



2003-2004

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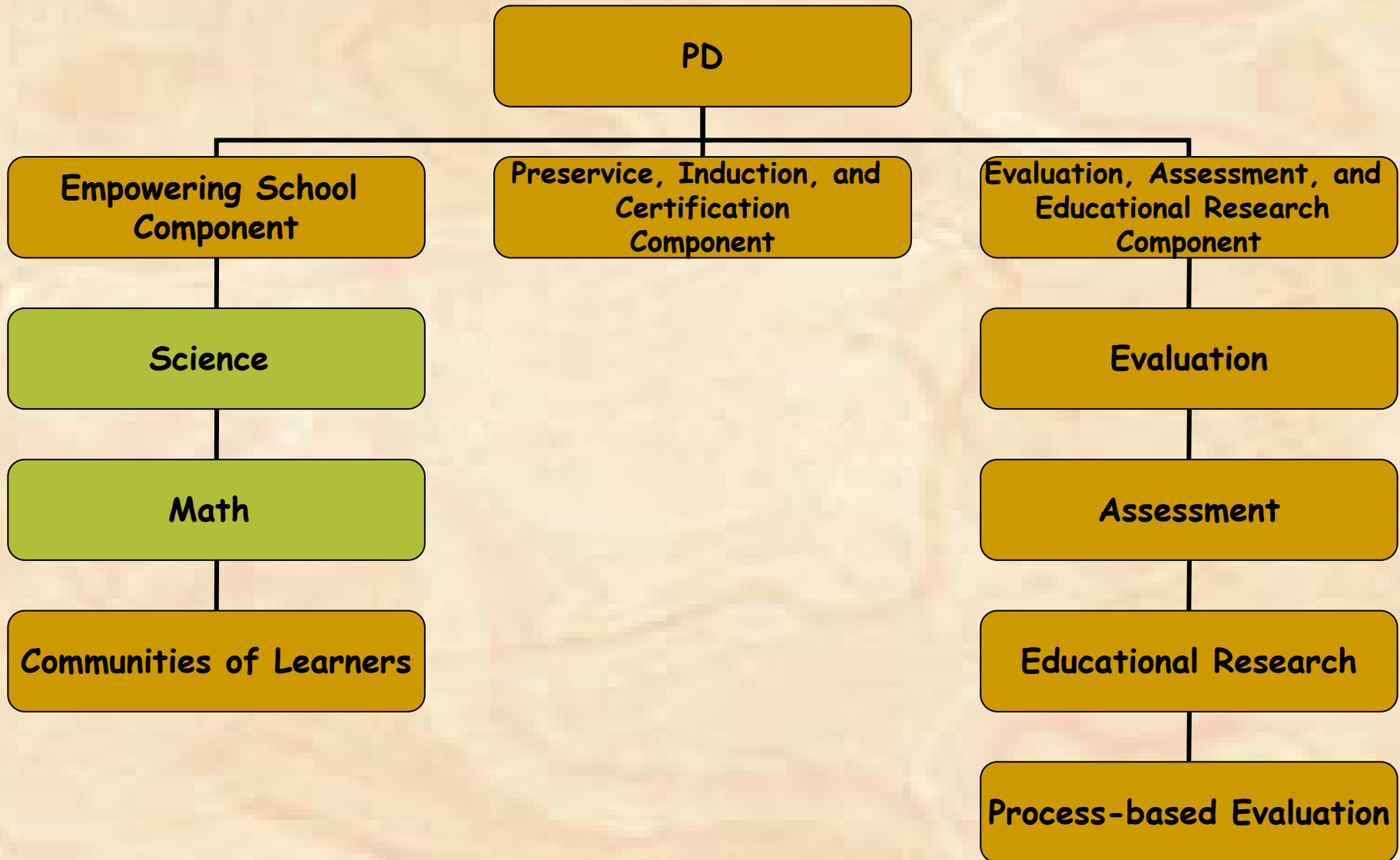
# The Math and Science Connection

## Professional Development

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Gladys M. Nazario - Science  
Keith Wayland - Mathematics  
Team Leaders

# Organizational structure



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# Professional Development Program

*GOAL:* To offer a professional development program for math and science teachers that prepares them to improve the learning of mathematics and science by all K-12 students.

