an

AMIDON PLANET

production

LIFE OF A MET GRANT:
SPACE FOR PROGRESSIVE MATH PEDAGOGY

DR. JOHNNY W. LOTT
MATHEMATICS EDUCATION TRUST (MET) BOARD OF TRUSTEES

DR. JOEL AMIDON
UNIVERSITY OF MISSISSIPPI

VIRGE CORNELIUS
MORGAN TREVATHAN
LAFAYETTE HIGH SCHOOL, OXFORD, MS

NCTM | MATHEMATICS EDUCATION TRUST

MET'S MISSION STATEMENT

The Mathematics Education Trust channels the generosity of contributors through the creation and funding of grants, awards, honors, and other projects that support the improvement of mathematics teaching and learning.

NCTM | MATHEMATICS EDUCATION TRUST

MET BOARD OF TRUSTEES

4 appointed members with 4 year terms and the Executive Director of NCTM

Johnny Lott, Chair
Oxford, MS

Carol Edwards
Chandler, AZ

Fern Tribbey
Northbrook, IL

Linda Fulmore
Cave Creek, AZ

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David Shayka, Director for Business Services & Chief Operating Officer
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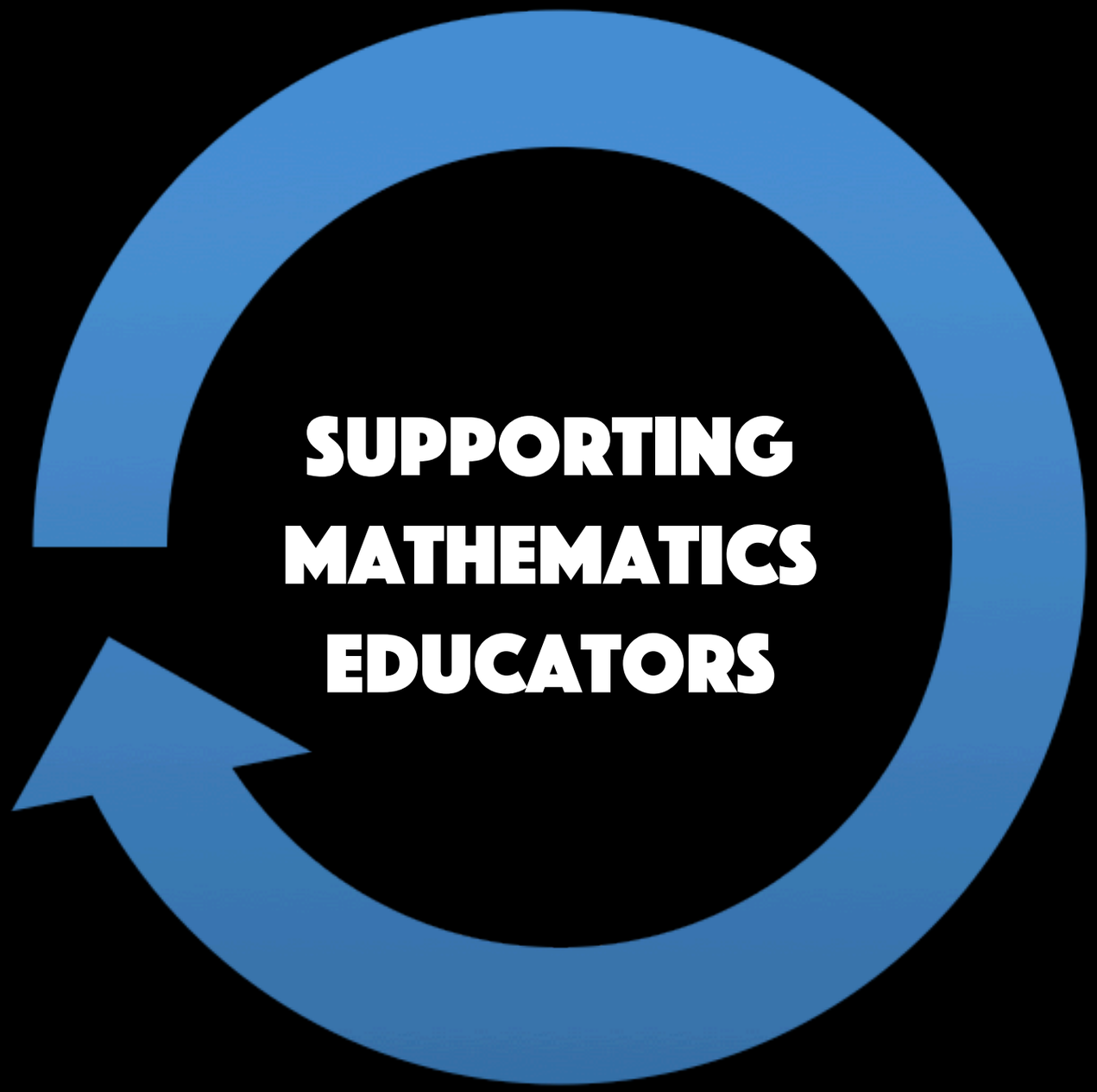
NCTM MATHEMATICS EDUCATION TRUST

HOW MET WORKS TO ACHIEVE ITS MISSION



NCTM MATHEMATICS EDUCATION TRUST

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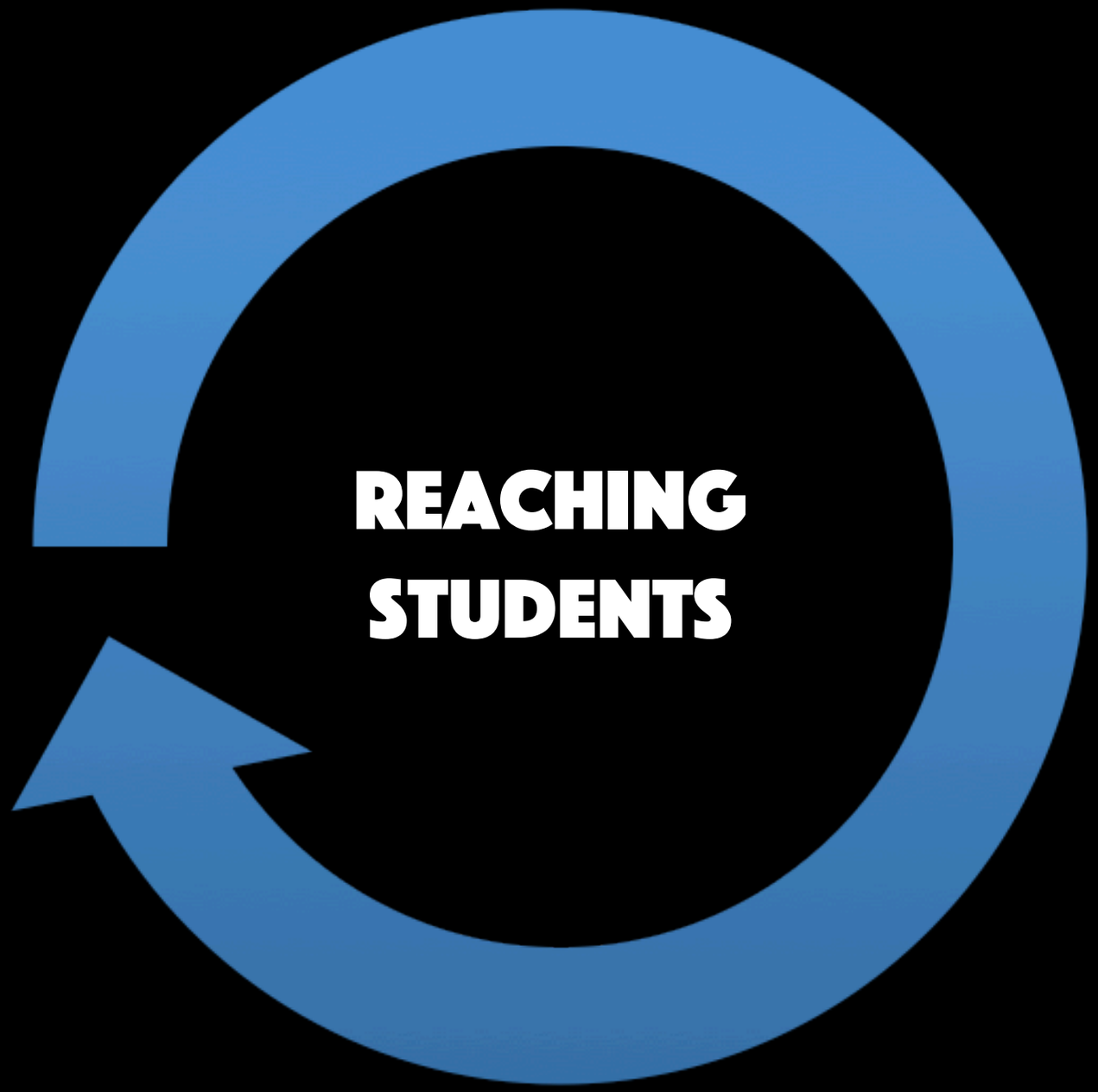
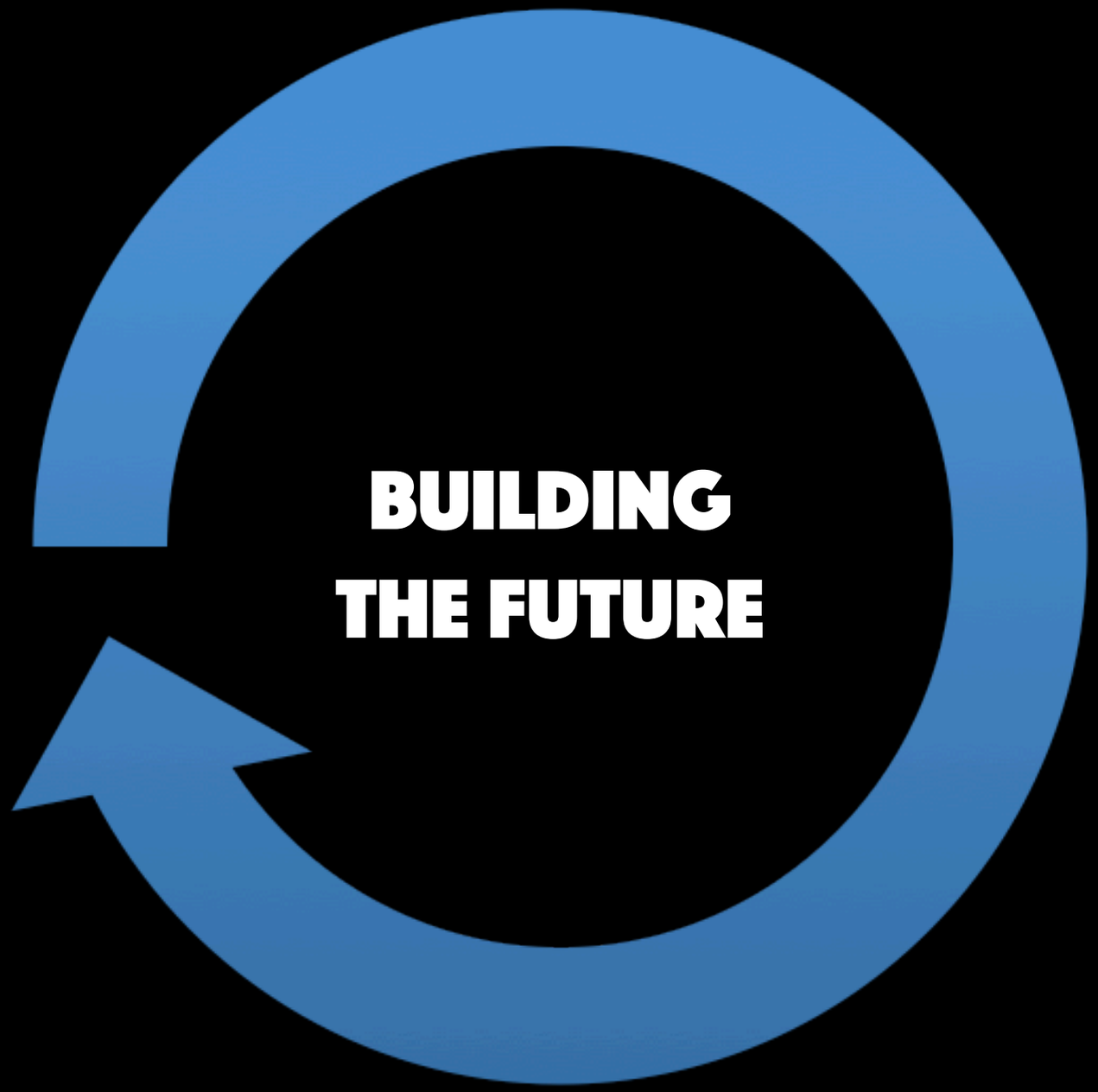


NCTM MATHEMATICS EDUCATION TRUST

HOW MET WORKS TO ACHIEVE ITS MISSION



NCTM MATHEMATICS EDUCATION TRUST

HOW DO WE DO IT?

NCTM MATHEMATICS EDUCATION TRUST

AWARDS, GRANTS, AND SCHOLARSHIPS

A MET GRANT EXAMPLE
7-12 CLASSROOM RESEARCH GRANT

Awardees

Joel Amidon,

University of Mississippi

Virge Cornelius

Morgan Trevathan

Lafayette High School, Oxford, MS

NCTM MATHEMATICS EDUCATION TRUST

7-12 CLASSROOM RESEARCH GRANT

Purpose of this grant is to support and encourage classroom-based research in precollege mathematics education

Research must be a collaborative effort

NCTM | MATHEMATICS EDUCATION TRUST

7-12 CLASSROOM RESEARCH GRANT

Possible Research

- Curriculum development/implementation
- Involvement of at-risk or minority students
- Students' thinking about a particular math concept or set of concepts
- Connection of mathematics to other disciplines
- Focused learning and teaching of math with embedded use of technology
- Innovative assessment or evaluation strategies

NCTM | MATHEMATICS EDUCATION TRUST

MET GRANT APPLICATIONS

- Due twice per year
  - First week of May
  - First week of November

- Typically for one year of work
- Applications are brief
- Funding within two months

