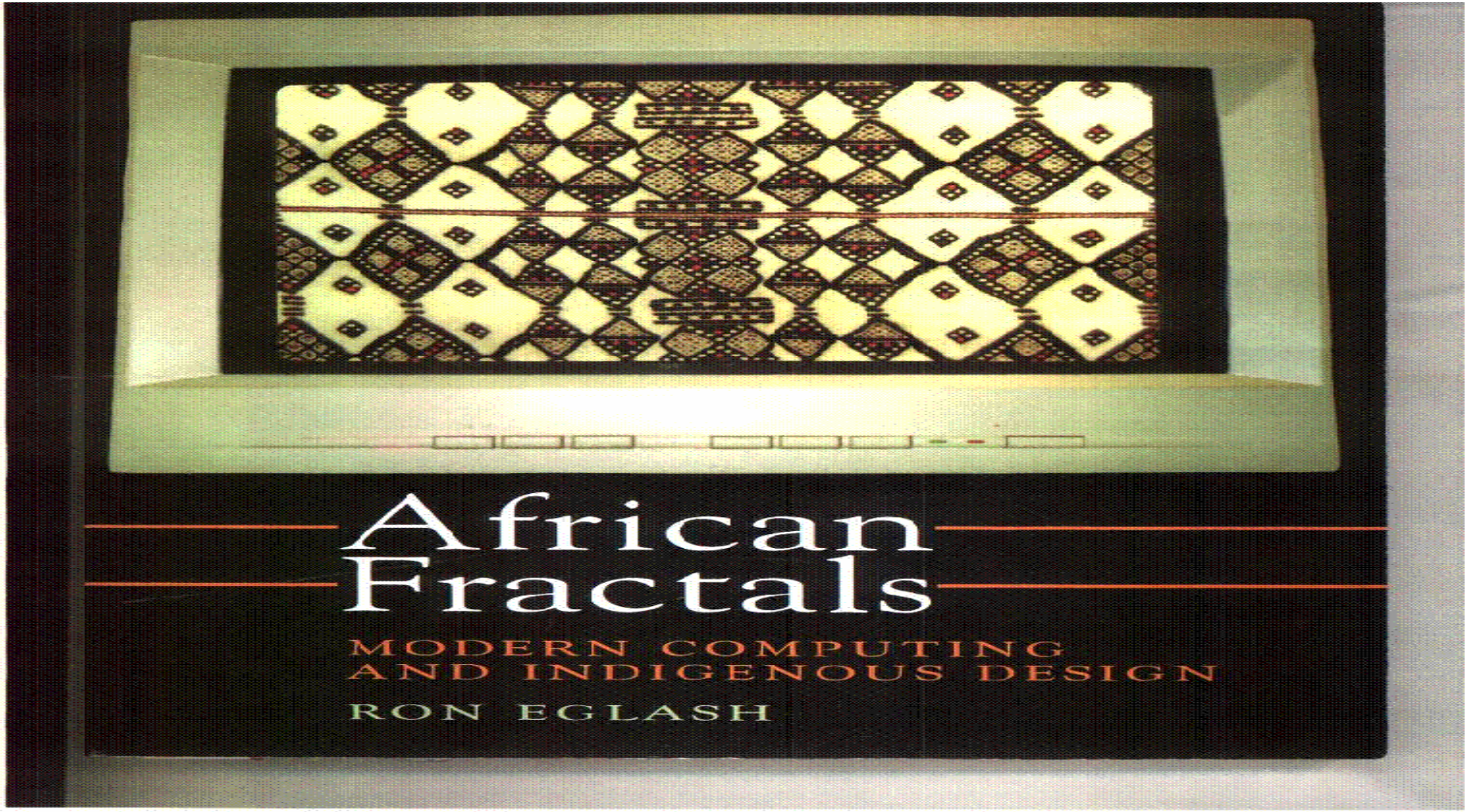
The Sphinx

Introduction

For tens of thousands of years, Africa was in the center of mathematics history. From the civilizations of southern, central and northern Africa came contributions which would enrich both ancient and modern understanding of nature through math and science (see Map of Africa). From the measurement used in the African forest kingdoms, and the mathematics used in building the great stone complexes of Zimbabwe, to the efficient irrigation technologies, central administration, and the great accuracy of the dimensions of the pyramids, the achievements of Africans still give rise to wonder.

B. Ethnomathematics

An emerging field which bridges the relationship between history and the cultural context of the development of mathematics and mathematical patterns.



C. Critical-Mathematical Literacy

"Reading the World with Math" (Marilyn Frankenstein)

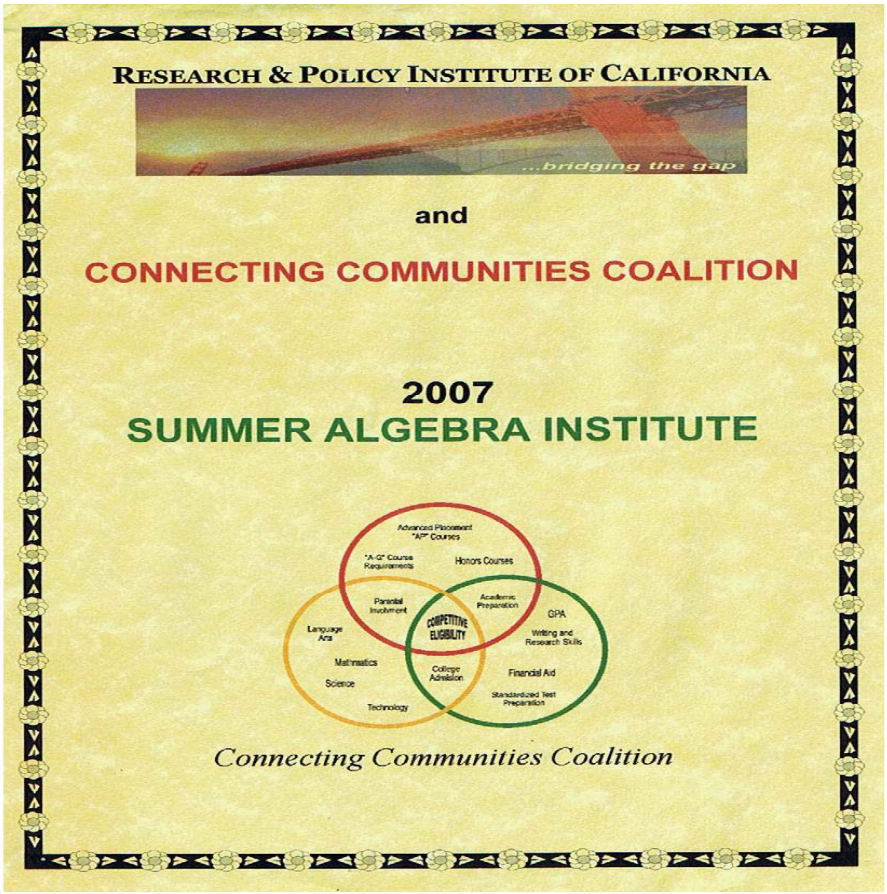
- ***Goal #1: Understanding the mathematics***- This instructional strategy also aims to create awareness of the interaction between culture and mathematics.
- ***Goal #2: Understanding the mathematics of political knowledge***- students learn how mathematical skills and concepts can be used to understand the institutional structures of our society.
- ***Goal #3: Understanding the politics of mathematical knowledge***- students come to understand that political perceptions are shaped by math proportions.
- ***Goal #4: Understanding the politics of knowledge***- this involves "reconsidering the contributions of all the world's peoples to the development of mathematical knowledge.