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# The Science Liaisons



- Noel Motta - UPR-Río Piedras
- Ana L. Acevedo - UPR-Cayey
- José R. López - UPR-Mayagüez
- Félix Castrodad - UPR-Humacao
- María Morán - PRDE

Core  
Institutions

- Carmen P. Rodríguez - SHU

Partner  
Institution

# The Math Liaisons

- Uroyoán Walker - UPR Mayagüez
  - Francis Castro - UPR-Río Piedras
  - Edwin Morera - UPR-Cayey
  - Marilú Lebrón - UPR-Humacao
  - Leida Negrón - PRDE
- 
- Mayra Alonso - SHU
  - Teresa Cruz - IAU Bayamón



Core  
Institutions

Partner  
Institutions

# Professional Development of Teacher Trainers

- Monthly meetings of Science and Math Liaisons from November to June, 2004
    - Selection of professors and teacher teams (trainers) - PTT
    - Assessment of participant teachers' conceptual needs
      - Standardized math and science assessment records, PRDE assessment study, and PR-SSI activities
    - Outline of professional development program for Teacher Trainers
      - Teacher Trainer Retreats
        - Creative process for summer workshop activities
-

# Retreats of M&S Liaisons & PTTs

Training the Teacher Trainers



Physics

March 19-20, 2004  
Mayagüez



Biology



Mathematics



Chemistry

# Retreats of M&S Liaisons & PTT

■ Development and/or adaptation of content based activities taking into consideration

- ❑ Teachers needs
- ❑ Effective teaching strategies & learning skills
- ❑ Relevance
- ❑ Genuine Assessment
- ❑ Low cost, accessible materials



April 24, 2004, Guayanilla



# Retreats 2004

Meetings		Teacher Trainers	
Place	Date	Math	Science
Mayagüez	March 19-20	50	57
Bayamón	April 3	37	44
Guayanilla	April 24	34	50
Guayanilla	May 15	39	54
Loiza	May 29	45	58

# Activities developed for the Summer Professional Development Program

## Science

K-3	4-6	7-9	10-12 BIOL	10-12 CHEM	10-12 PHYS
16	15	14	14	6	13

Science Activities for K-9 included Earth Sciences

BIOL =Biology; PHYS=Physics; CHEM=Chemistry

# Activities developed for the Summer Professional Development Program

## Math

K-3	4-6	7-9	10-12
21	19	19	16

Math Activities online at

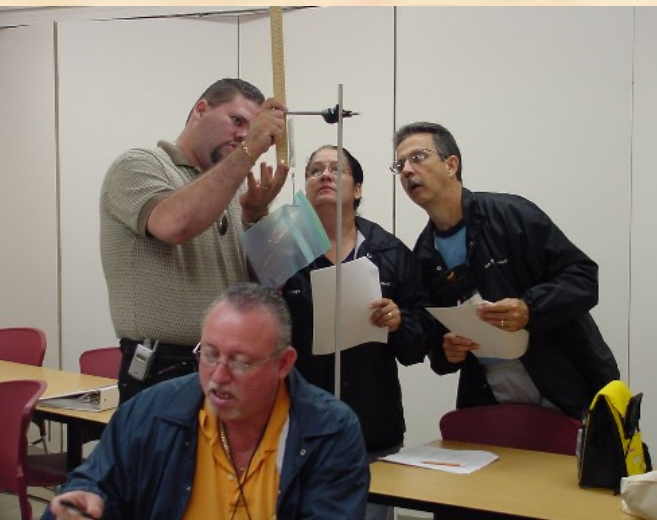
<http://math.uprm.edu/~kwayland/AIACiMaMATE.html>

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# Math and Science Professional Development

## Summer Workshops



# Summer Workshops May 31<sup>st</sup> to June 11

Humacao

Cayey



Mayagüez



Río Piedras

# Summer Workshops UPR-Cayey

## ■ Participants

- 104 K-3 Teachers
- 78 Science Teachers
- 68 Math Teachers
- 36 Schools



# Summer Workshops UPR-Río Piedras

## ■ Participants

- 120 K-3 Teachers
- 107 Science Teachers
- 103 Math Teachers
- 45 Schools



# Summer Workshops UPR-Mayaguez

## ■ Participants

- 229 K-3 Teachers
- 109 Science Teachers
- 129 Math Teachers
- 45 Schools





# Summer Workshops UPR-HumaCao

## ■ Participants

- 117 K-3 Teachers
- 57 Science Teachers
- 82 Math Teachers
- 36 Schools



# Teacher Trainers in Summer Workshops – May 31-June 11

zone	Math	Science
Cayey	12	11
Río Piedras	19	14
Humacao	8	13
Mayagüez	23	21
Total	62	59

# Academic Year 2004-2005

- Activities
  - Adapt fully tested, high-quality curricular activities
    - NSF sponsored, NCTM, NSTA, AIMS, PR-SSI, BSCS, in-house produced, and others
  - Follow standardized style and substance template for activities
  - Distribute, rehearse, discuss, and refine activities

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# Academic Year 2004-2005

- Areas for greater attention
    - Continual authentic assessment
    - Math and science processes
    - Conceptual questions
    - Learning community atmosphere
  - Follow Up Workshops
    - 3 in the Fall semester
    - 3 in the Spring semester
-

# Academic Year 2004-2005

- More complete presentation of activities
  - Connect to curriculum and conceptual development
  - Evaluate with formal rubrics
  - Discuss improvements and alternatives
  - Prepare, exchange, and discuss potential test questions