- Go to http://www.nctm.org/Grants/

NCTM MATHEMATICS EDUCATION TRUST

A MET GRANT EXAMPLE
7-12 CLASSROOM RESEARCH GRANT

NCTM MATHEMATICS EDUCATION TRUST

A MET GRANT EXAMPLE
7-12 CLASSROOM RESEARCH GRANT

CREATING SPACE FOR ADVANCING THE PROGRESSIVE TEACHING OF MATHEMATICS

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SPACE

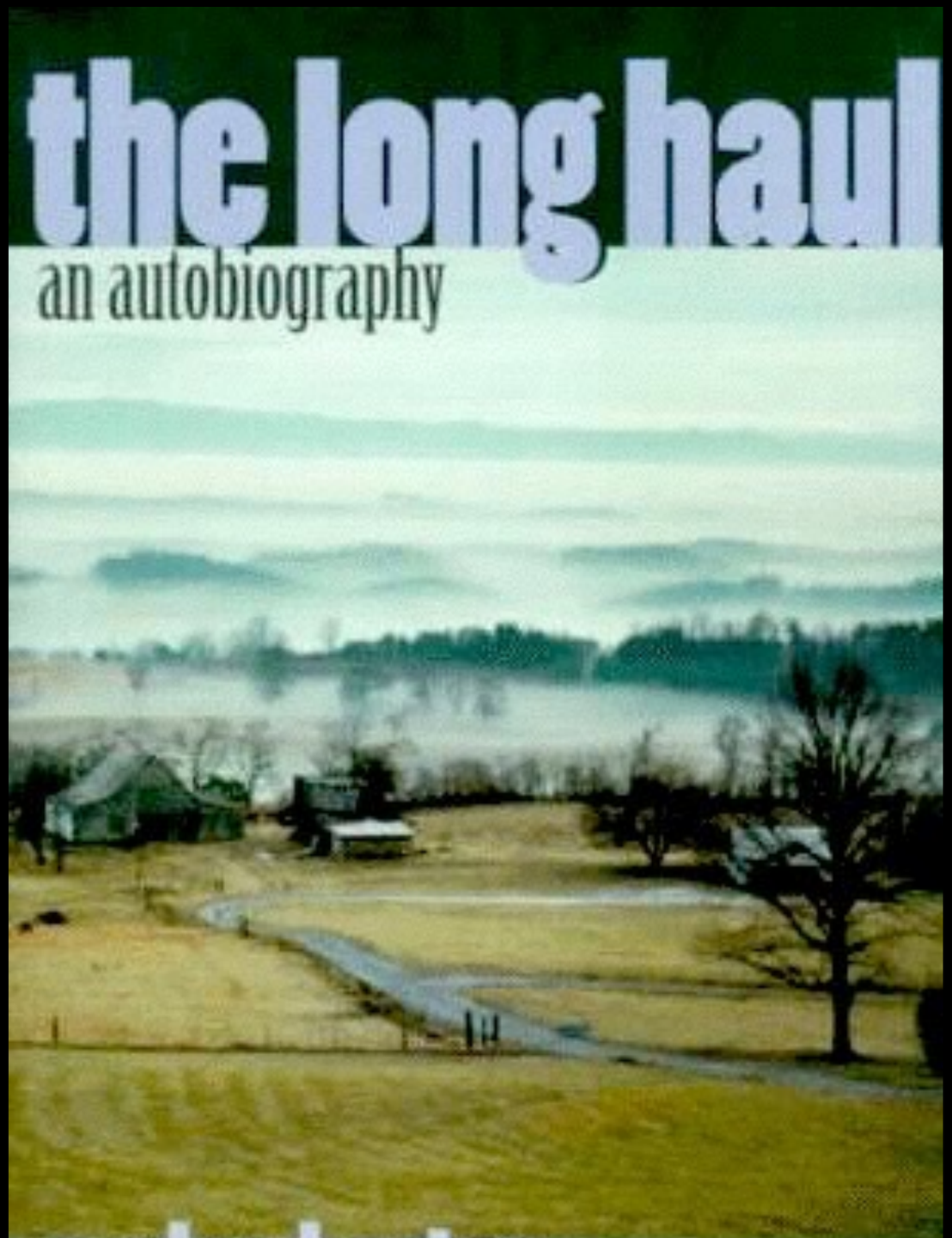
SPACE

the freedom and scope to live, think, and develop…

MOTIVATION

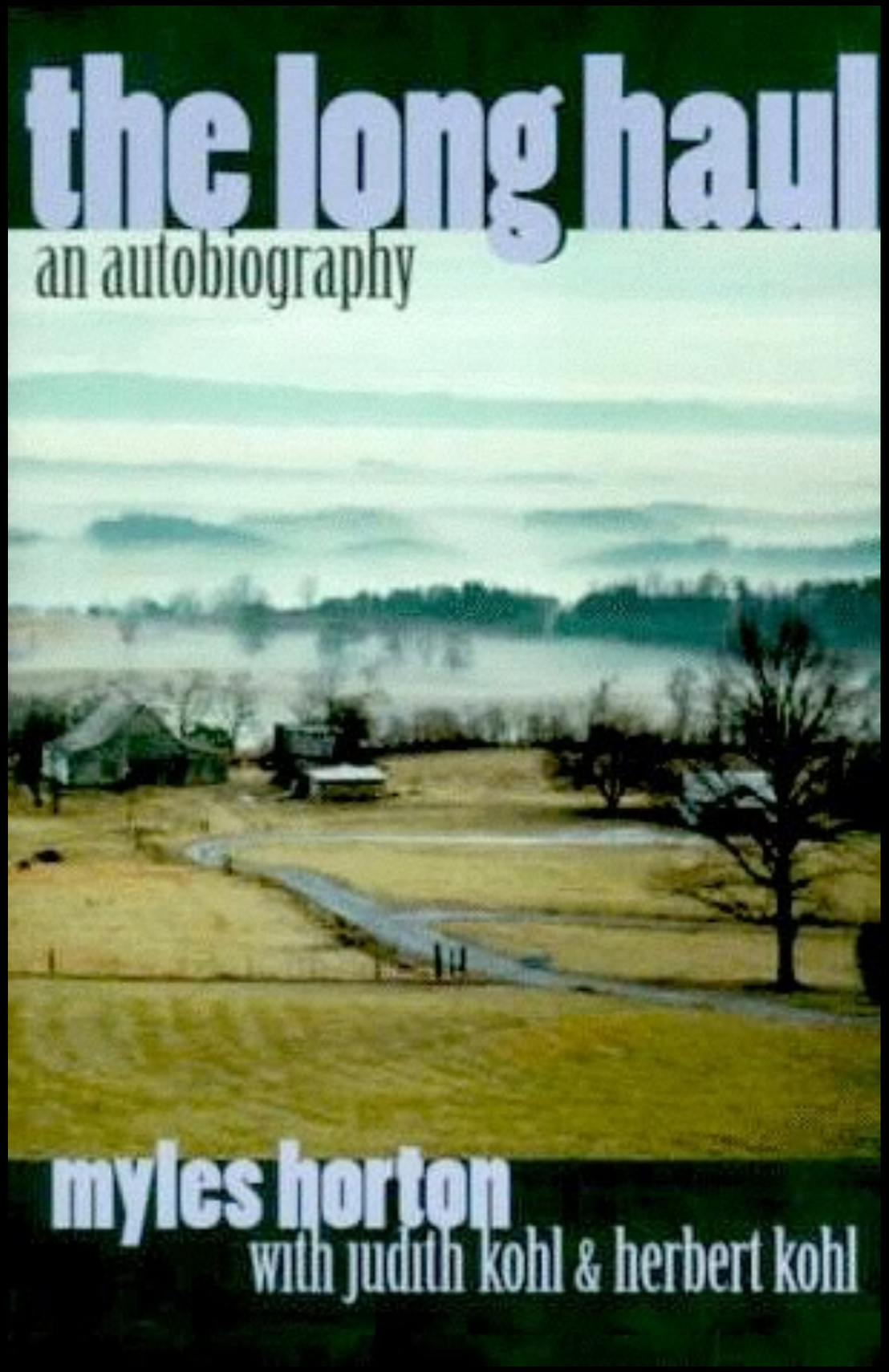
the long haul

an autobiography



myles horton

with judith kohl & herbert kohl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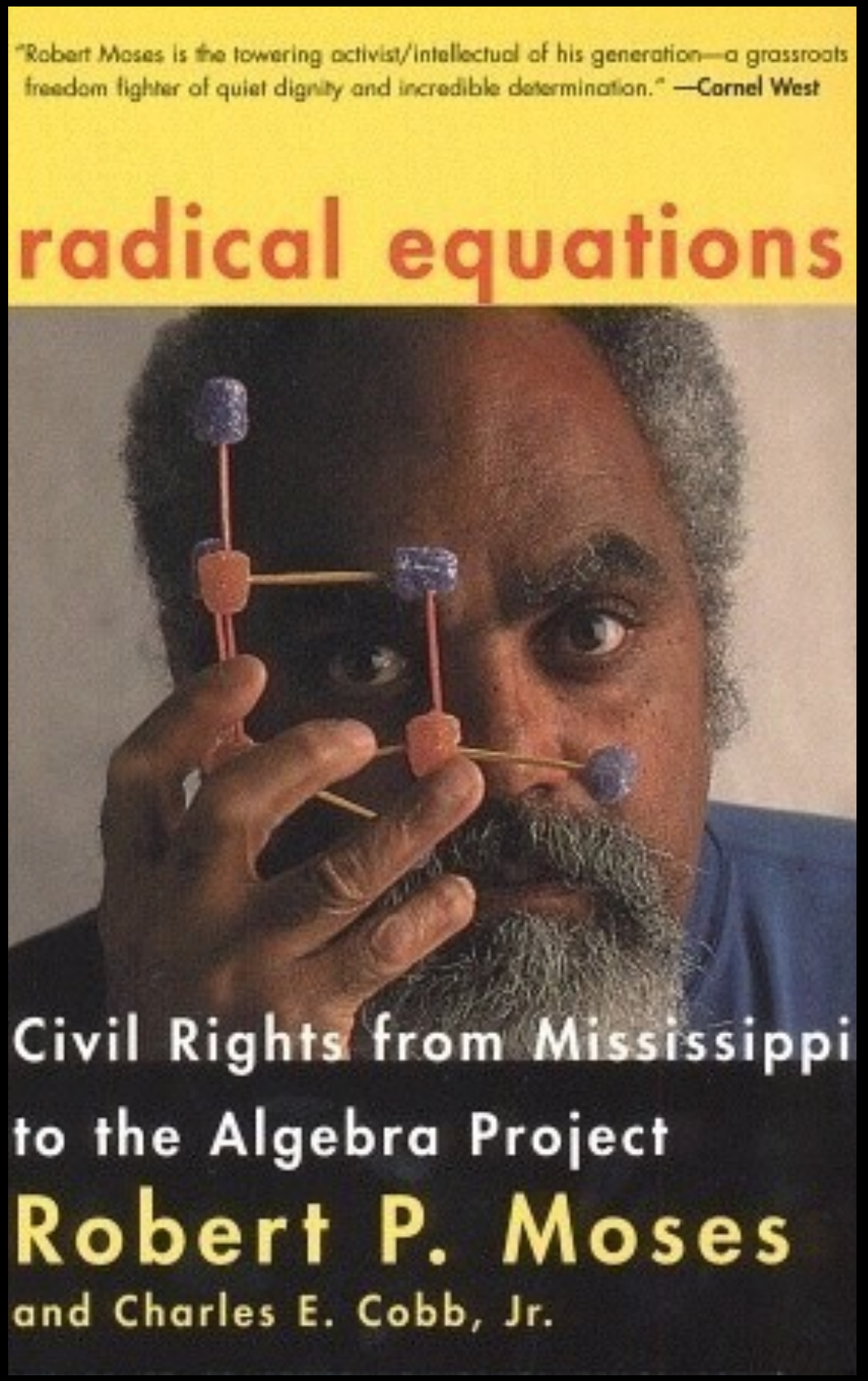
"Robert Moses is the towering activist/intellectual of his generation—a grassroots freedom fighter of quiet dignity and incredible determination." —Cornel West
radical equations
Civil Rights from Mississippi to the Algebra Project
Robert P. Moses
and Charles E. Cobb, Jr.

RESEARCH QUESTIONS

RESEARCH QUESTIONS

What does it look like to create space for teachers to advance their teaching practice given the pressures of high-stakes testing?

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What does it look like to create space for teachers to advance their teaching practice given the pressures of high-stakes testing?

How do teachers choose to improve their practice?

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How do you sustain professional learning?

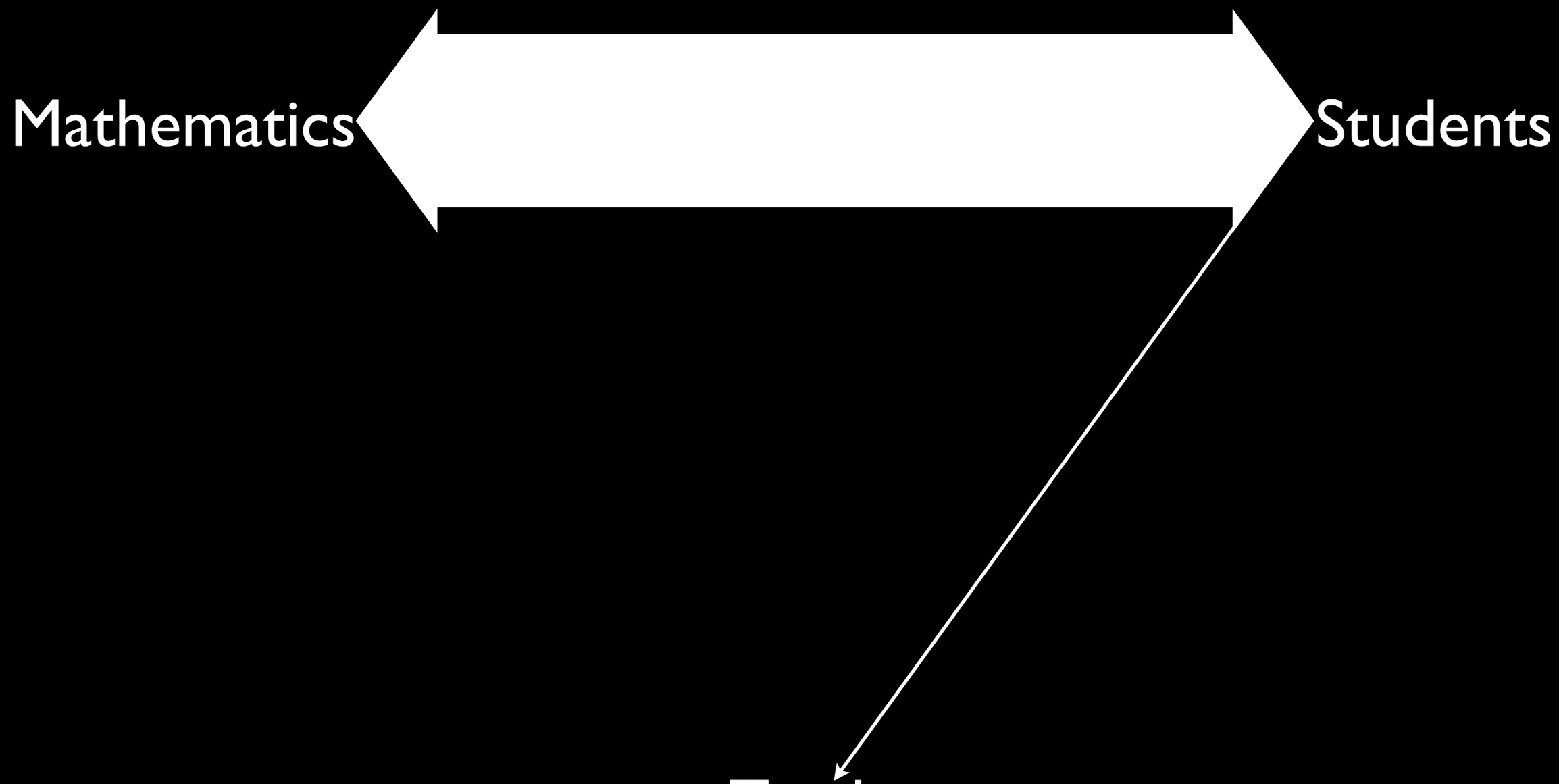
FRAMEWORK

Mathematics ⟷ Students

Teacher

Teacher

"Teaching actions proceed simultaneously in relations with students, with content, and with the connection between students and content..."(Lampert, 2001p.33)



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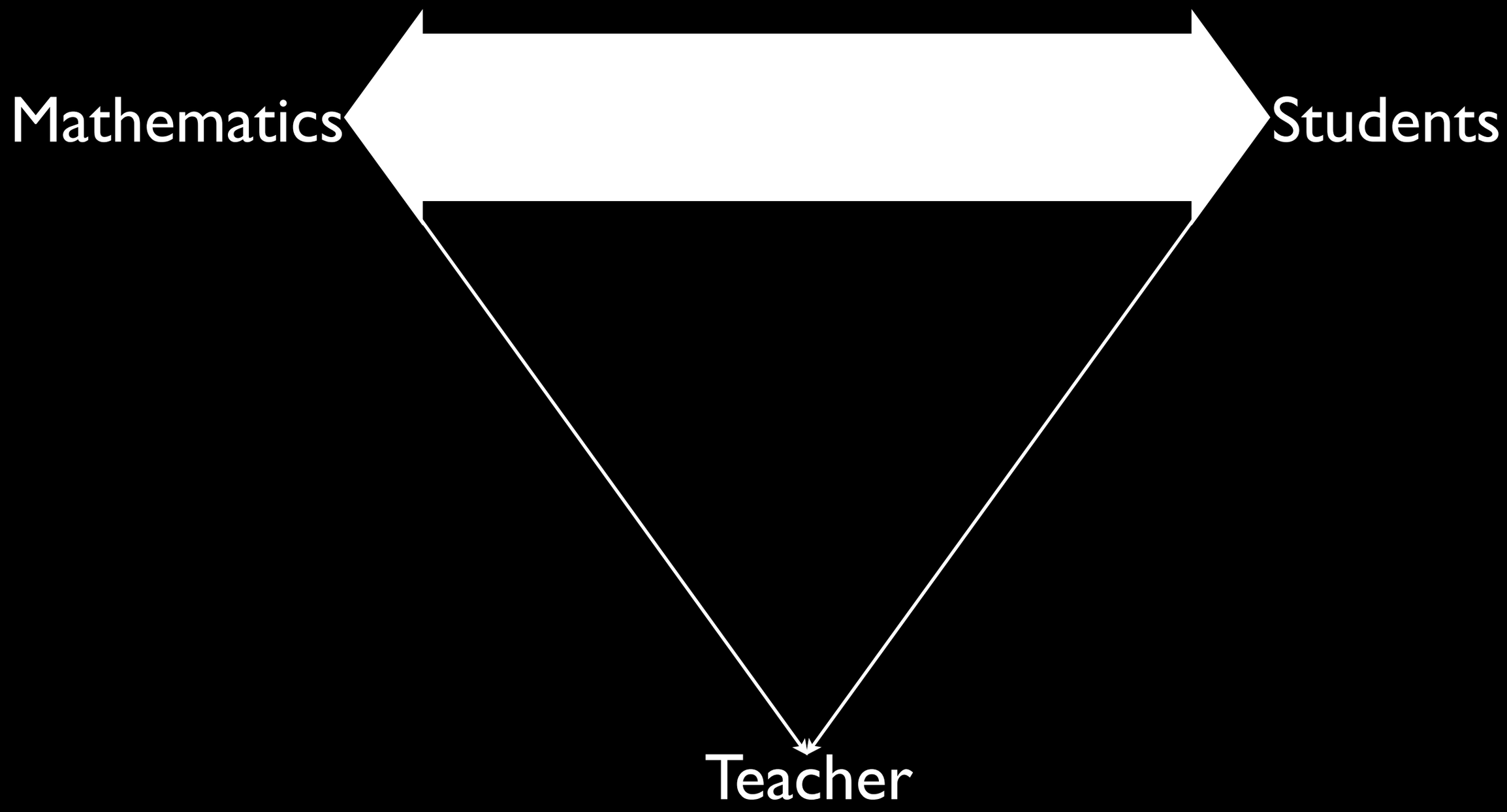