III. CURRICULUM DEVELOPMENT TARGETS

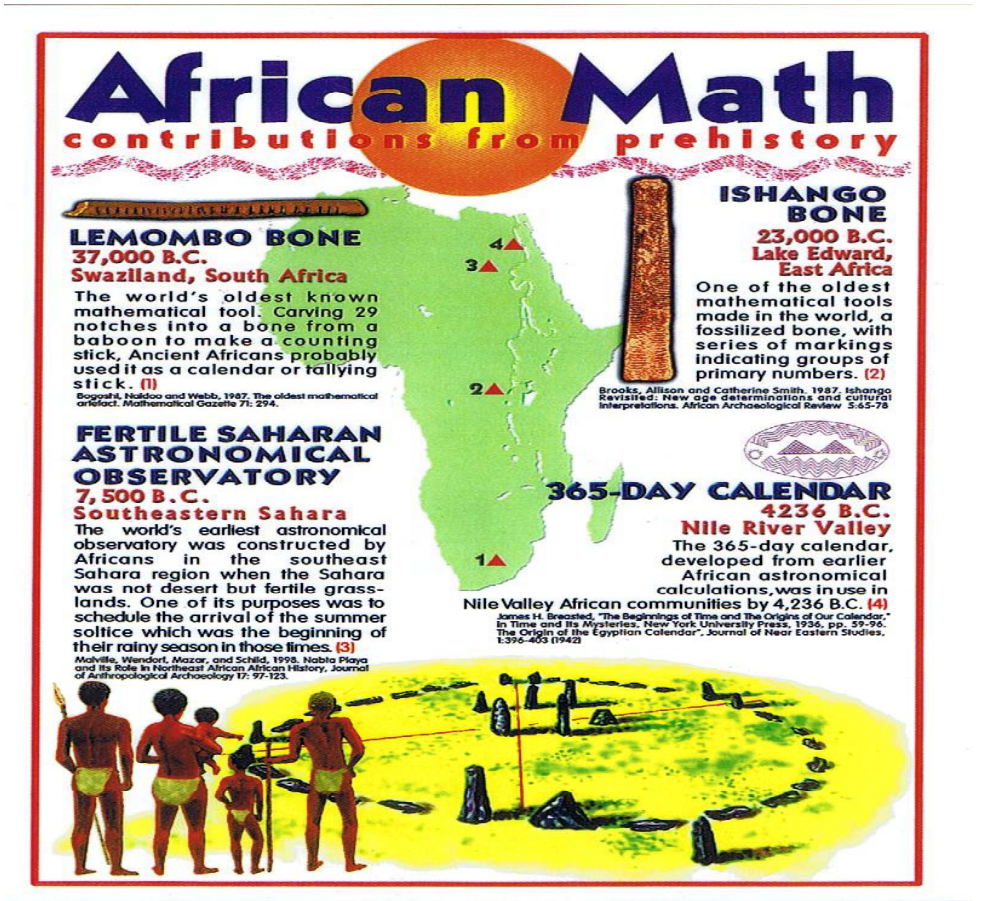
* Using the California Content Standards as a curricular framework, the curriculum personalizes math, so that African-American students can visualize their cultural heritage connected to math and science.

* Culturally Relevant Professional Development

* SAI Culturally-Based Math Curriculum Implementation



From *CCC Culturally-Based Math Curriculum*



By Osei Owusu

Math Cultural Curriculum Framework: CA Standards & Professional Development Modules

A. *Week One Mathematical Strand: Number Sense & Operations*

AFFECTIVE COMPONENT

African Mathematics Curricular Themes

Journey into African Heritage

ORDINARY BOY WHO BECAME A GENIUS

Imhotep, Doctor, Architect, High Priest, Scribe and Vizier to King Djoser

by Jimmy Dunn

Of the non royal population of Egypt, probably one man is known better then all others. So successful was Imhotep (Imhetep, Greek Imouthes) that he is one of the world's most famous ancients, and his name, if not his true identity, has been made even more famous by various mummy movies. Today, the world is probably much more familiar with his name then that of his principal king, Djoser. Imhotep, who's name means "the one that comes in peace". existed as a mythological figure in the minds of most scholars until the end of the nineteenth century when he was established as a real historical person.

He was the world's first named architect who built Egypt's first pyramid, is often recognized as the world's first doctor, a priest,. scribe, sage, poet, astrologer, and a vizier and chief minister, though this role is unclear, to Djoser (reigned 2630–2611 BC), the second king of Egypt's third dynasty. He may have lived under as many as four kings. An inscription on one of that kings statues gives us Imhotep's titles as the "chancellor of the king of lower Egypt", the "first one under the king", the "administrator of the great mansion", the "hereditary Noble", the "high priest of Heliopolis", the "chief sculptor", and finally the "chief carpenter".