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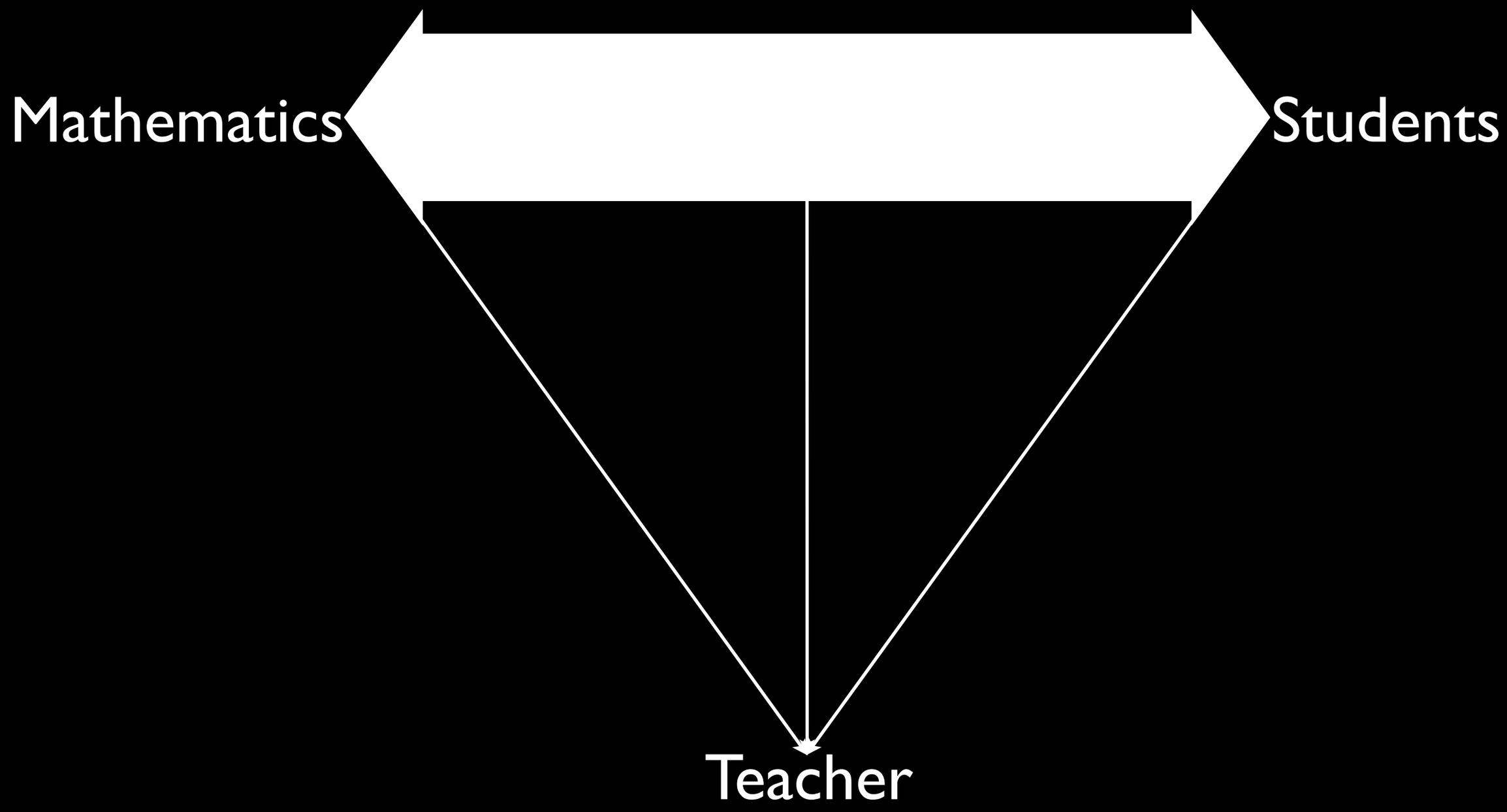

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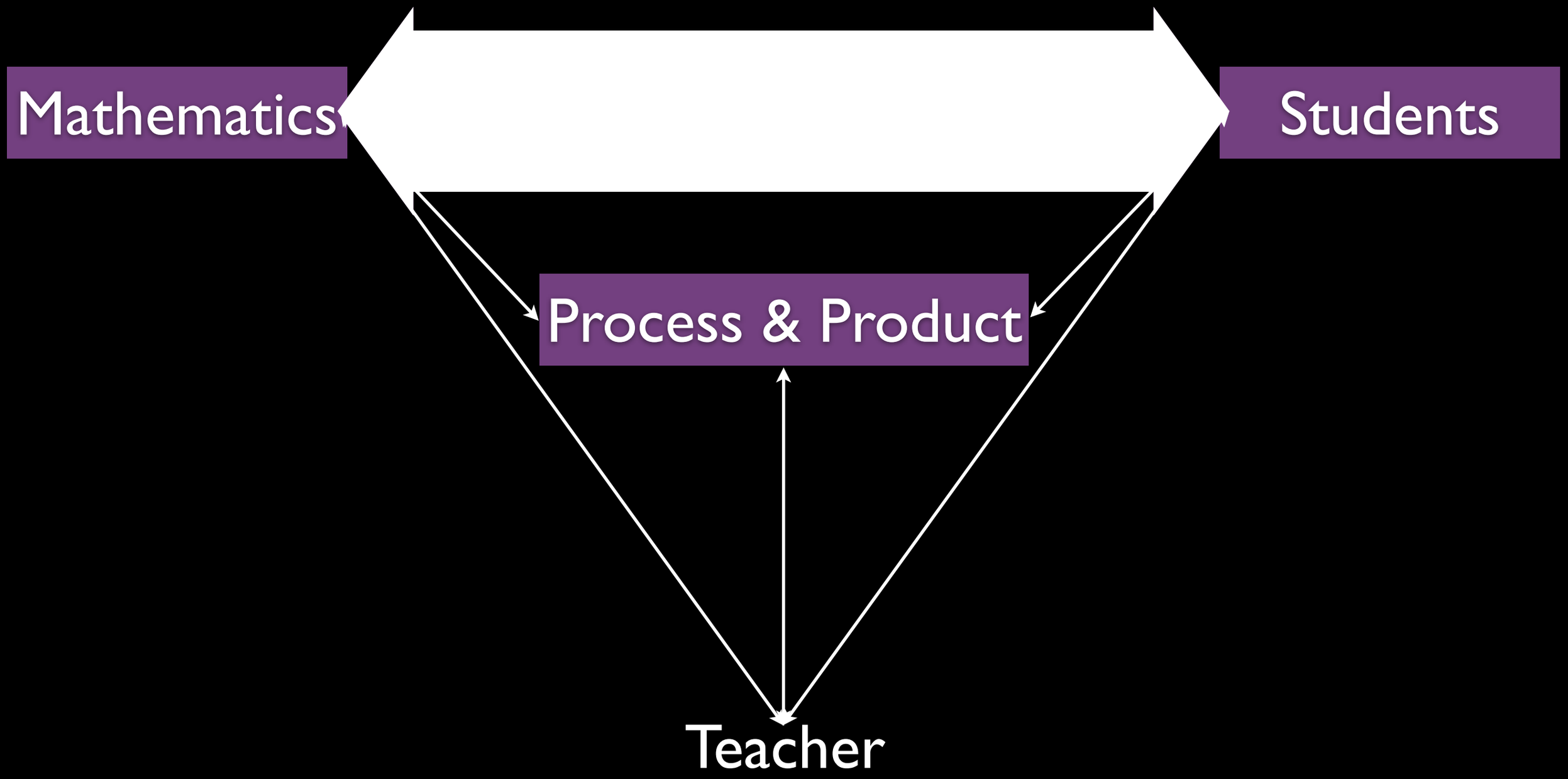

Mathematics
Students
Process & Product
Teacher

Mathematics

Students

Process & Product

Teacher

Journal of Urban Mathematics Education
July 2013, Vol. 6, No. 1, pp. 19–27

Teaching Mathematics as Agape: Responding to Oppression with Unconditional Love

Joel Amidon
University of Mississippi

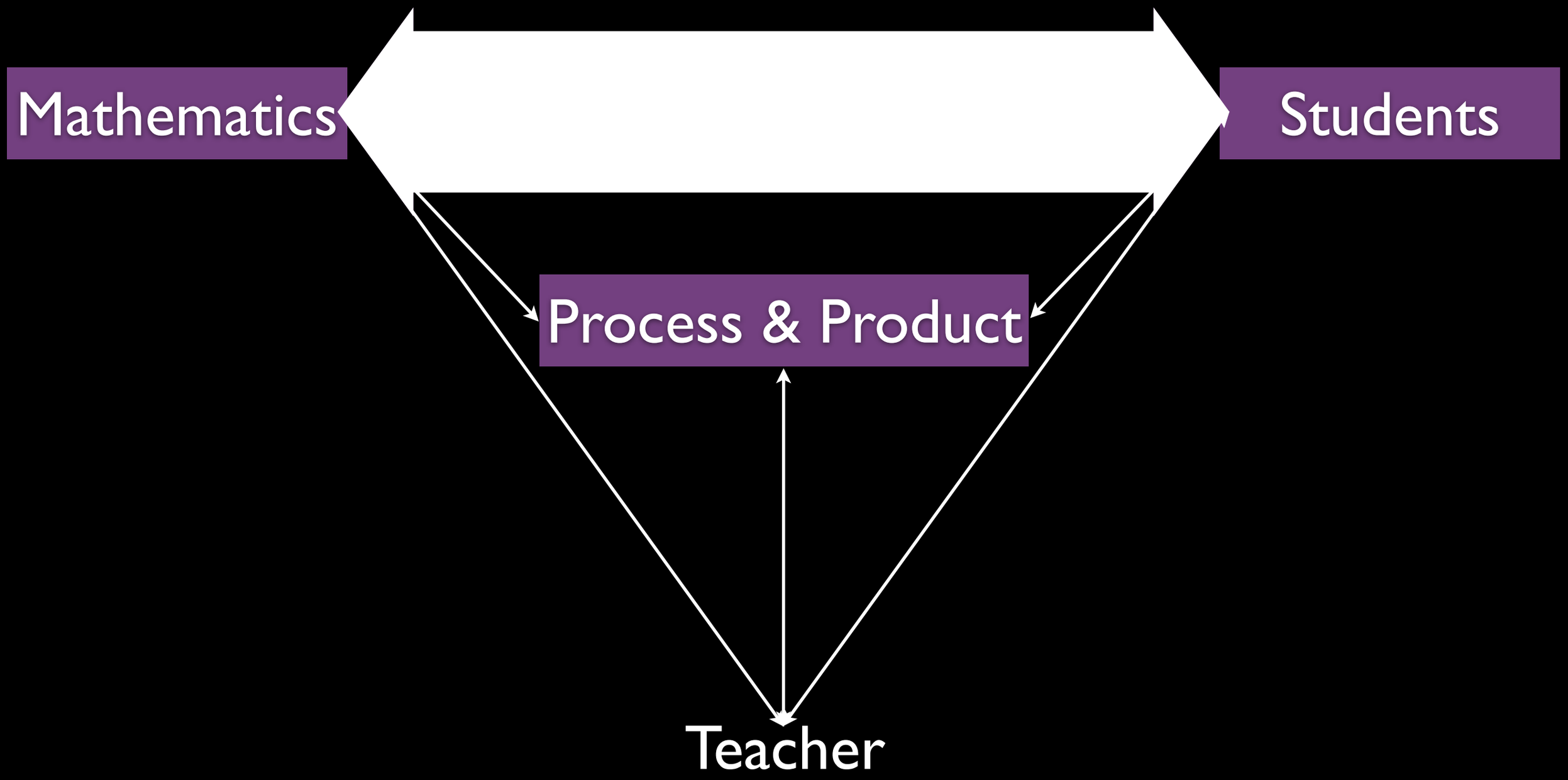
In this essay, encouraged by the critical examination of mathematics education and mathematics teacher education at the Privilege and Oppression in the Mathematics Preparation of Teacher Educators Conference, the author asks the question: What do I do from a position of power and privilege to interrupt oppression and enable everyone the opportunity and expectation of success in mathematics and life? The author proposes a response with agape (pronounced ägäpā), or unconditional love. Starting with the question What would it mean to teach mathematics as an act of unconditional love? the author theorizes an ideal relationship between students and mathematics that is functional, communal, critical, and inspirational, generated from wanting to teach mathematics as agape.

KEYWORDS: equity pedagogy, mathematics education

My decision to pursue a career in mathematics education was immediately affirmed by the images of all my white, middle-class, male, mathematics teachers who looked just like me, even down to the thick-rimmed glasses, and the occasional use of a pocket protector. Given that inequity exists in the world, there is no denying that I am sitting on the side of privilege. In response to this realization and encouraged by the critical examination of mathematics education and mathematics teacher education at the Privilege and Oppression in the Mathematics Preparation of Teacher Educators (PrOMPTE[1]) conference, I ask the question: What do I do from this position of power and privilege as a mathematics teacher, researcher, and teacher educator to interrupt oppression and enable everyone the opportunity and expectation of success in mathematics and in life? In this essay, I propose to respond with agape (pronounced ägäpā), or unconditional love. I theorize an ideal relationship between students and mathematics that is functional, communal, critical, and inspirational, starting with the question: What would it mean to teach mathematics as an act of unconditional love?

[1] Privilege and Oppression in the Mathematics Preparation of Teacher Educators (PrOMPTE) conference (funded by CREATE for STEM Institute through the Lappan-Phillips-Fitzgerald CMP 2 Innovation Grant program), Michigan State University, Battle Creek, MI, October 2012. Any opinions, findings, and conclusions or recommendations expressed herein are those of the authors and do not necessarily reflect the views of the funding agency.

JOEL AMIDON is an assistant professor in the Department of Teacher Education at the University of Mississippi, P.O. Box 1848, University, MS 38677; email: jcamidon@olemiss.edu. His research interests include advancing theories of teaching and learning and the improvement of mathematics pedagogy to address issues of equity and diversity.


Mathematics
Students
Process & Product
Teacher

Mathematics

Students

Process & Product

Teacher

MTE

METHODS

METHODS

Setting

METHODS

Setting Rural High School

METHODS

Setting

Rural High School

Algebra

METHODS

Setting

Participants

METHODS

Setting

Participants

Virge

METHODS

Setting

Participants

Virge

Jennifer

METHODS

Setting

Participants

Virge

Morgan

METHODS

Setting

Participants

Virge

Morgan

Myself

METHODS

Setting

Participants

Virge

Morgan

Myself

Graduate Assistant

METHODS

Setting

Participants

Data Generation

METHODS

Setting

Participants

Data Generation

METHODS

Setting

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Data Generation

Observations

METHODS

Setting

Participants

Data Generation

Observations

Coaching Journal

METHODS

Setting

Participants

Data Generation

Observations

Coaching Journal

Student Work

METHODS

Setting

Participants

Data Generation

Data Analysis

METHODS

Setting

Participants

Data Generation

Data Analysis

Dedoose

METHODS

Setting

Participants

Data Generation

Data Analysis

Dedoose

Cycles of Coding

WHAT HAPPENED

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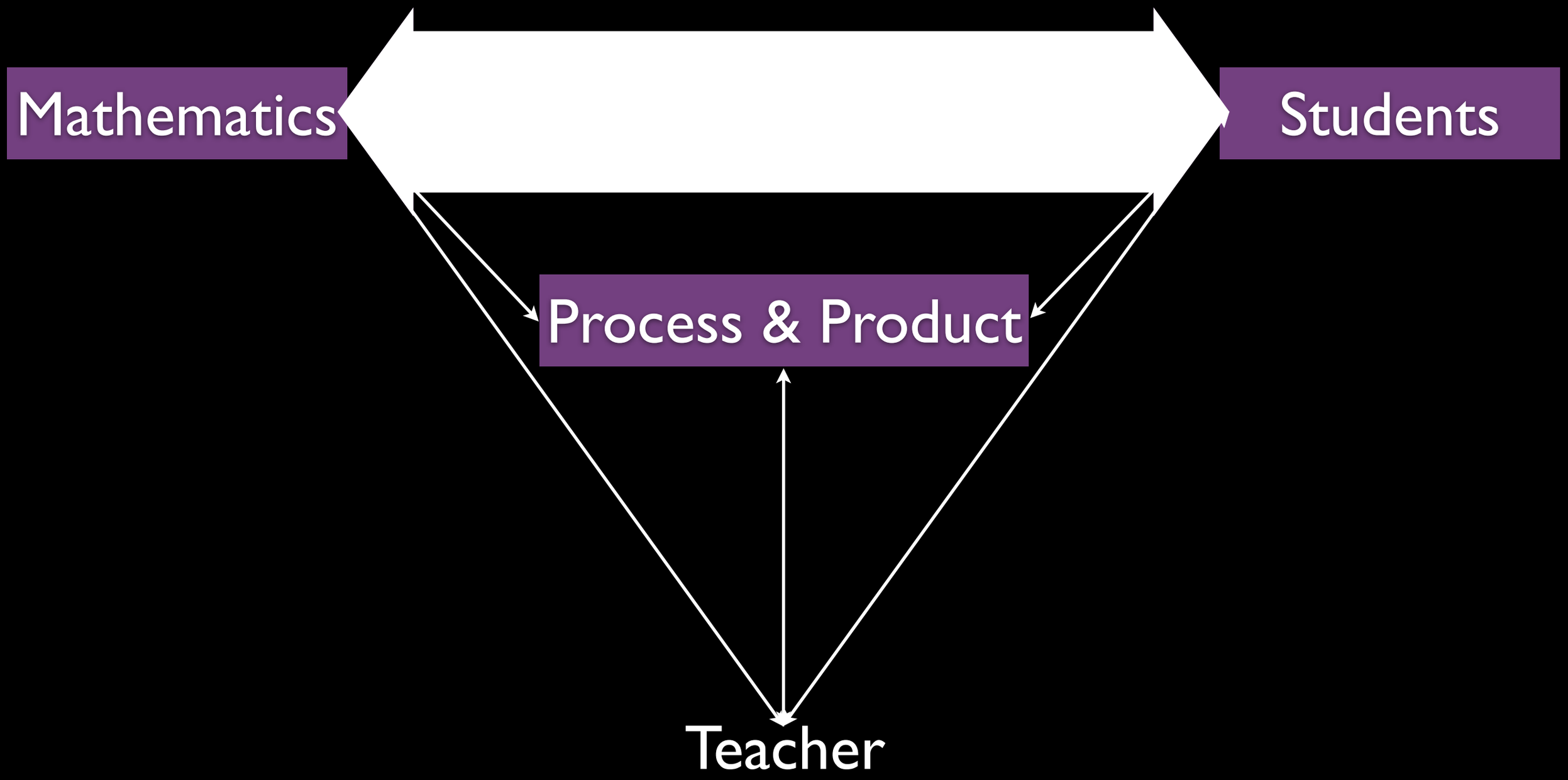
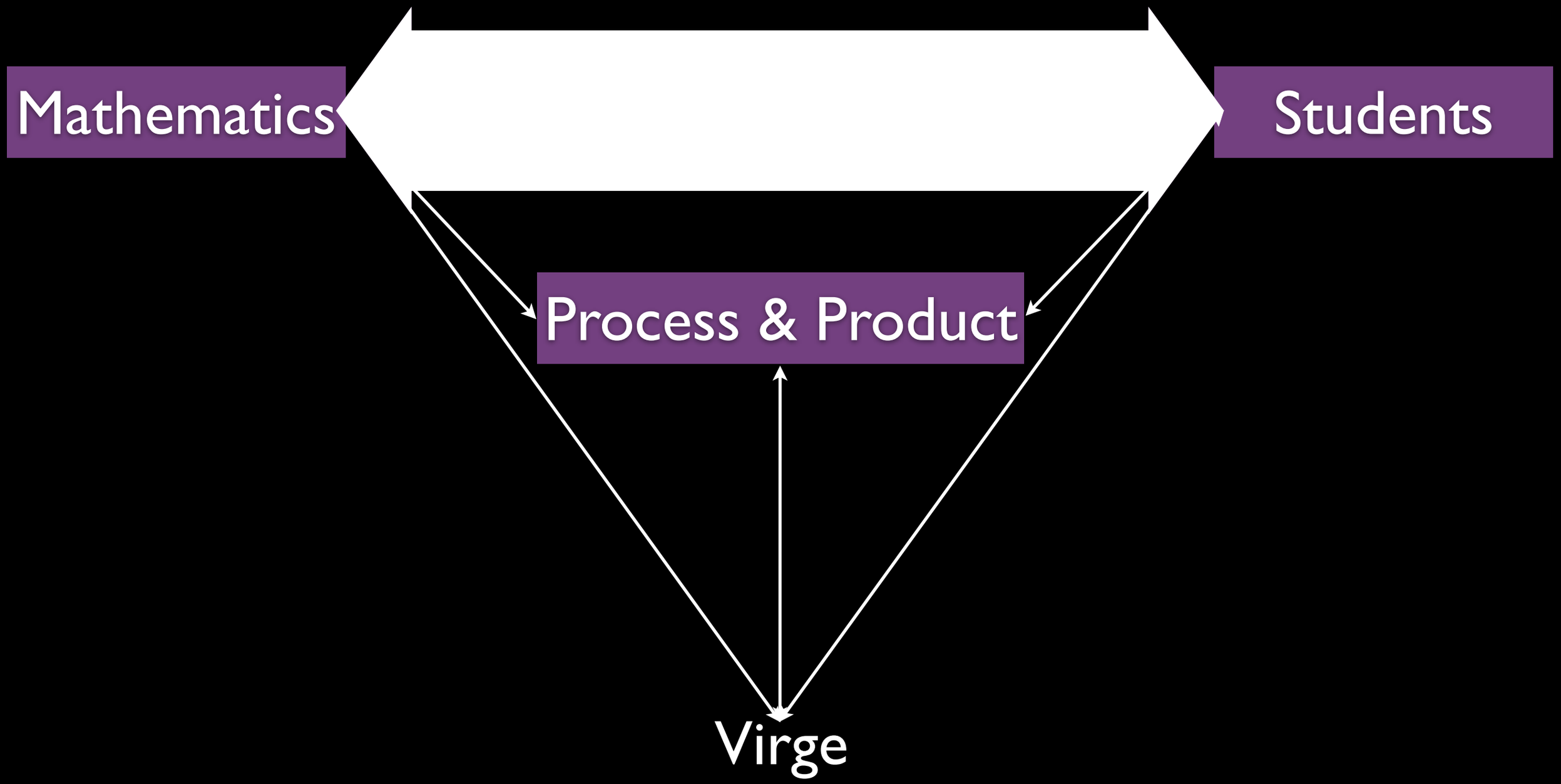
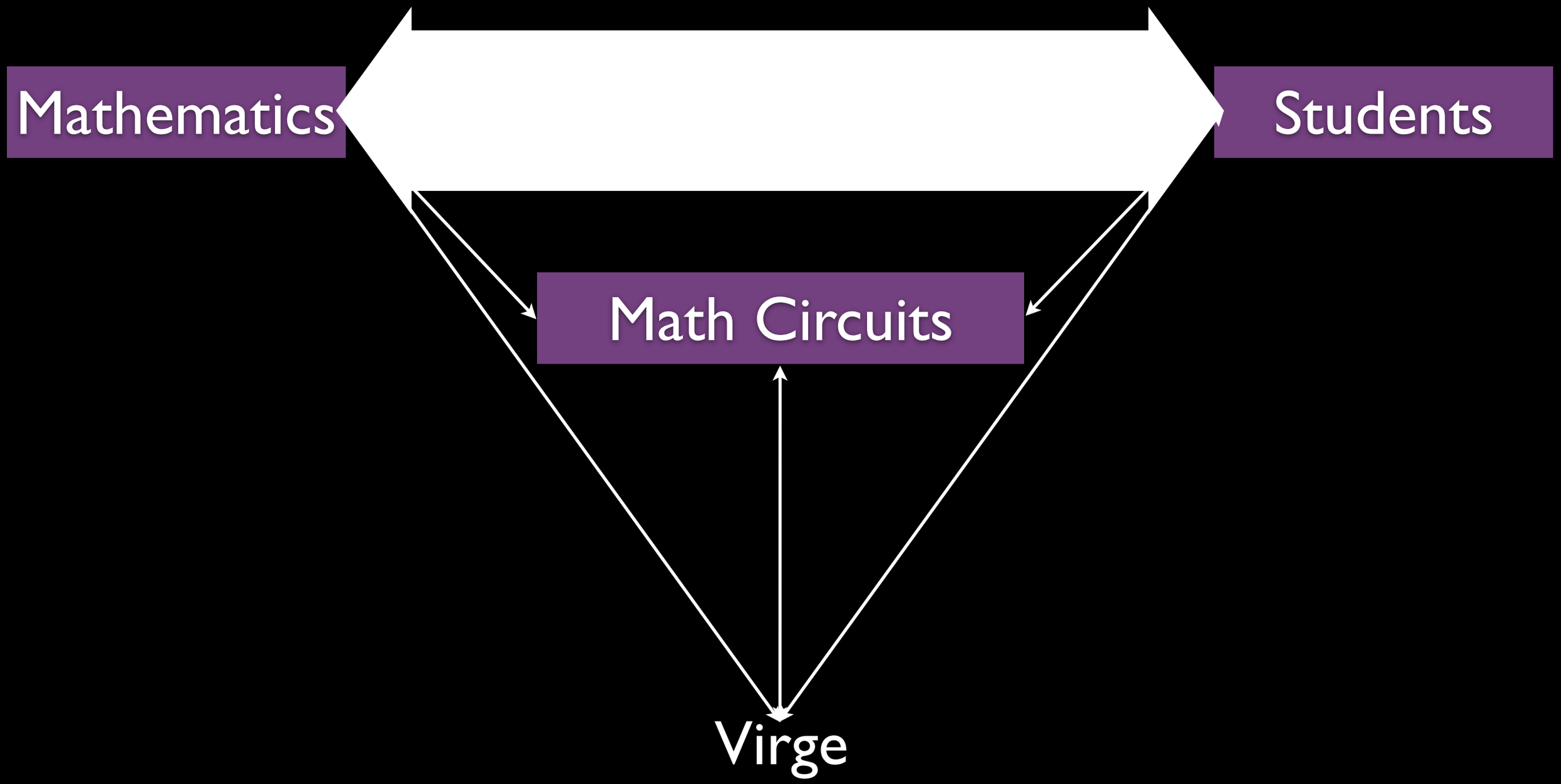

Mathematics
Students
Process & Product
Teacher

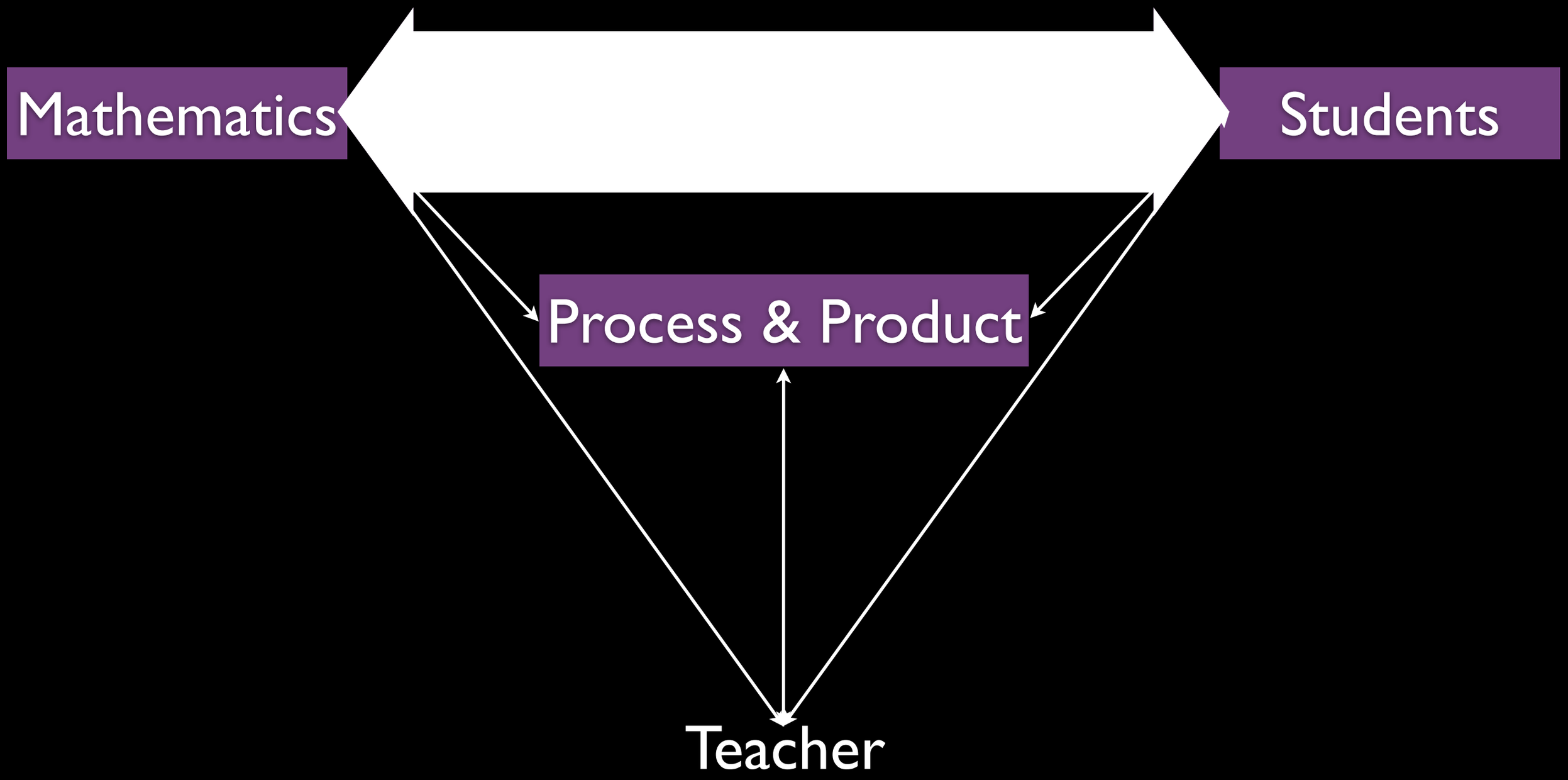

Mathematics
Students
Process & Product
Virge


Mathematics
Students
Math Circuits
Virge

Circuit Training -- Solving Quadratic Equations (Mixed Methods)

Beginning in cell #1, solve the quadratic equation by the indicated method. In each case, to advance in the circuit, you will need to *do something* with your solutions and then hunt for that answer. Mark the next cell #2 and proceed in this manner until you complete the circuit.

Answer: -1.2 #1 Solve by factoring: $x^2 - 9 = 0$. Now, find the product of your solutions.	Answer: $\frac{5}{2}$ # _____ Solve $x(x-1) = 30$ by factoring. Now, find the sum of your solutions.
Answer: 16.75 # _____ Solve by the quadratic formula. $x^2 - 2x = 8$ Now, find the smaller answer.	Answer: 0.7 # _____ Solve by completing the square. To advance in the circuit, hunt for twice the larger root. $x^2 - 9x + 3 = 0$
Answer: $-\frac{7}{3}$ # _____ Solve by factoring $x^2 - 2x - 8 = 0$. Now, find the larger of your two solutions.	Answer: 1 # _____ Solve by graphing. Sketch the picture! $9 - x^2 = -7$ Now, find the smaller of your answers.


Mathematics
Students
Process & Product
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Mathematics
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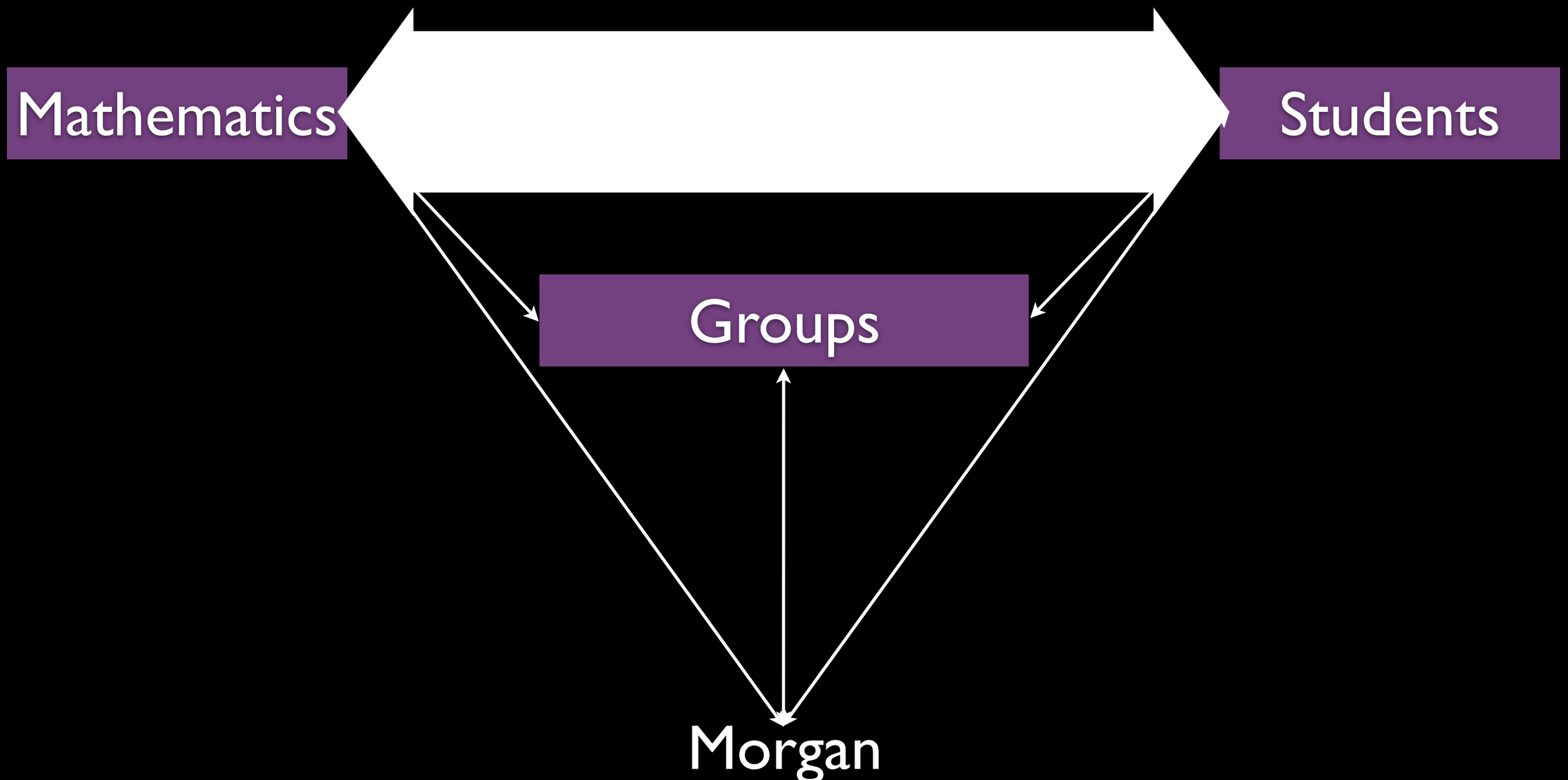
Morgan


Mathematics
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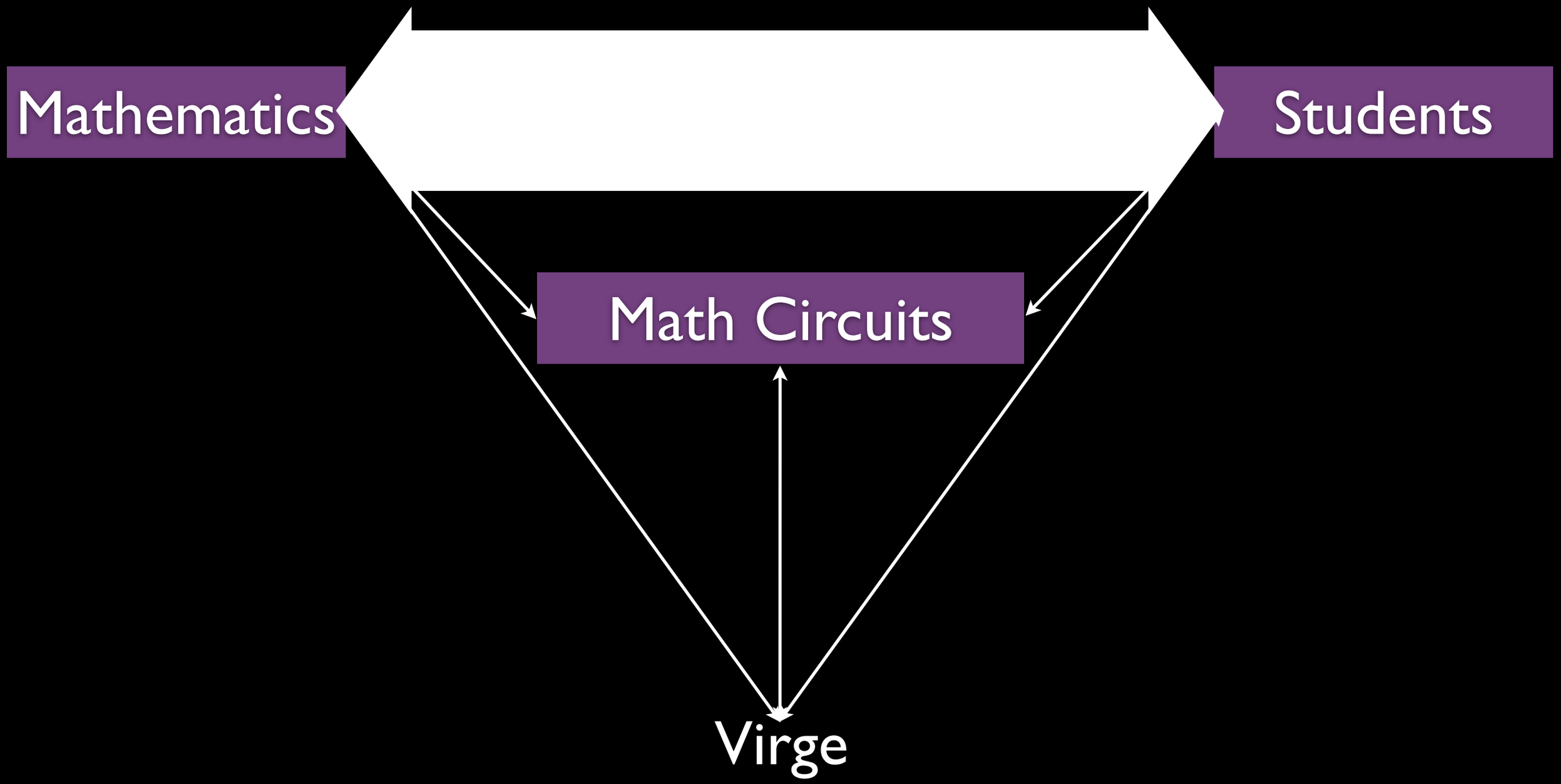