COGNITIVE COMPONENT

African Mathematics Instructional Strategies

African Mathematics

AFRICAN WAY OF DOING MATHEMATICS

Mathematicians of the African Diaspora

THE ANCIENTS

to enlarge, click picture

Most histories of mathematics devote only a few pages to Ancient Egypt and to northern Africa during the 'Middle Ages'. Generally they ignore the history of mathematics in Africa south of the Sahara and give the impression that this history either did not exist or, at least, is not knowable, traceable, or, stronger still, that there was no mathematics at all south of the Sahara. In history, to Europeans, even the Africanity of Egyptian mathematics is often denied or suffers eurocentric views of conceptions of both 'history' and of 'mathematics' form the basis of such views. Contrary to the popular view, one can neither racially or geographically separate Egyptian civilization from its black African roots.

Myths and Lies	Truths	Lebombo bone in Swaziland, the oldest mathematical object		Ishango bone Zaire-Uganda 8000 years ago
Zimbabwe	Egypt before the Greeks who borrowed the numbers	pre-Colonial Nigeria	Angola-Zambia	Tanzania
AMUCHMA - African Mathematical Union Comission on the History of Mathematics in Africa, an important resource for the topics below				
North Africa (since the 9th century)	Below the Sahara (an overview)	The Canary Islands	Number systems and Calendars of the Berber	references

don't forget MODERN AFRICAN MATH and AFRICAN AMERICAN MATH

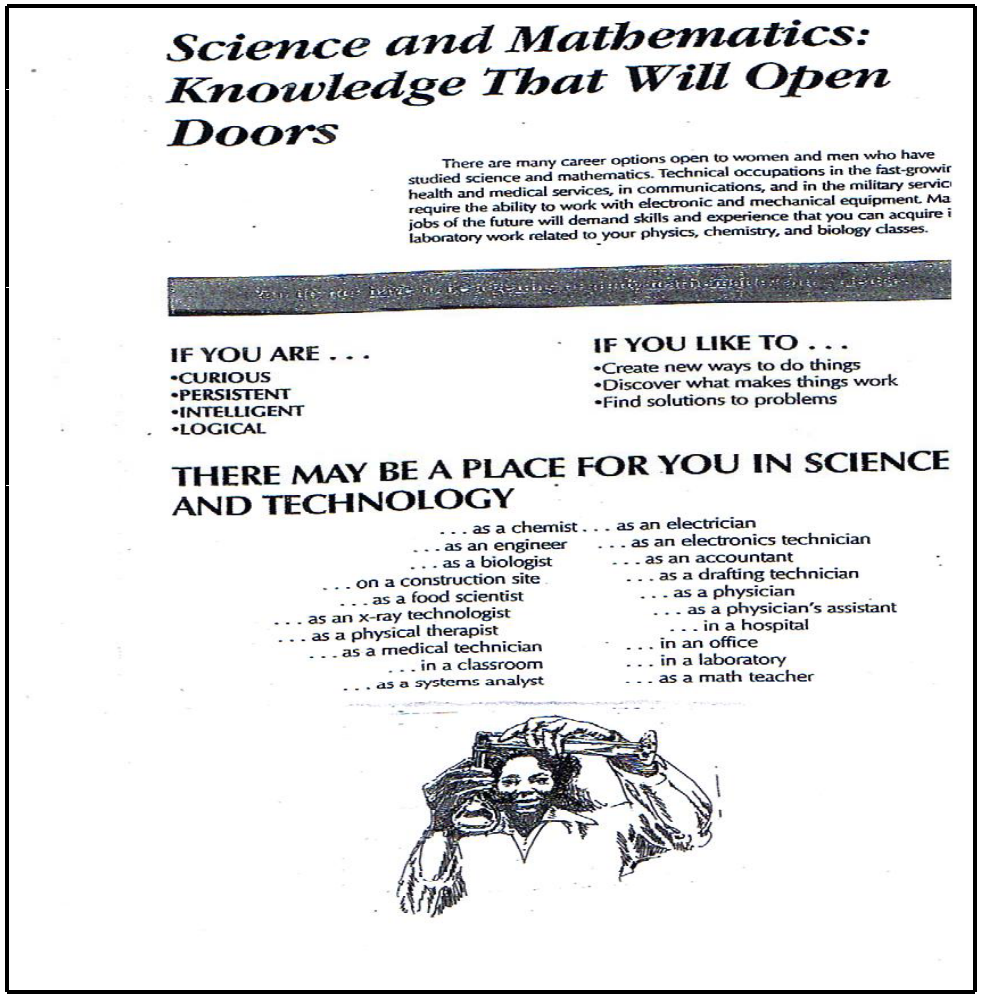
Math Cultural Curriculum Framework & Professional Development Modules

B. *Week Two Mathematical Strand: Number Sense & Algebra Readiness*

AFFECTIVE COMPONENT

African Mathematics Curricular Themes

African-Americans Continuing the Legacy



Science and Mathematics: Knowledge That Will Open Doors

There are many career options open to women and men who have studied science and mathematics. Technical occupations in the fast-growir health and medical services, in communications, and in the military servic require the ability to work with electronic and mechanical equipment. Ma jobs of the future will demand skills and experience that you can acquire i laboratory work related to your physics, chemistry, and biology classes.

IF YOU ARE . . .
- CURIOUS
- PERSISTENT
- INTELLIGENT
- LOGICAL

IF YOU LIKE TO . . .
- Create new ways to do things
- Discover what makes things work
- Find solutions to problems