Mathematics
Students
Math Circuits
Virge

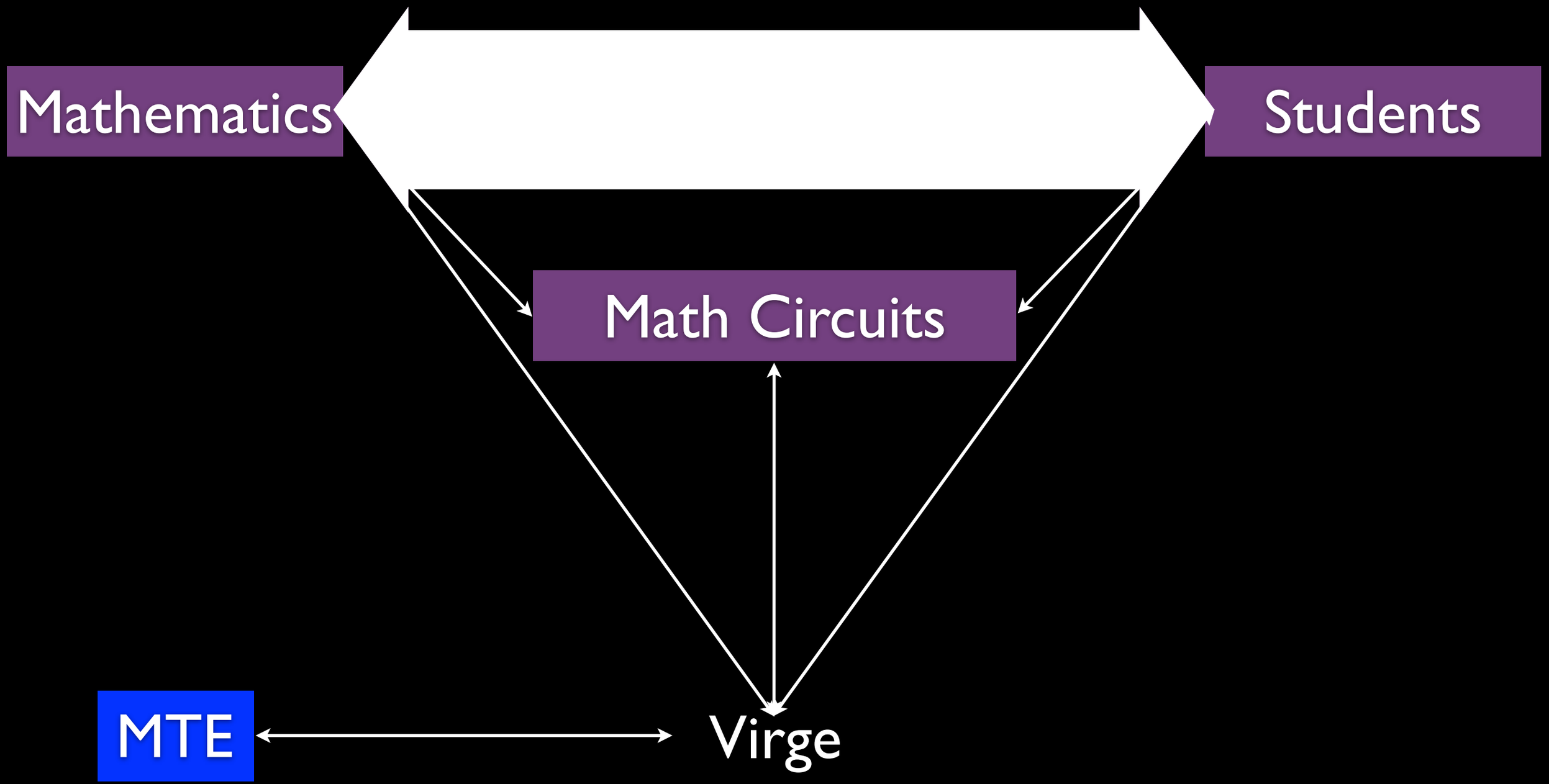
Mathematics

Students

Math Circuits

Virge

MTE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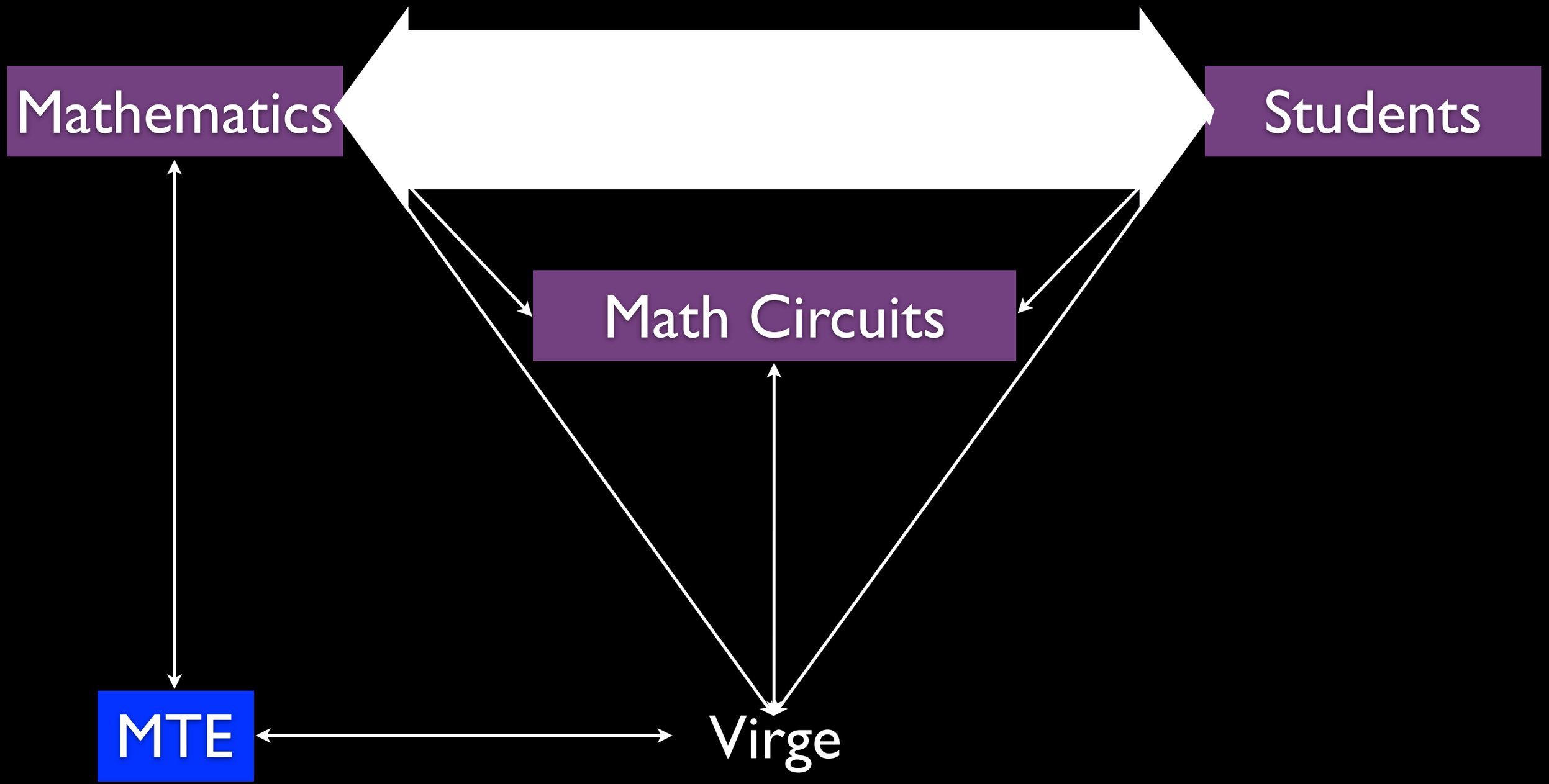
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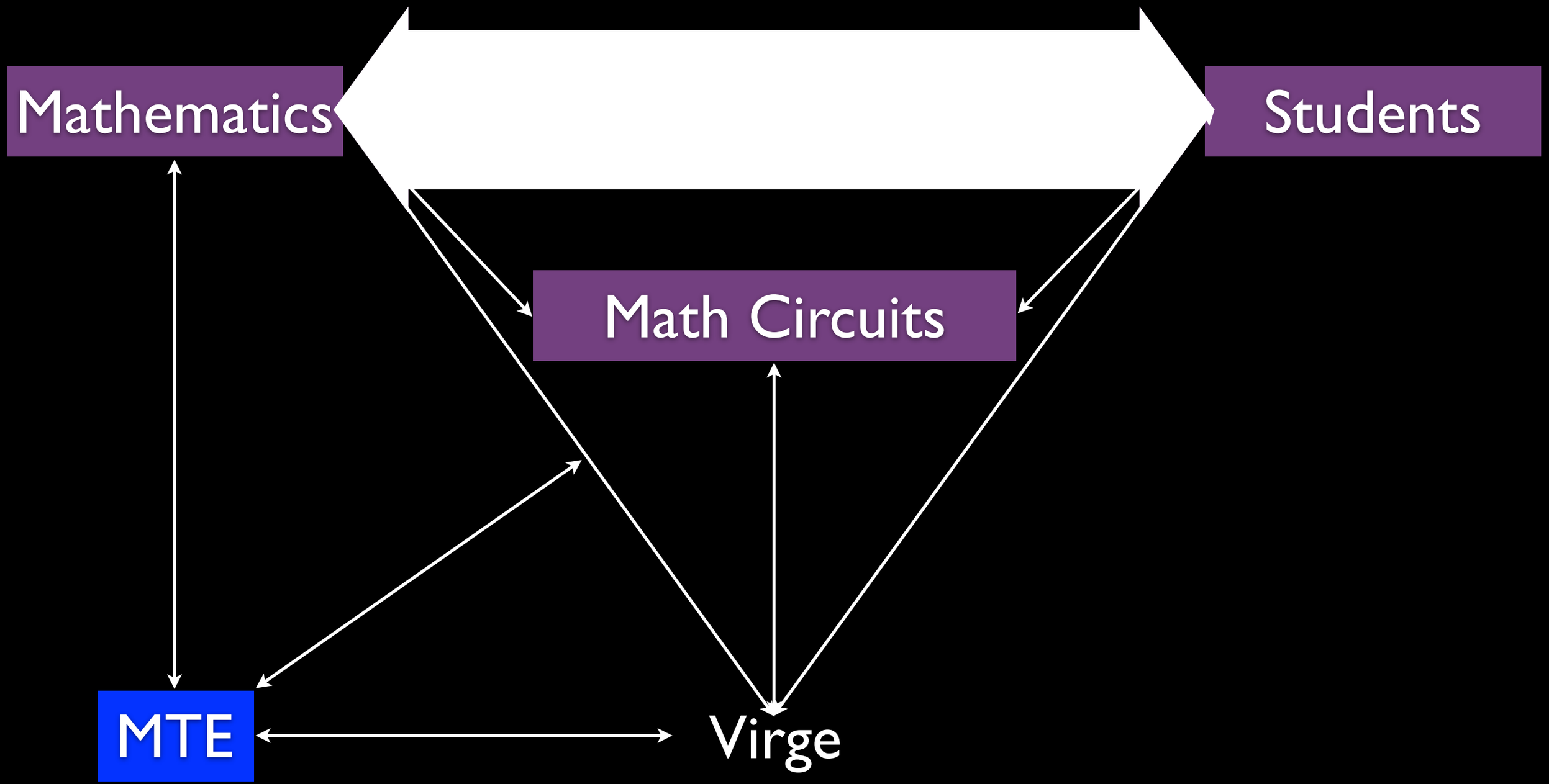
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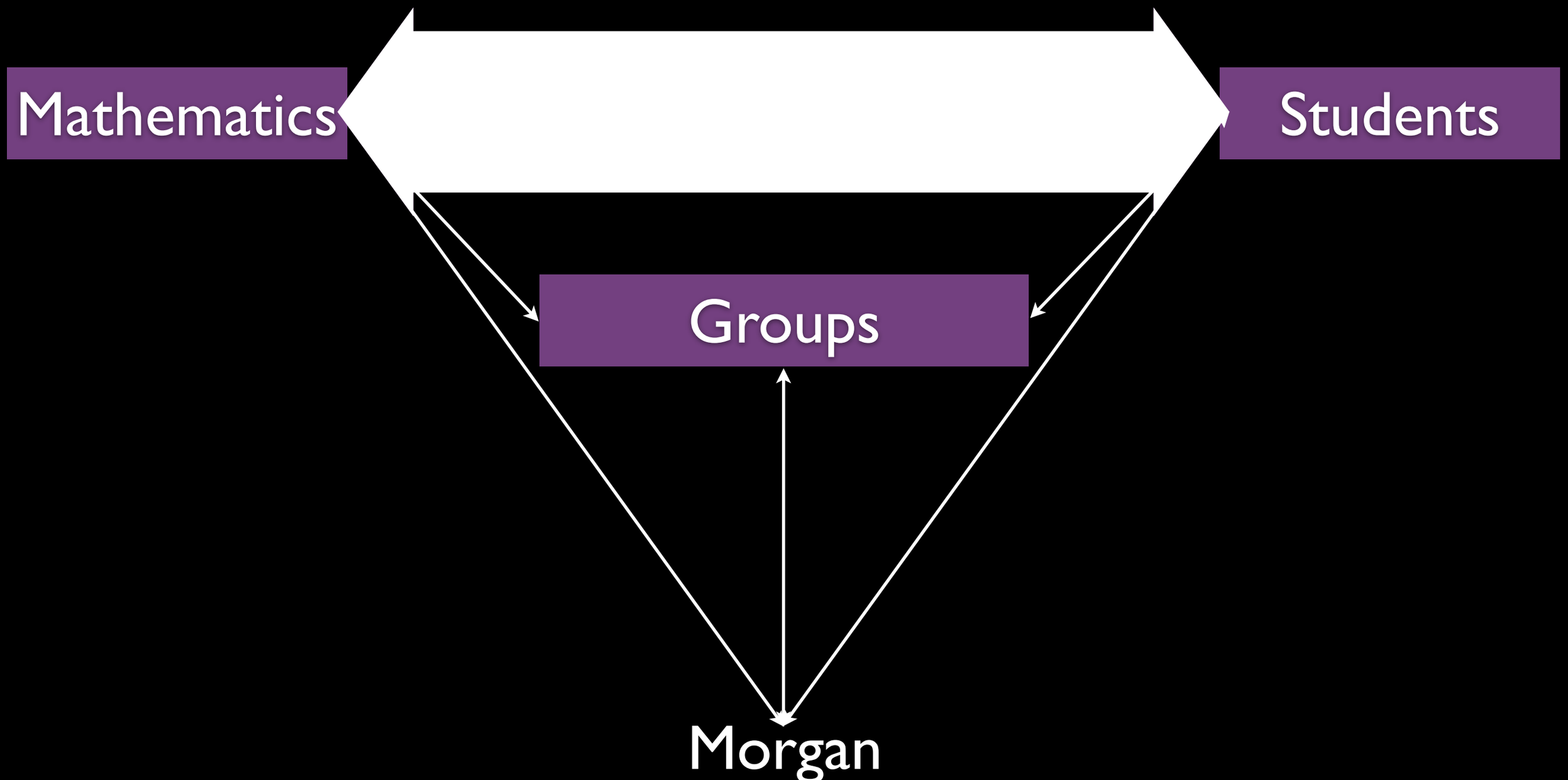
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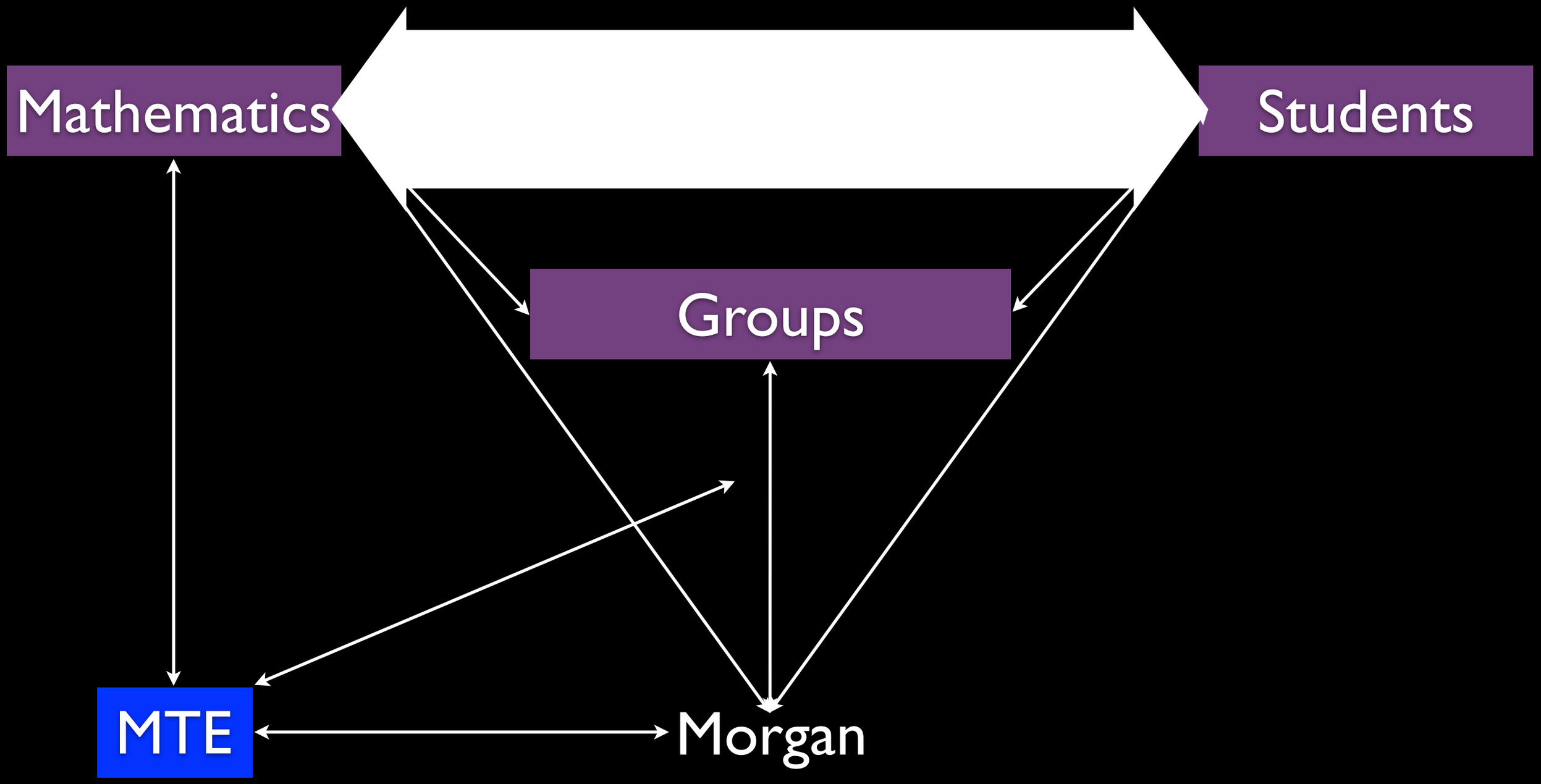