THERE MAY BE A PLACE FOR YOU IN SCIENCE AND TECHNOLOGY

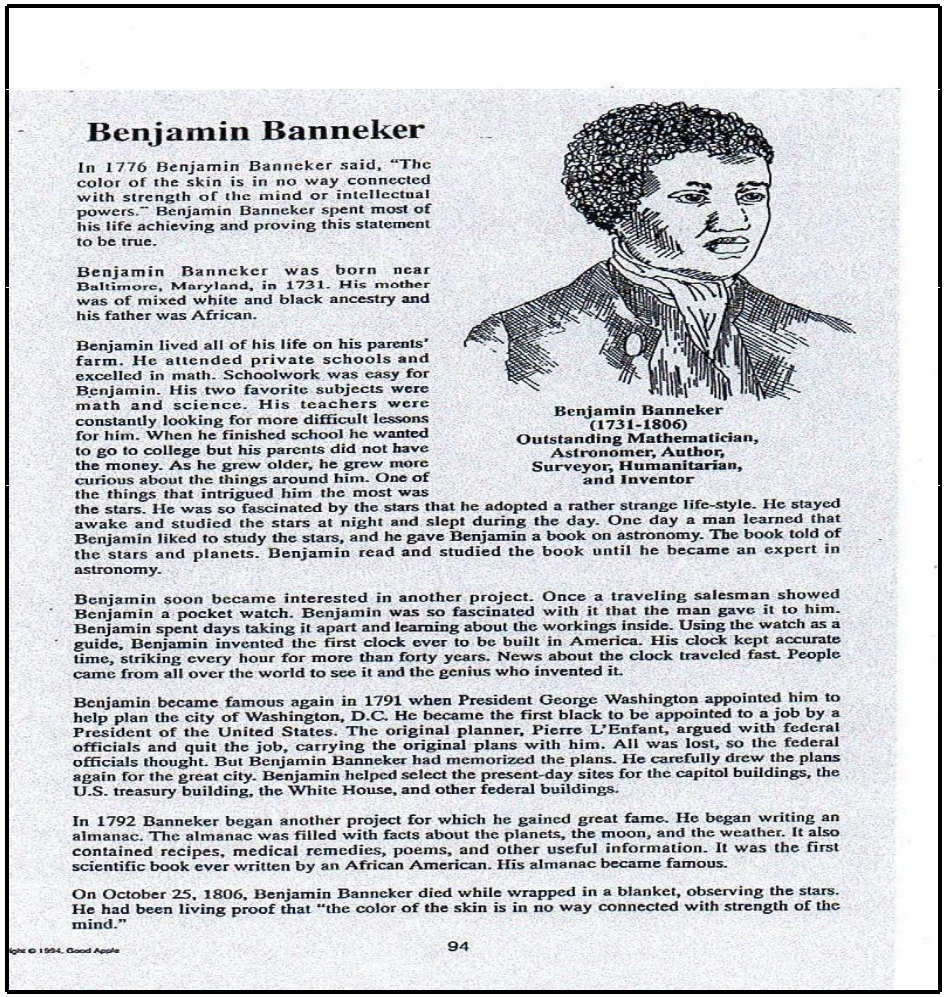
. . . as a chemist
. . . as an engineer
. . . as a biologist
. . . on a construction site
. . . as a food scientist
. . . as an x-ray technologist
. . . as a physical therapist
. . . as a medical technician
. . . in a classroom
. . . as a systems analyst
. . . as an electrician
. . . as an electronics technician
. . . as an accountant
. . . as a drafting technician
. . . as a physician
. . . as a physician's assistant
. . . in a hospital
. . . in an office
. . . in a laboratory
. . . as a math teacher

From Images by Mattie Gray

COGNITIVE COMPONENT

African Mathematics Instructional Strategies

Mathematicians of the African Diaspora



Benjamin Banneker

In 1776 Benjamin Banneker said, "The color of the skin is in no way connected with strength of the mind or intellectual powers." Benjamin Banneker spent most of his life achieving and proving this statement to be true.

Benjamin Banneker was born near Baltimore, Maryland, in 1731. His mother was of mixed white and black ancestry and his father was African.

Benjamin Banneker (1731-1806) Outstanding Mathematician, Astronomer, Author, Surveyor, Humanitarian, and Inventor

Benjamin lived all of his life on his parents' farm. He attended private schools and excelled in math. Schoolwork was easy for Benjamin. His two favorite subjects were math and science. His teachers were constantly looking for more difficult lessons for him. When he finished school he wanted to go to college but his parents did not have the money. As he grew older, he grew more curious about the things around him. One of the things that intrigued him the most was the stars. He was so fascinated by the stars that he adopted a rather strange life-style. He stayed awake and studied the stars at night and slept during the day. One day a man learned that Benjamin liked to study the stars, and he gave Benjamin a book on astronomy. The book told of the stars and planets. Benjamin read and studied the book until he became an expert in astronomy.

Benjamin soon became interested in another project. Once a traveling salesman showed Benjamin a pocket watch. Benjamin was so fascinated with it that the man gave it to him. Benjamin spent days taking it apart and learning about the workings inside. Using the watch as a guide, Benjamin invented the first clock ever to be built in America. His clock kept accurate time, striking every hour for more than forty years. News about the clock traveled fast. People came from all over the world to see it and the genius who invented it.

Benjamin became famous again in 1791 when President George Washington appointed him to help plan the city of Washington, D.C. He became the first black to be appointed to a job by a President of the United States. The original planner, Pierre L'Enfant, argued with federal officials and quit the job, carrying the original plans with him. All was lost, so the federal officials thought. But Benjamin Banneker had memorized the plans. He carefully drew the plans again for the great city. Benjamin helped select the present-day sites for the capitol buildings, the U.S. treasury building, the White House, and other federal buildings.

In 1792 Banneker began another project for which he gained great fame. He began writing an almanac. The almanac was filled with facts about the planets, the moon, and the weather. It also contained recipes, medical remedies, poems, and other useful information. It was the first scientific book ever written by an African American. His almanac became famous.

On October 25, 1806, Benjamin Banneker died while wrapped in a blanket, observing the stars. He had been living proof that "the color of the skin is in no way connected with strength of the mind."