Mathematics
Students
Groups
MTE
Morgan

All Grades

Cooperative Learning

Dr. Spencer Kagan

KCL: BCL

All Grades

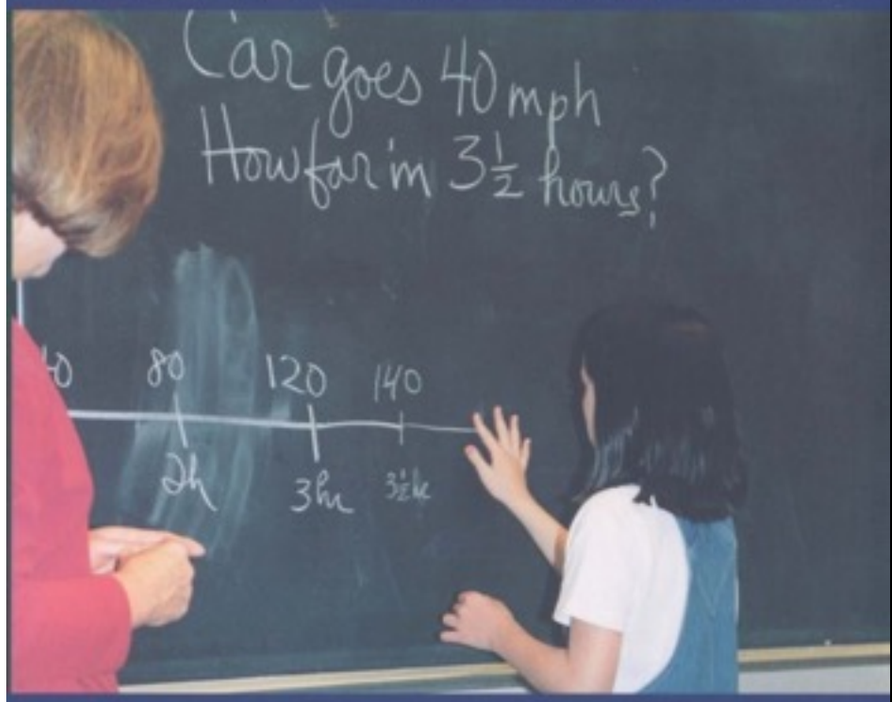
Cooperative Learning

Dr. Spencer Kagan

Kagan

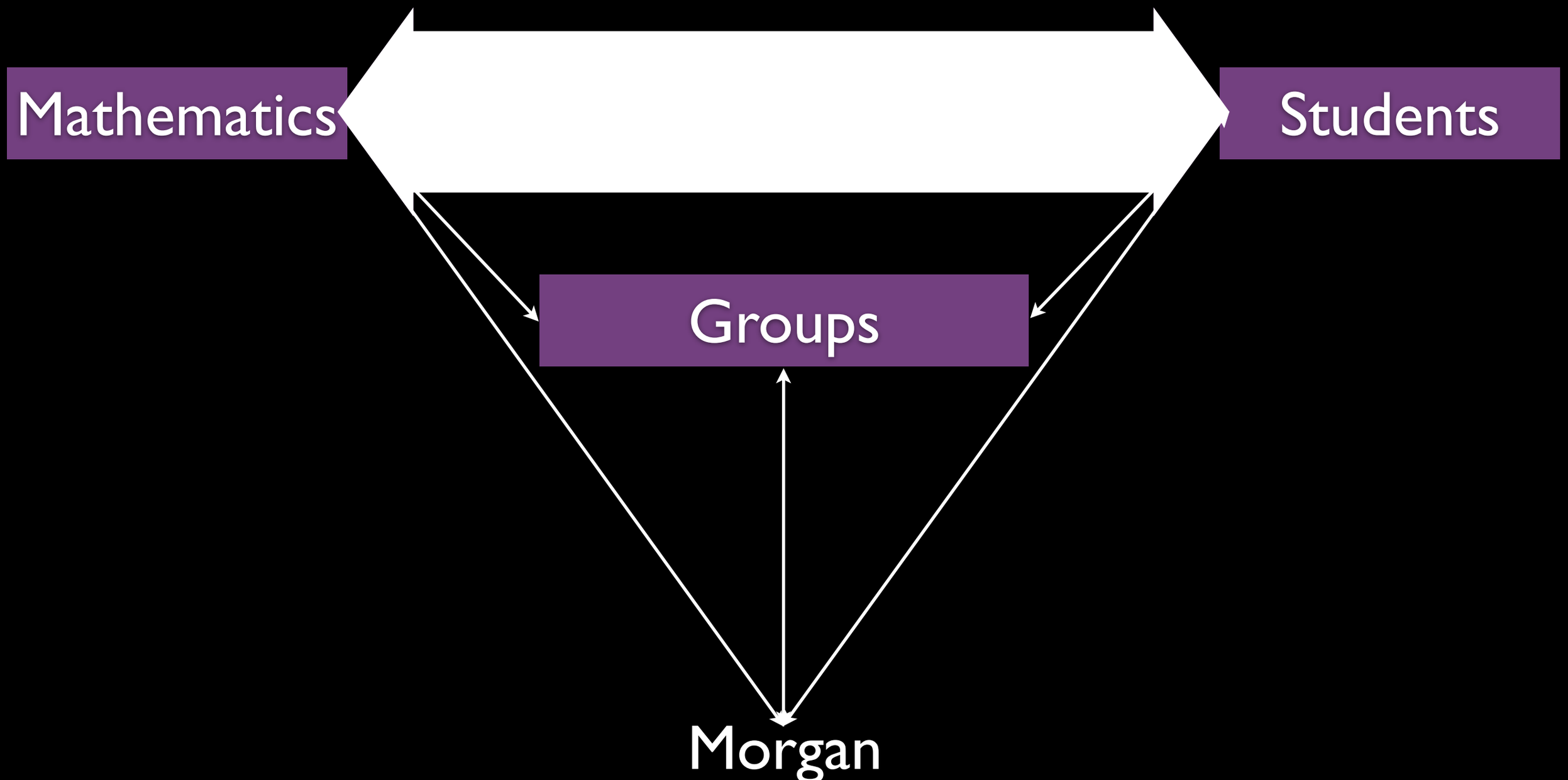
KCL: BCL

TEACHING PROBLEMS AND THE



PROBLEMS OF TEACHING

MAGDALENE LAMPERT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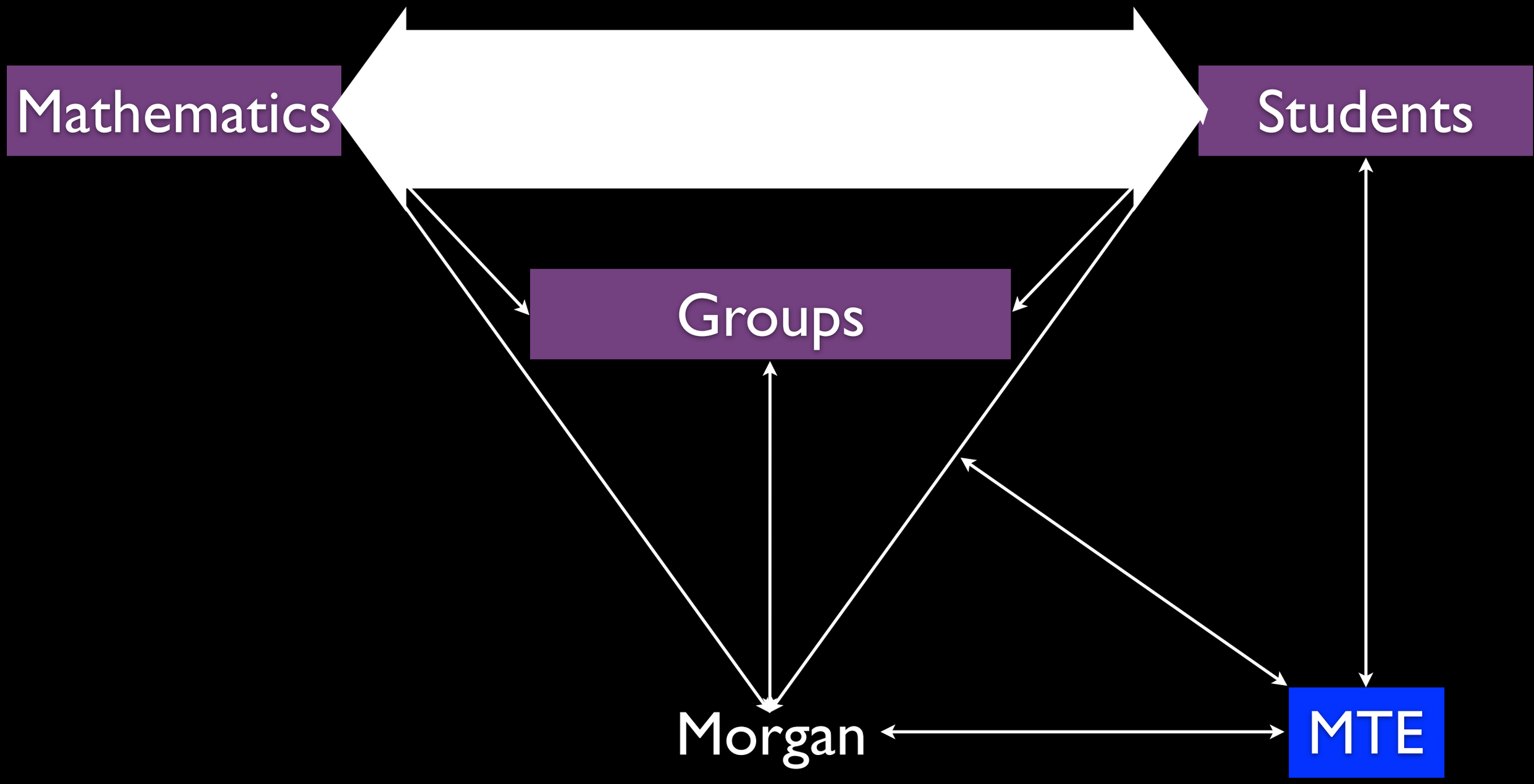

Mathematics
Students
Groups
Morgan
MTE

She said she was puzzled by her 6th period class, and she even said “embarassed”. She said she didn’t know how to handle the class because they are constantly talking and cannot efficiently deliver material. She was embarassed by their behavior and didn’t know what to do.