From Good Apple Publications

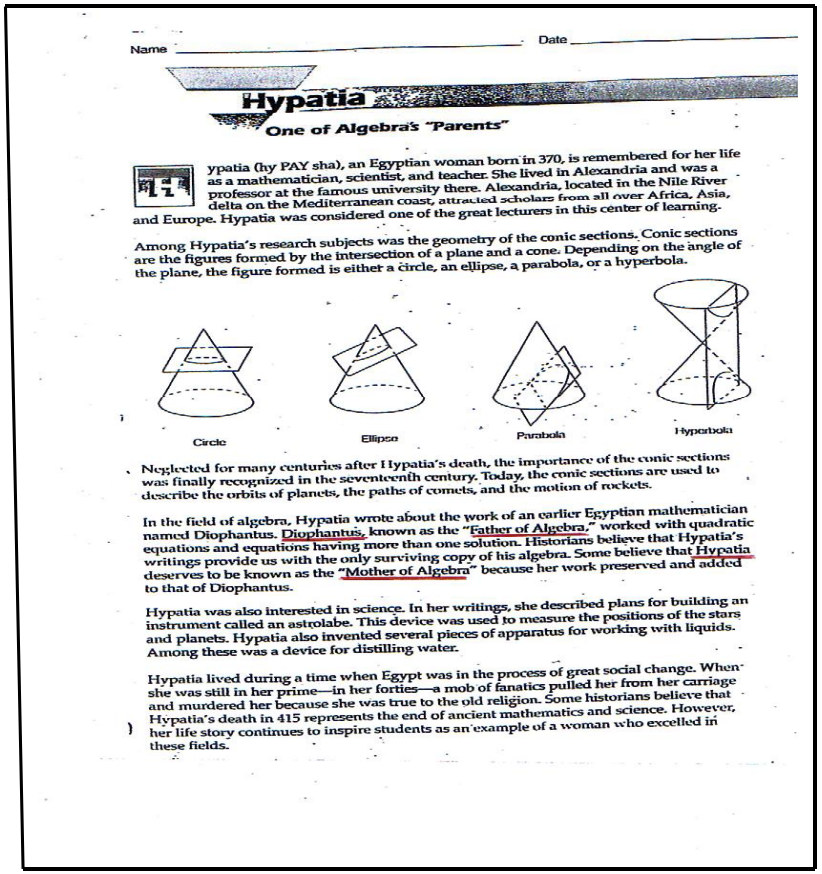
Math Cultural Curriculum Framework & Professional Development Modules

C. Week Three *Mathematical Strand: Algebra & Functions*

AFFECTIVE COMPONENT

African Mathematics Curricular Themes

Politics Behind Curricular Omissions of the African Foundations of Algebra



Name _____ Date _____

Hypatia

One of Algebra's "Parents"

Hypatia (hy PAY sha), an Egyptian woman born in 370, is remembered for her life as a mathematician, scientist, and teacher. She lived in Alexandria and was a professor at the famous university there. Alexandria, located in the Nile River delta on the Mediterranean coast, attracted scholars from all over Africa, Asia, and Europe. Hypatia was considered one of the great lecturers in this center of learning.

Among Hypatia's research subjects was the geometry of the conic sections. Conic sections are the figures formed by the intersection of a plane and a cone. Depending on the angle of the plane, the figure formed is either a circle, an ellipse, a parabola, or a hyperbola.

Circle Ellipse Parabola Hyperbola

Neglected for many centuries after Hypatia's death, the importance of the conic sections was finally recognized in the seventeenth century. Today, the conic sections are used to describe the orbits of planets, the paths of comets, and the motion of rockets.

In the field of algebra, Hypatia wrote about the work of an earlier Egyptian mathematician named Diophantus. Diophantus, known as the "Father of Algebra," worked with quadratic equations and equations having more than one solution. Historians believe that Hypatia's writings provide us with the only surviving copy of his algebra. Some believe that Hypatia deserves to be known as the "Mother of Algebra" because her work preserved and added to that of Diophantus.

Hypatia was also interested in science. In her writings, she described plans for building an instrument called an astrolabe. This device was used to measure the positions of the stars and planets. Hypatia also invented several pieces of apparatus for working with liquids. Among these was a device for distilling water.

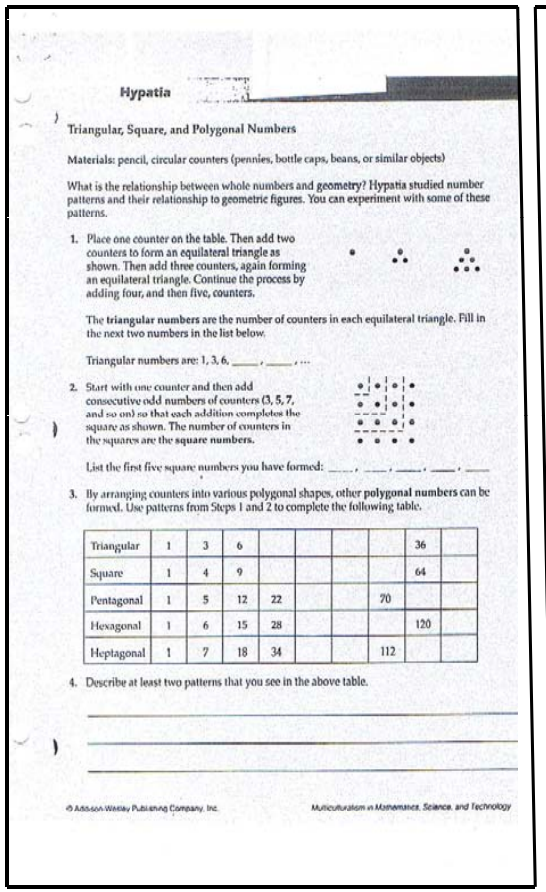
Hypatia lived during a time when Egypt was in the process of great social change. When she was still in her prime—in her forties—a mob of fanatics pulled her from her carriage and murdered her because she was true to the old religion. Some historians believe that Hypatia's death in 415 represents the end of ancient mathematics and science. However, her life story continues to inspire students as an example of a woman who excelled in these fields.

From Multicultural Science and Math Connections
by B. Lumpkin & D. Strong

COGNITIVE COMPONENT

African Mathematics Instructional Strategies

Deciphering African Number Patterns of Hypatia & Diophantus



Hypatia

Triangular, Square, and Polygonal Numbers

Materials: pencil, circular counters (pennies, bottle caps, beans, or similar objects)

What is the relationship between whole numbers and geometry? Hypatia studied number patterns and their relationship to geometric figures. You can experiment with some of these patterns.

1. Place one counter on the table. Then add two counters to form an equilateral triangle as shown. Then add three counters, again forming an equilateral triangle. Continue the process by adding four, and then five, counters.

The **triangular numbers** are the number of counters in each equilateral triangle. Fill in the next two numbers in the list below.

Triangular numbers are: 1, 3, 6, ____, ____, ...