All Grades

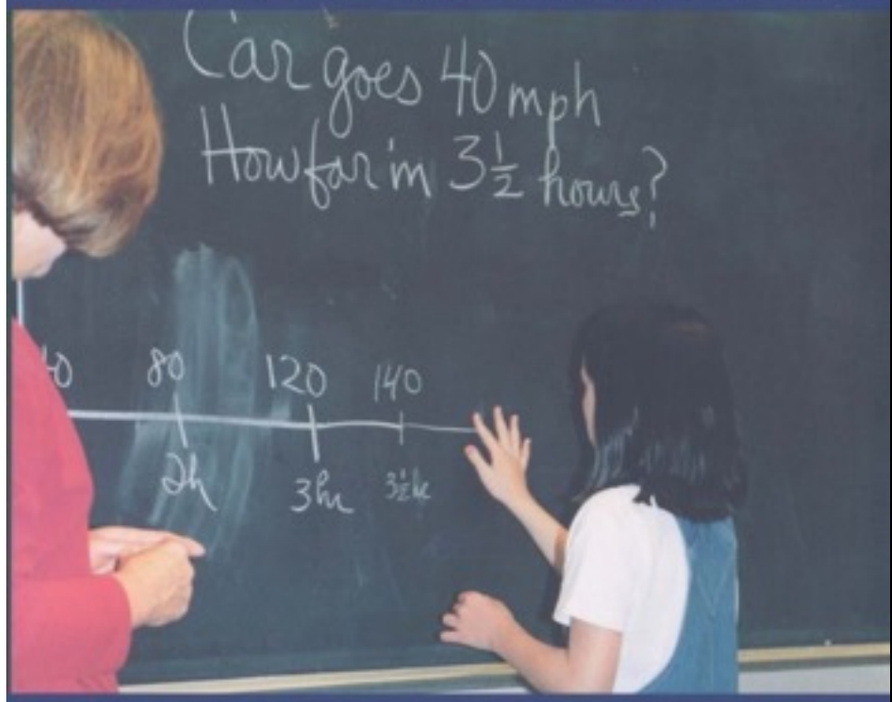
Cooperative Learning

Dr. Spencer Kagan

Kagan

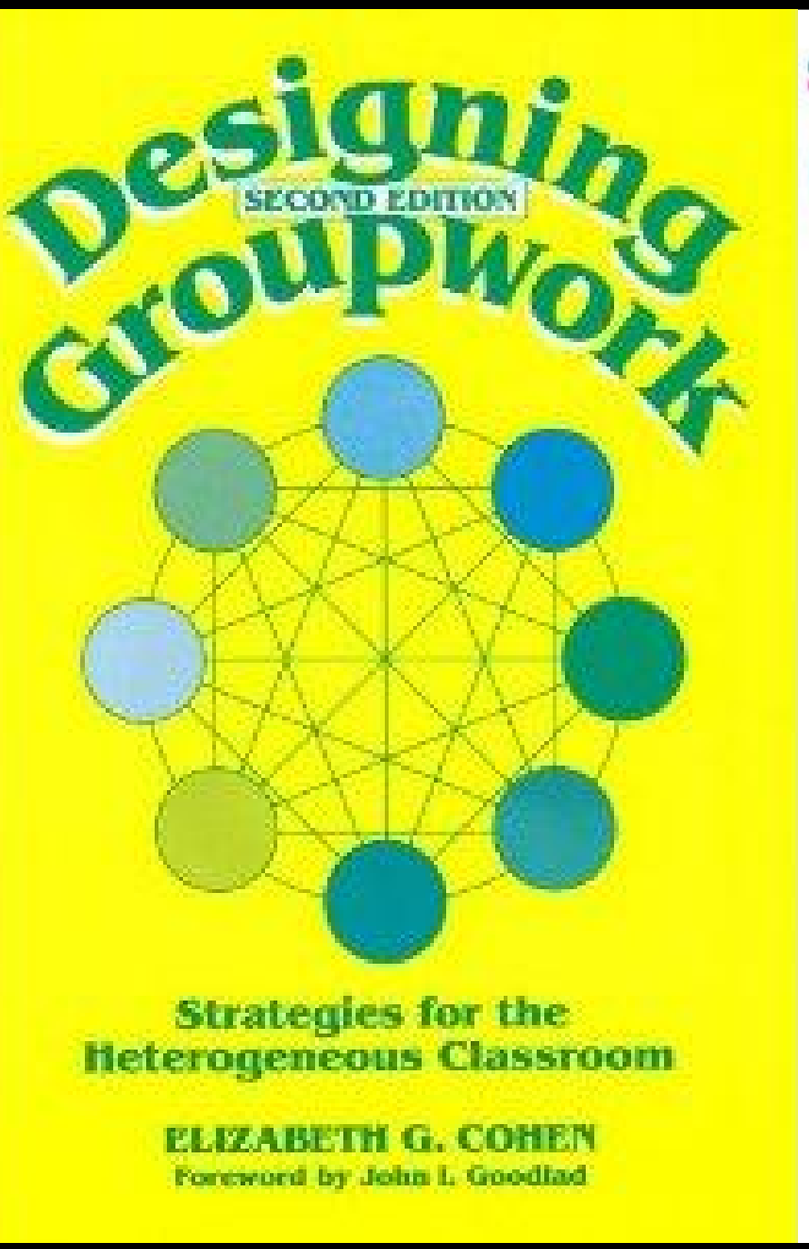
KCL: BCL

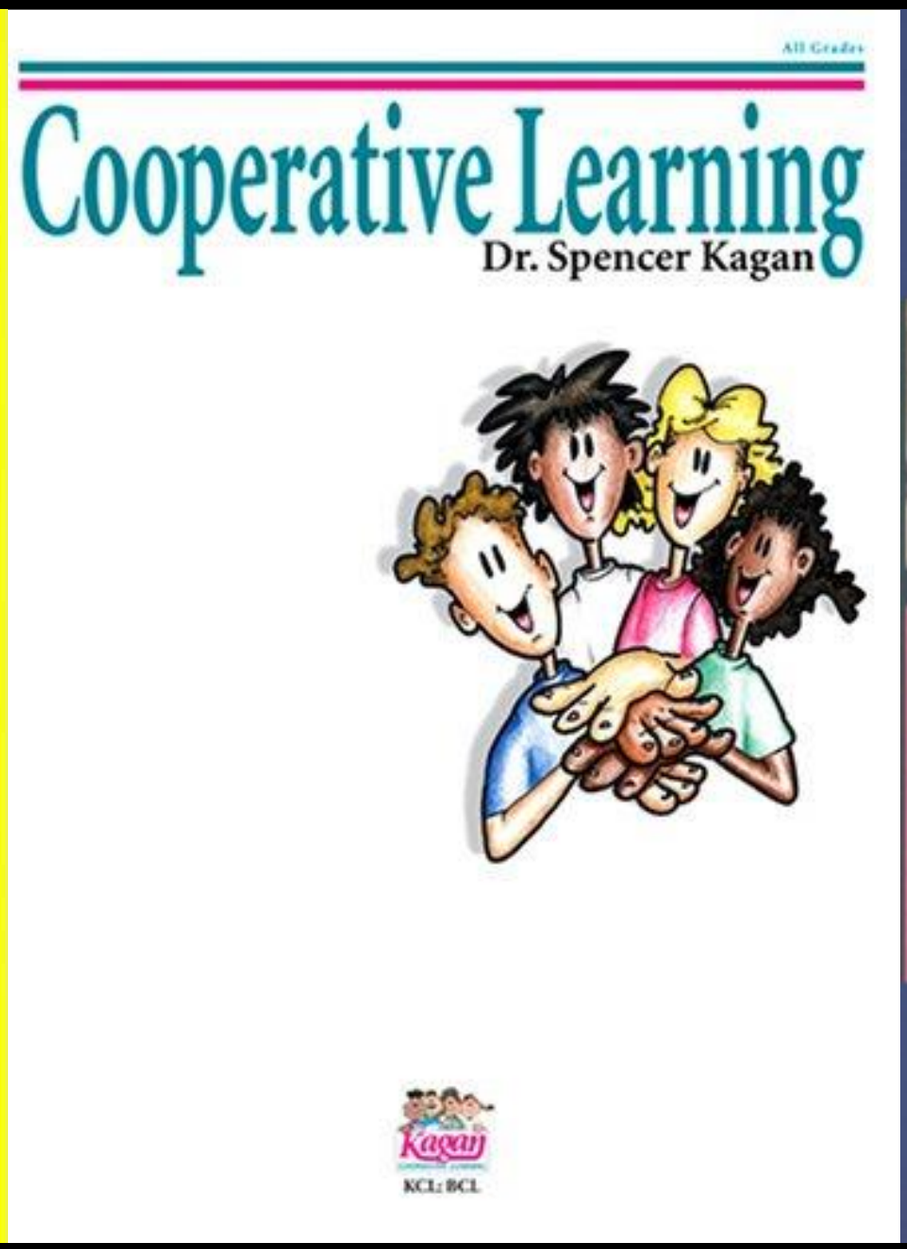
TEACHING PROBLEMS AND THE

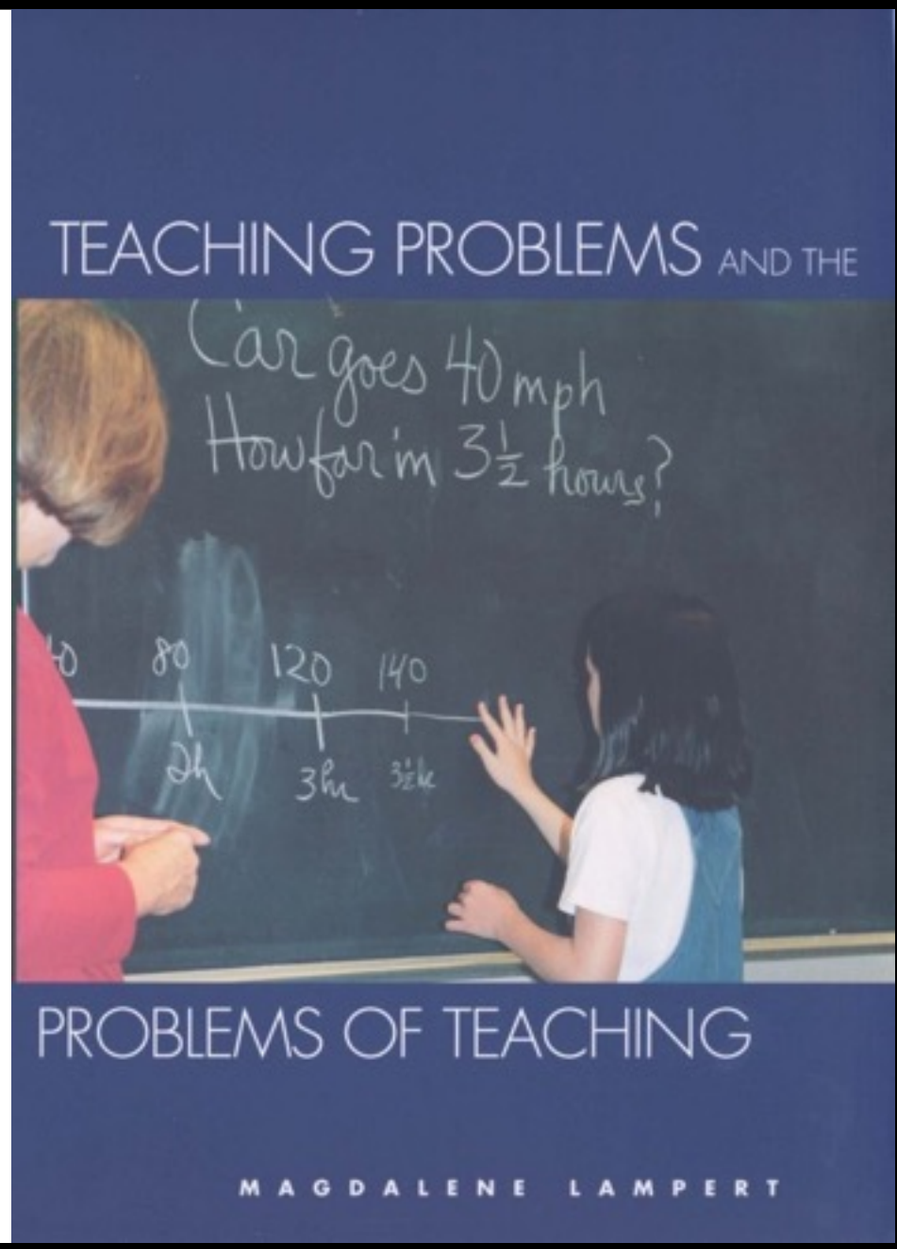


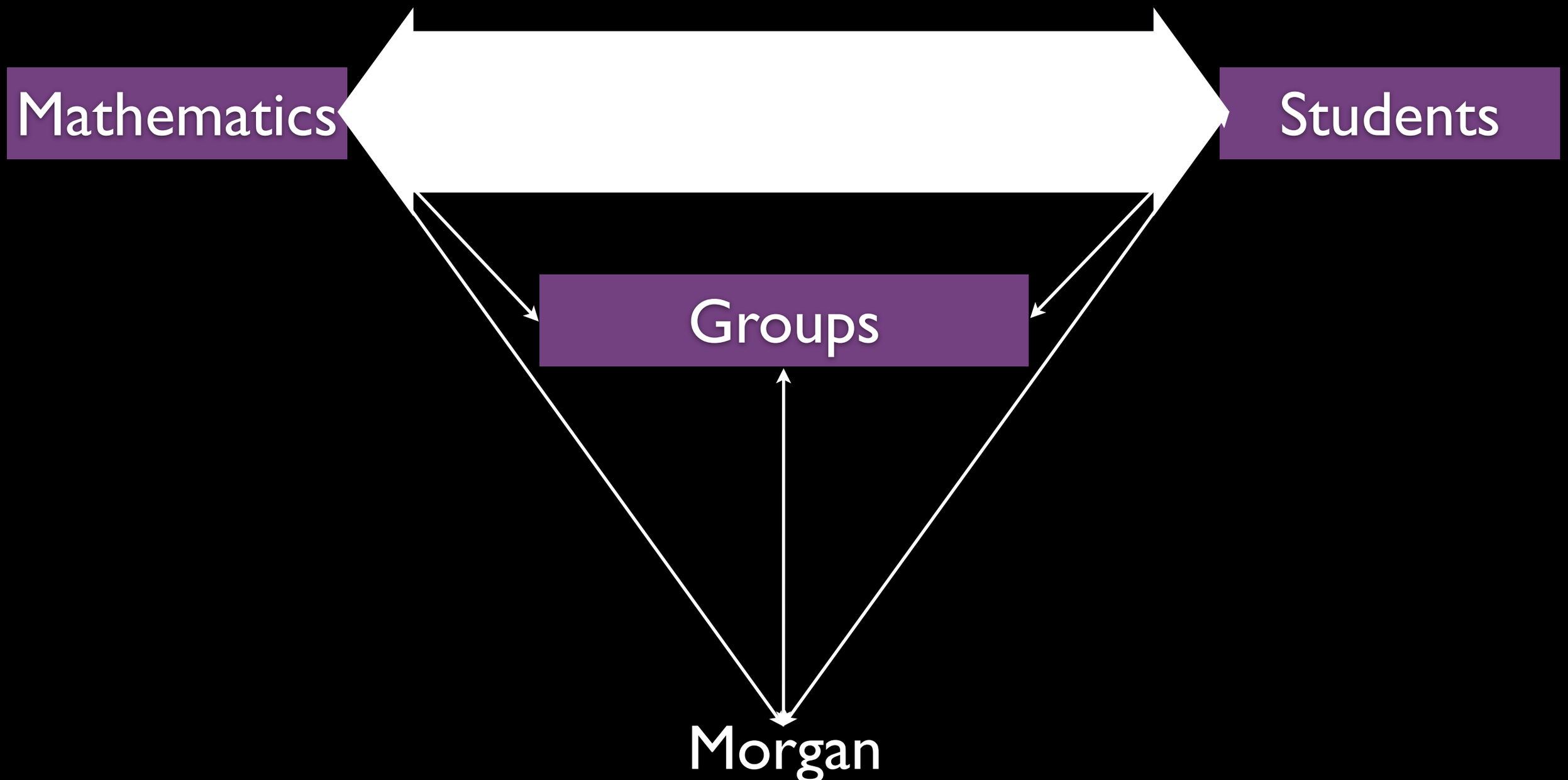
PROBLEMS OF TEACHING

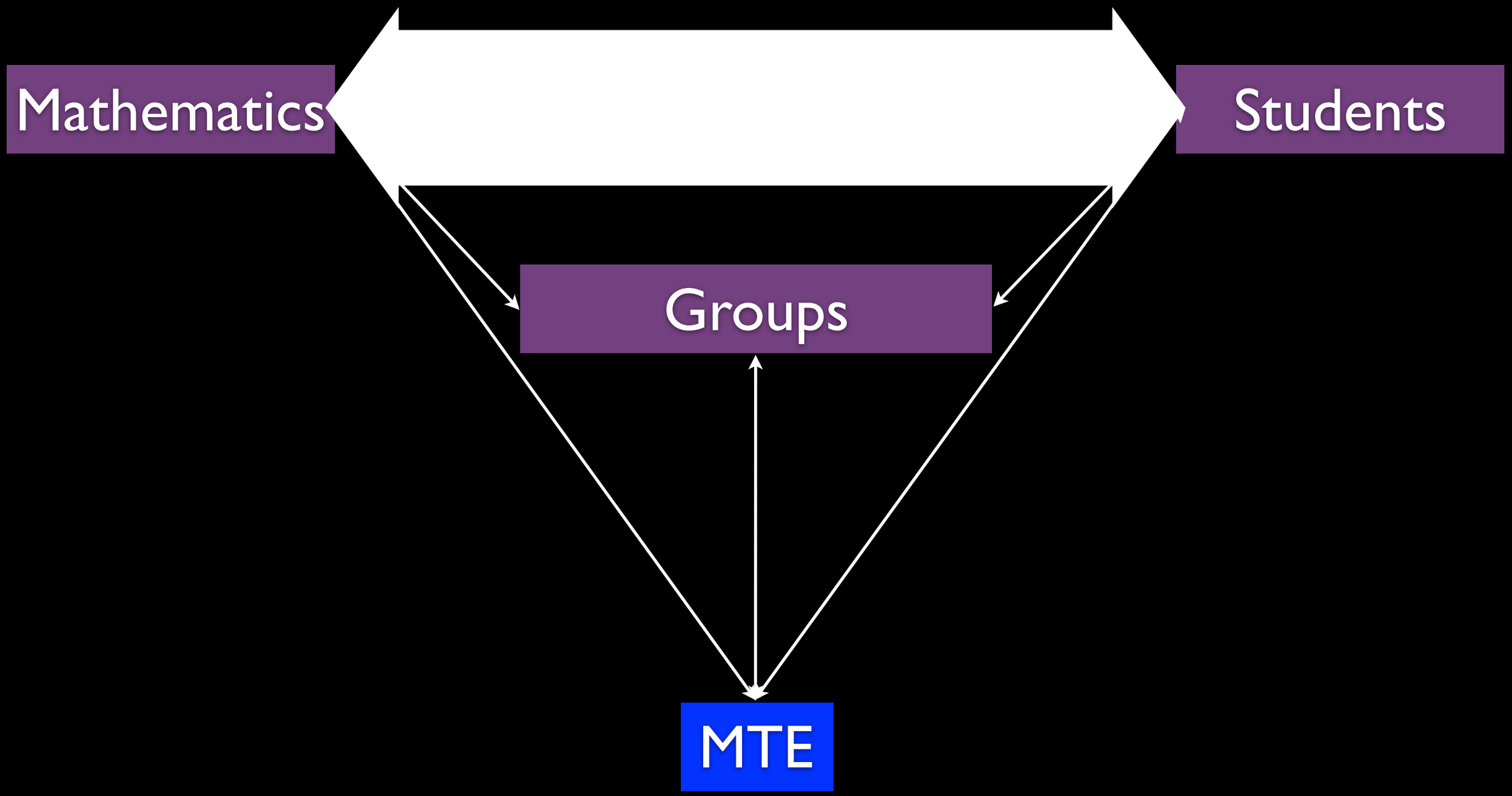
MAGDALENE LAMPERT

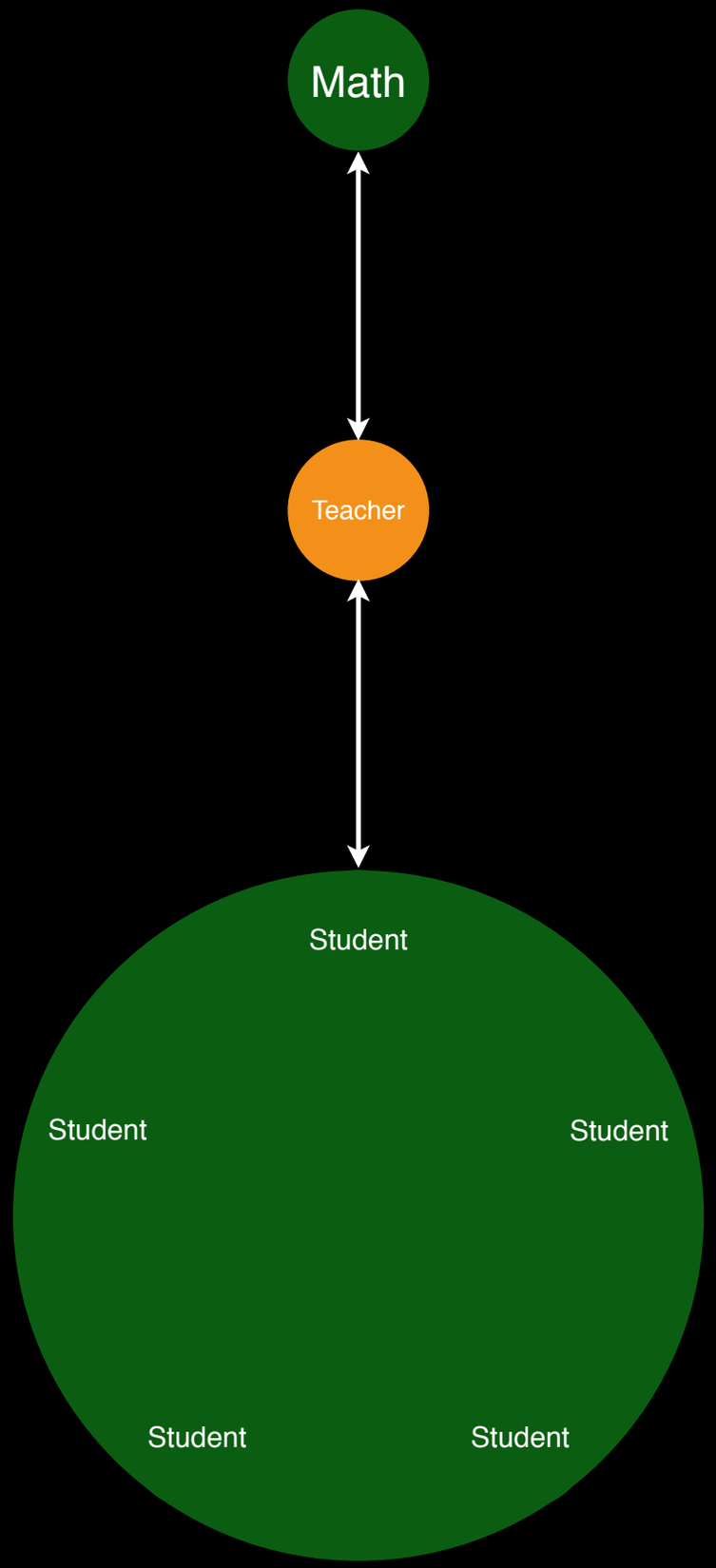

Designing Groupwork
SECOND EDITION
Strategies for the Heterogeneous Classroom
ELIZABETH G. COHEN
Foreword by John I. Goodlad