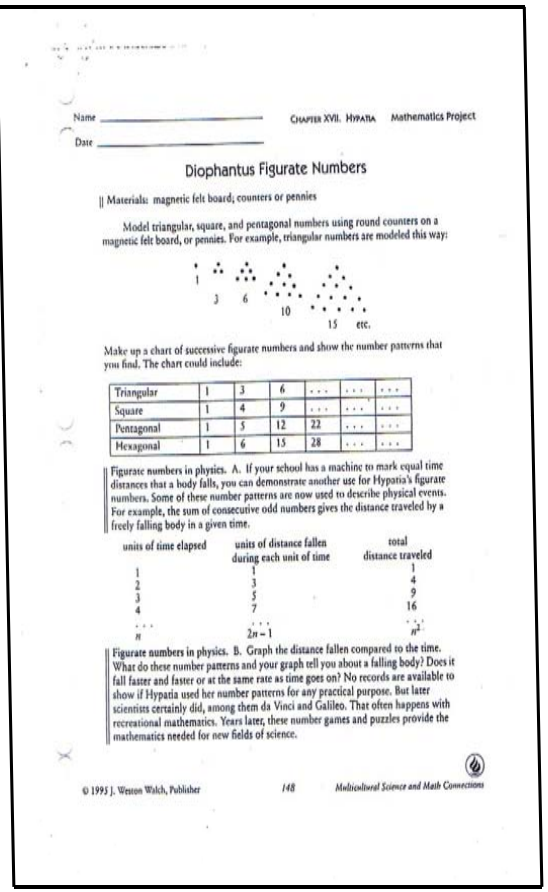
2. Start with one counter and then add consecutive odd numbers of counters (3, 5, 7, and so on) so that each addition completes the square as shown. The number of counters in the squares are the **square numbers.**

List the first five square numbers you have formed: ____, ____, ____, ____, ____

3. By arranging counters into various polygonal shapes, other **polygonal numbers** can be formed. Use patterns from Steps 1 and 2 to complete the following table.

Triangular	1	3	6				36	
Square	1	4	9				64	
Pentagonal	1	5	12	22		70		
Hexagonal	1	6	15	28			120	
Heptagonal	1	7	18	34		112		

4. Describe at least two patterns that you see in the above table.



Name _____ Chapter XVII. Hypatia Mathematics Project

Date _____

Diophantus Figurate Numbers

Materials: magnetic felt board; counters or pennies

Model triangular, square, and pentagonal numbers using round counters on a magnetic felt board, or pennies. For example, triangular numbers are modeled this way:

1 3 6 10 15 etc.

Make up a chart of successive figurate numbers and show the number patterns that you find. The chart could include:

Triangular	1	3	6	. . .	. . .	. . .
Square	1	4	9	. . .	. . .	. . .
Pentagonal	1	5	12	22	. . .	. . .
Hexagonal	1	6	15	28	. . .	. . .

Figurate numbers in physics. A. If your school has a machine to mark equal time distances that a body falls, you can demonstrate another use for Hypatia's figurate numbers. Some of these number patterns are now used to describe physical events. For example, the sum of consecutive odd numbers gives the distance traveled by a freely falling body in a given time.

units of time elapsed	units of distance fallen during each unit of time	total distance traveled
1	1	1
2	3	4
3	5	9
4	7	16
. . .	. . .	. . .
n	$2n-1$	n^2

Figurate numbers in physics. B. Graph the distance fallen compared to the time. What do these number patterns and your graph tell you about a falling body? Does it fall faster and faster or at the same rate as time goes on? No records are available to show if Hypatia used her number patterns for any practical purpose. But later scientists certainly did, among them da Vinci and Galileo. That often happens with recreational mathematics. Years later, these number games and puzzles provide the mathematics needed for new fields of science.

From Multicultural Science and Math Connections
by B. Lumpkin & D. Strong

Math Cultural Curriculum Framework & Professional Development Modules

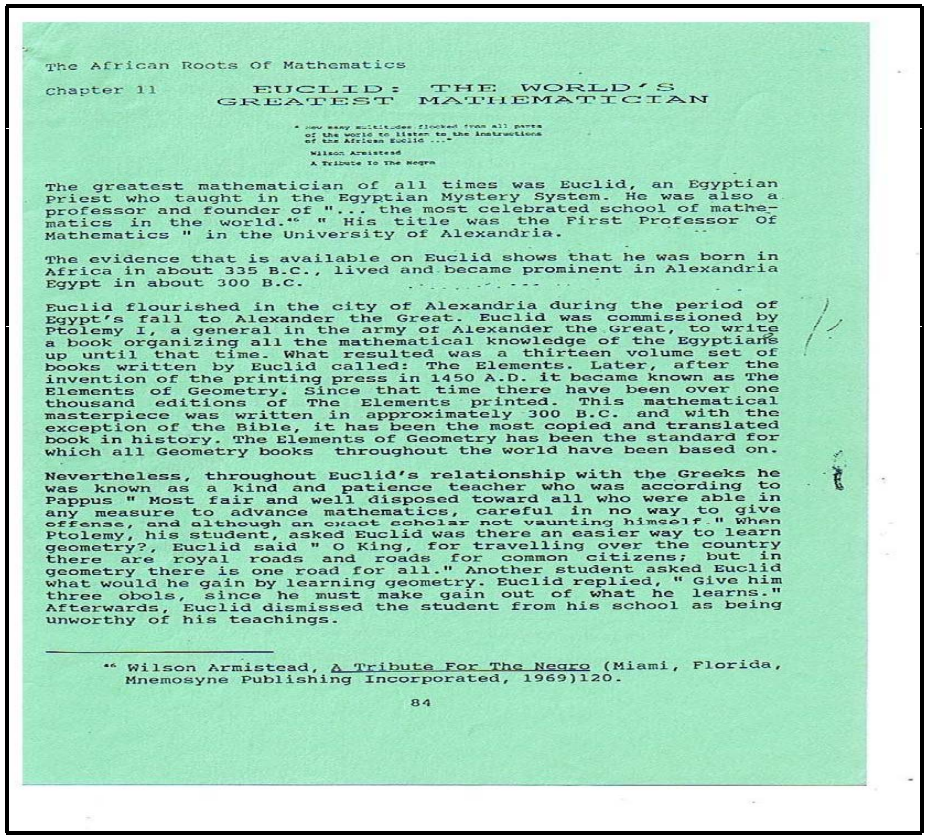
D. *Week Four Mathematical Strand: Geometry & Measurement*

AFFECTIVE COMPONENT

African Mathematics Curricular Themes

Euclid & the African Roots of Geometry

Kemetian Theorem/Right Triangle Theorem (known as the Pythagorean Theorem)



The African Roots Of Mathematics

Chapter 11

EUCLID: THE WORLD'S GREATEST MATHEMATICIAN

" ...my many scholars flocked from all parts of the world to listen to the instructions of the African Euclid ..."