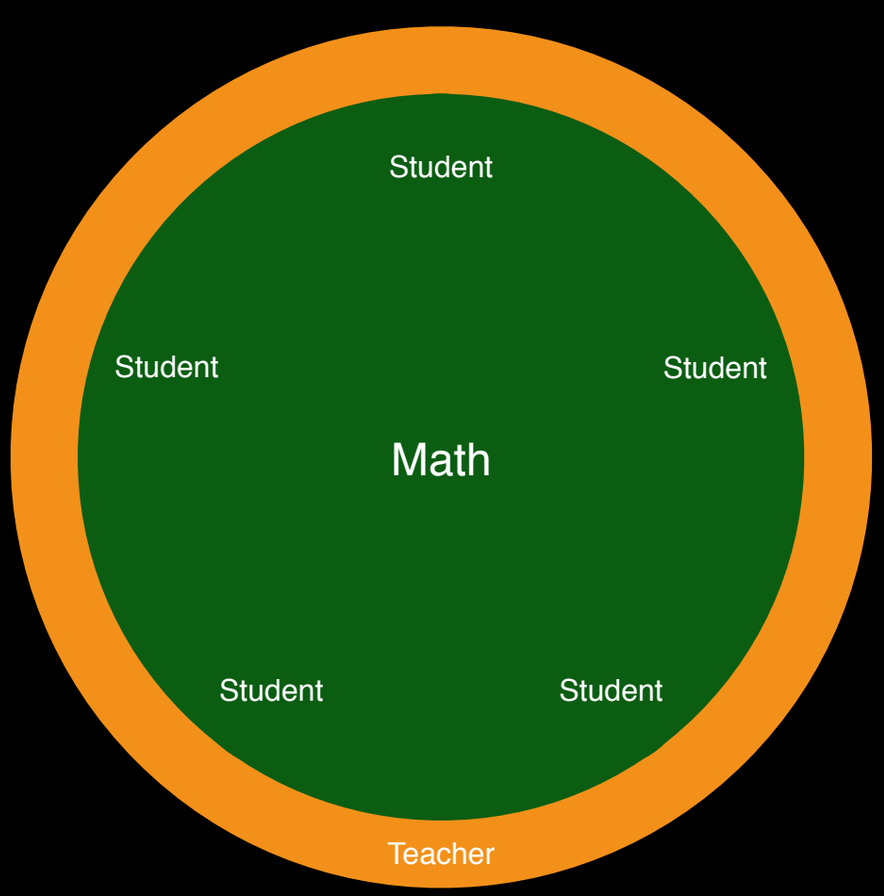

All Grades
Cooperative Learning
Dr. Spencer Kagan
KCL: BCL


TEACHING PROBLEMS AND THE
Car goes 40 mph
How far in 3½ hours?
PROBLEMS OF TEACHING
MAGDALENE LAMPERT


Mathematics
Students
Groups
Morgan


Mathematics
Students
Groups
MTE


Math
Teacher
Student
Student
Student
Student
Student


Student
Student
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Math
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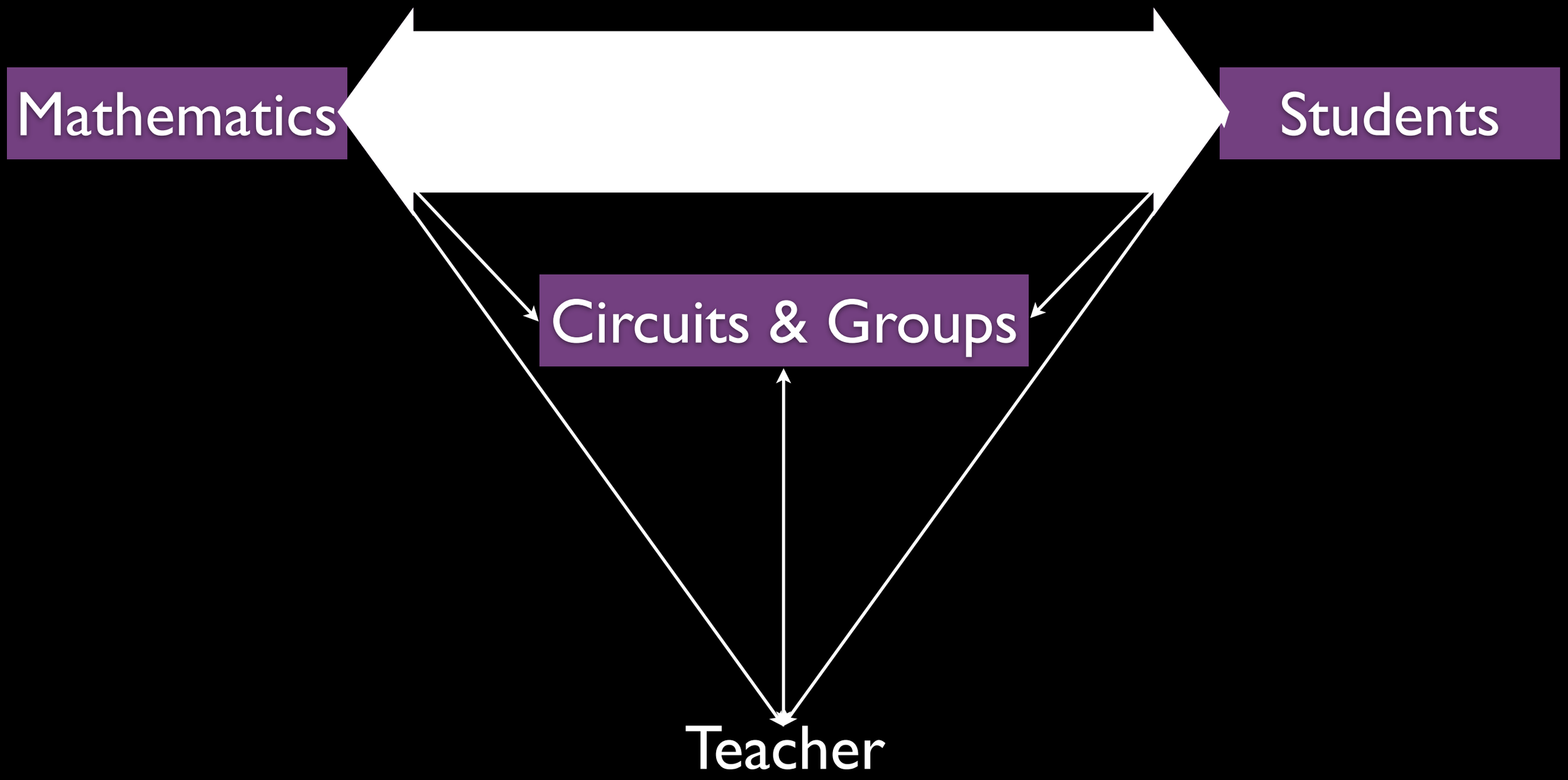

Mathematics
Students
Circuits & Groups
Teacher

Circuit Task Card

Roles

Team Captain
Ensures that all group members are fulfilling their roles. Ensures that tasks are completed within the given time constraints.

Recorder/Reporter
Ensures that all group members are recording. Ensures that all group members can report out.

Strategy Generator
Ensures that at least two strategies are developed for finding each common solution. Facilitates the finding of additional strategies.

Questioner/Comprehension Manager
Asks questions to ensure all solutions make sense and all group members understand group-generated strategies.

TASK
Complete the circuit by generating multiple strategies for finding the group's solution.

Materials

Envelope with Circuit Tasks
Writing Utensil
Notebook Paper
Device (as needed)

Directions

1. Pass out all of the cards
2. Write your name on the cards in your possession. The owner of each card is the only one that can touch the card.
3. Have the owner of card #1 share their card with group.
4. Owner of the card is to facilitate the group coming to a common solution using at least 2 different strategies.
5. Record the problem and generated strategies. Make sure everyone understands each strategy.
6. Using the solution, identify the next card and have the owner of the next card share their card with the group.
7. Repeat 4 through 6 until all cards are used up.

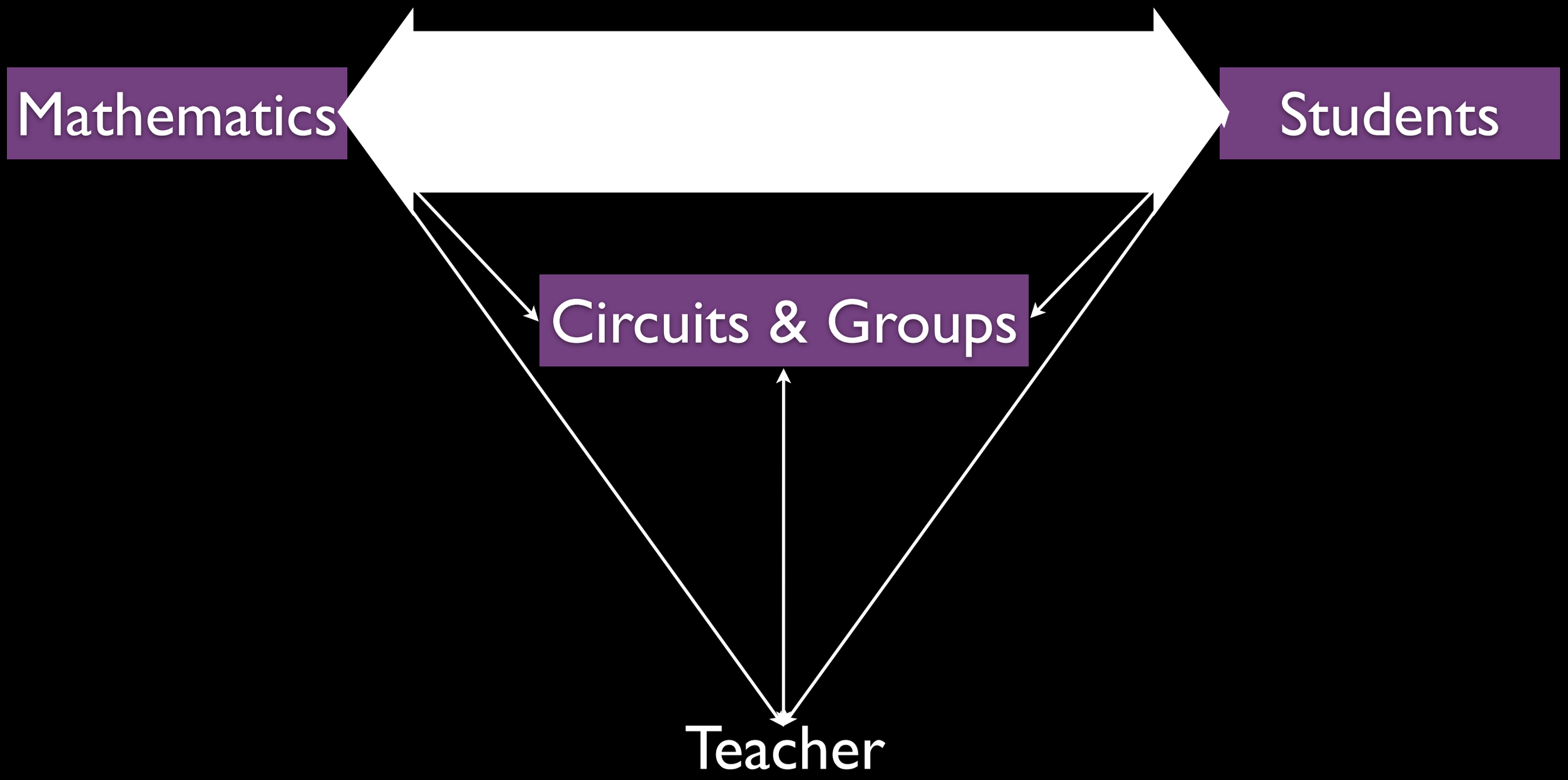
End Product

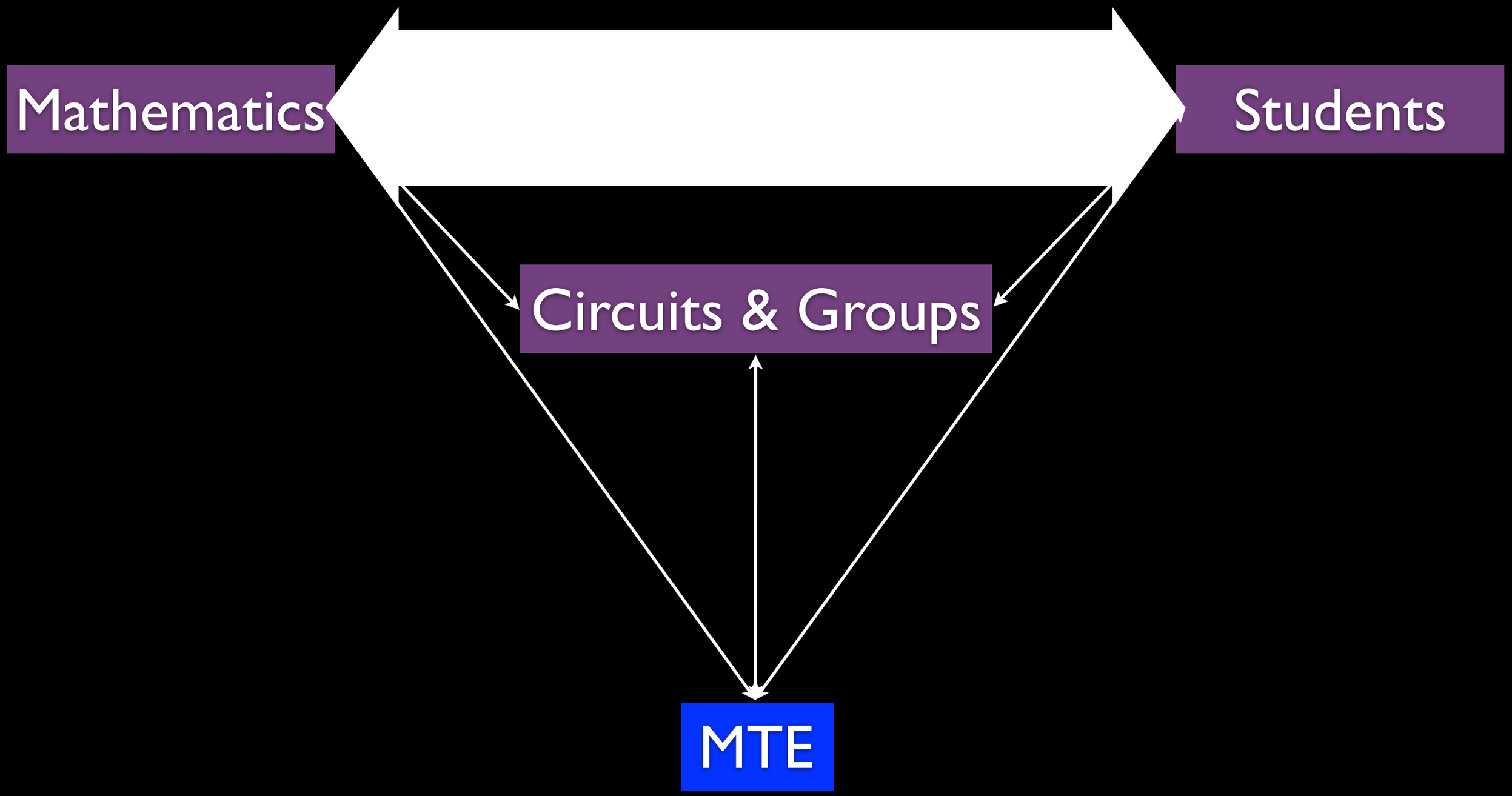
A list of all the problems in the circuit completed using at least two strategies. Everyone in the group should be able to present any of the group-generated solutions.

Extension

Identify the most common strategies used to generate a solution. Identify the least common strategies used to generate a solution. Generate a list of when you would use one strategy over other strategies.

NORMS
Everone contributes and no one takes over
Everyone records


Mathematics
Students
Circuits & Groups
Teacher


Mathematics
Students
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MTE

PRODUCTS

This research should lead to a draft article suitable for submission in the Mathematics Teacher Educator, Journal for Research in Mathematics Education, or in one of the NCTM school journals.

PRODUCTS

Manuscript

PRODUCTS

2 Manuscripts

PRODUCTS

2 Manuscripts

3 Presentations

PRODUCTS

2 Manuscripts

3 Presentations

Technology

PRODUCTS

2 Manuscripts

3 Presentations

Technology

Teaching Resources

Stipends

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APPLY!

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JCAMIDON@OLEMISS.EDU

AMIDONPLANET.COM