Wilson Armistead
A Tribute To The Negro

The greatest mathematician of all times was Euclid, an Egyptian Priest who taught in the Egyptian Mystery System. He was also a professor and founder of "... the most celebrated school of mathematics in the world." " His title was the First Professor Of Mathematics " in the University of Alexandria.

The evidence that is available on Euclid shows that he was born in Africa in about 335 B.C., lived and became prominent in Alexandria Egypt in about 300 B.C.

Euclid flourished in the city of Alexandria during the period of Egypt's fall to Alexander the Great. Euclid was commissioned by Ptolemy I, a general in the army of Alexander the Great, to write a book organizing all the mathematical knowledge of the Egyptians up until that time. What resulted was a thirteen volume set of books written by Euclid called: The Elements. Later, after the invention of the printing press in 1450 A.D. it became known as The Elements of Geometry. Since that time there have been over one thousand editions of The Elements printed. This mathematical masterpiece was written in approximately 300 B.C. and with the exception of the Bible, it has been the most copied and translated book in history. The Elements of Geometry has been the standard for which all Geometry books throughout the world have been based on.

Nevertheless, throughout Euclid's relationship with the Greeks he was known as a kind and patience teacher who was according to Pappus " Most fair and well disposed toward all who were able in any measure to advance mathematics, careful in no way to give offense, and although an exact scholar not vaunting himself." When Ptolemy, his student, asked Euclid was there an easier way to learn geometry?, Euclid said " O King, for travelling over the country there are royal roads and roads for common citizens; but in geometry there is one road for all." Another student asked Euclid what would he gain by learning geometry. Euclid replied, " Give him three obols, since he must make gain out of what he learns." Afterwards, Euclid dismissed the student from his school as being unworthy of his teachings.

" Wilson Armistead, A Tribute For The Negro (Miami, Florida, Mnemosyne Publishing Incorporated, 1969)120.

84

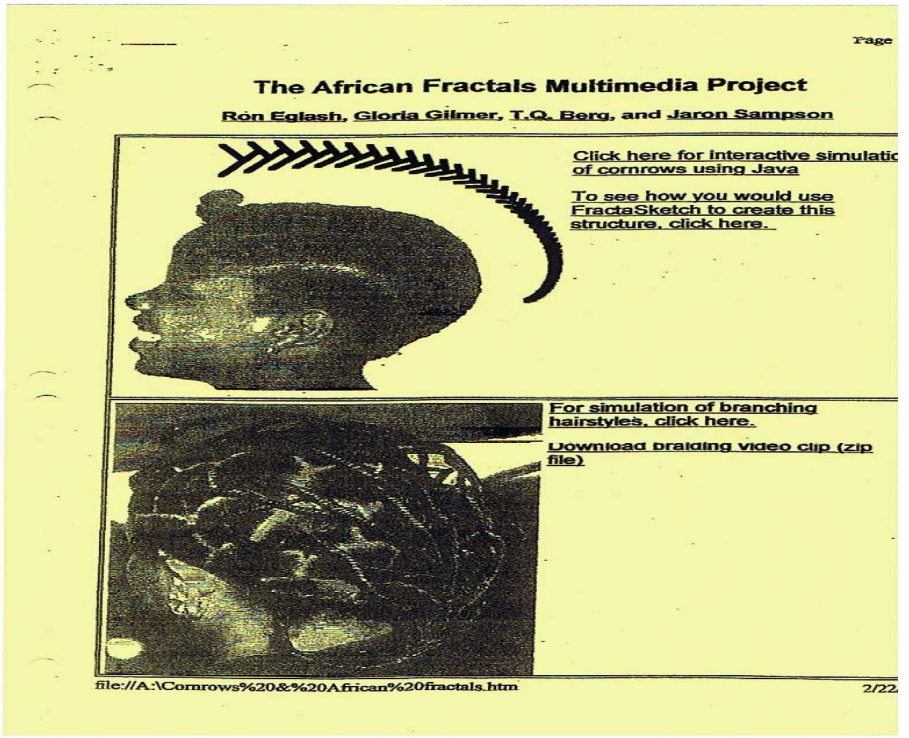
By Deborah Maat Moore

COGNITIVE COMPONENT

African Mathematics Instructional Strategies

Fractals & the African Aesthetic

Kitwe community clinic in Zambia -- design by David Hughes and Alex Nyangulu using the fractal structure of traditional African architecture.



Page

The African Fractals Multimedia Project

Ron Eglash, Gloria Gilmer, T.Q. Berg, and Jaron Sampson

Click here for interactive simulatio of cornrows using Java

To see how you would use FractaSketch to create this structure, click here.

For simulation of branching hairstyles, click here.

Download braiding video clip (zip file)

file://A:\Cornrows%20&%20African%20fractals.htm

2/22

By Ron Eglash

B. SAI Student Performance Outcomes

PRE-TEST/POST-TEST *BRIGANCE Comprehensive Inventory of Basic Skills* **SCORES**

STUDENT PERFORMANCE INDICATORS: Computation Problems

Grade Level Proficiency	Pre- Test	Post-Test	% Change
Above Grade Level			
2007	4%	11%	+7%
2008	2%	5%	+3%
2009	3%	8%	+5%
2010	11%	18%	+7%
2011	5%	16%	+11%
At Grade Level			
2007	8%	16%	+ 8%
2008	18%	28%	+10%
2009	12%	16%	+ 4%
2010	11%	17%	+ 6%
2011	10%	19%	+ 9%
Below Grade Level			
2007	88%	73%	-15%
2008	78%	67%	-11%
2009	85%	75%	-10%
2010	78%	65%	-13%
2011	85%	65%	-20%

* The data indicates that most students performed in the “below grade level” category.

* Pre-/Post data indicates a slight decrease of students in the “below grade level” category.

The California State University
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It Only Takes a Spark

Summer Algebra Institute

- Provides students with field trips and guest speakers
- Provides opportunities to explore real world application of math and science
- Exposes students to professionals of color in STEM and health related fields

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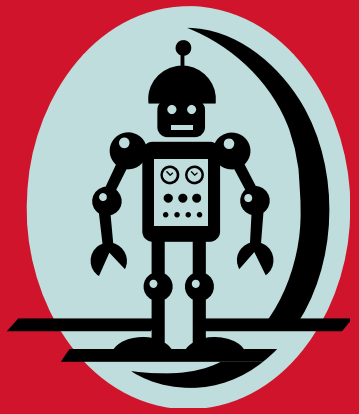
It Only Takes a Spark…

Campus Tours and Activities:

- Cal Maritime – Math Overview and Simulator Experience
- CSU Bakersfield – Computer & Electrical Engineering & Computer Science; STEM and Robotics



- CSU East Bay - Gates Science Fair
- CSU Long Beach, Pomona, & Dominguez Hills – motivational speakers and **"How to Get to College"** seminars

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Math Tour: African American Contributions Recognized by UCLA

- LuValle Commons - named after Dr. James LuValle; Scientist and Olympic athlete
- Bunche Hall – Ralph Bunch graduated from UCLA in 1927; first person of color to win the Nobel Peace Prize

- Campbell Hall – historic site of the Black Power and Black Studies movement at UCLA and the Black Student Alliance (now named African Student Union)

CSU The California State University
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Math Tour – African American Contributions Recognized by UCLA

- Arthur Ashe Student Health & Wellness Center – complete health facility for UCLA students
- J.D. Morgan Center – houses trophies & pictures of African American athletes
- Jackie Robinson Stadium – UCLA alum and first African-American national baseball player
- Tom Bradley International Hall – presents a view of the career and accomplishments of UCLA alum and the late L.A. Mayor Tom Bradley

The California State University
WORKING FOR CALIFORNIA

Math Tour – African American Contributions Recognized by UCLA

- **UCLA Medical Center –** students meet with UCLA African American physicians, laboratory technicians and other health care providers
- **Math Sciences Building –** display of math symbols and pictures without noting the African origin and influence on math

At the end of the tour, students are given a Mathematics quiz based on the tour of African & African American contributions recognized by UCLA

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Sample Math Question – The Mathematics of Bunche Hall (The windows of Bunche Hall are square)

1. How many windows are there on the side of the building?
2. Instead of counting each window you can use the laws of multiplication to figure out how many windows there are.
3. How many windows are there counting from top to bottom?
4. How many windows are there counting from left to right?
5. How many total windows are there?
6. The area is?
7. The perimeter is?

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Students Nurtured and Impacted

Since 2007, we have served 1364 African-American students

Year	Number of Students	Faith-Based Organization
2007	*320*	*8*
2008	*194*	*11*
2009	*271*	*10*
2010	*261*	*8*
2011	*318*	*10*

SAI Professional Development in Action

- Christ Our Redeemer
  46 Maxwell Irvine, CA 92618
- Compassion Christian Center
  1030 4th Street Bakersfield, CA 93304
- Faithful Central Church
  333 West Florence Inglewood, CA 90301
- Glory Christian Fellowship
  225 Torrance Boulevard, Bldg. #20793 Carson, CA 90745
- Living Word
  10337 De Soto Boulevard Chatsworth, CA 91311
- Providence Baptist Church
  1601 McKinnon Avenue San Francisco, CA 94124
- Saint John Missionary Baptist Church
  1401 East Brundage Lane Bakersfield, CA 93307
- Saint Paul Missionary Baptist Church
  3996 14th Avenue Sacramento, CA 95820
- Saint Stephen CME Church
  2301 Union Avenue Fairfield, CA 94533
- Temple Learning Center
  1777 W. Baseline Avenue San Bernardino, CA 92411
- West Angeles Church of Christ
  3045 S. Crenshaw Boulevard Los Angeles, CA 90016

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It Only Takes a Spark…

- We try to inspire, motivate and get students interested in science and math (i.e., create a vision for what they can do).

- We help students learn about STEM and health- related fields, encourage them to explore these fields, provide activities to demonstrate how exciting these fields can be through workshops and activities at college and university campuses.

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It Only Takes a Spark…

- Malik Tate (13 years old) –

"I think I'm finally getting it. It's not so bad."

- Sarah Chittenden (15-years old) –

"Reviewing the basics was a help. It's getting easier."

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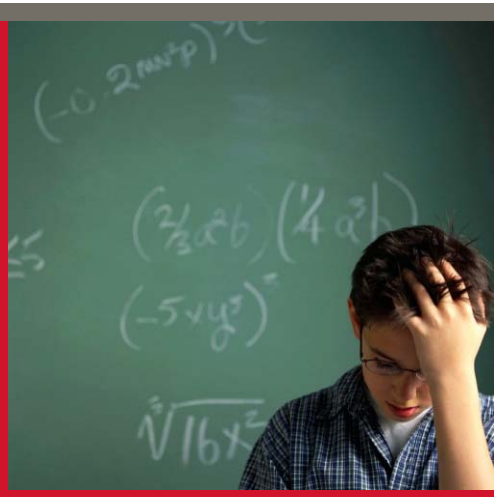
It Only Takes a Spark…

- Quinn Davis (7th grader) –



"I was really struggling with math. When my mom enrolled me in the Summer Algebra Institute, I began to understand the concepts a little better. Then, in eighth grade, my scores jumped and it became a lot easier. I was really proud of myself that I did so well."

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It Only Takes a Spark…

Deacon John Wilson III, education and enrichment director at West Angeles Church –

"Students have said that they have learned more in a week or two from this program, than they learned during an entire year of a math class at school."

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It Only Takes a Spark…

Lora Kermode
(Former Paramount High School teacher and current SAI Instructor)

"Confidence is key here. It's so important to motivate them… I can just see things start to click in their minds."

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It Only Takes a Spark…

Lora Kermode
(SAI instructor)

"Algebra can be intimidating for students. They do poorly on a couple of tests and lose their confidence. Courses like this help them build their skills and confidence."

CSU Summer Algebra Institute

QUESTIONS AND COMMENTS