

Developing Mathematics Teacher Leaders: Supporting District-Wide Learning & Systemic Change

East Metro Mathematics Leadership Project (EaMML)



Centennial SD, David Douglas SD,
Multnomah ESD, RMC Research, & Portland State University

Who we are

Nicole Rigelman: rigelman@pdx.edu

Amy McQueen: amy_mcqueen@ddsd40.org

Karen Prigodich: karen_prigodich@csd28j.org



#TeachersSupportingChange

**Classroom
Teachers**

**Who did
we miss?**

**Principals/
Building
Administrators**

Who is in the room?

**District Office
Administrators**

**Mathematics
Coaches/
Specialists**

**Teacher
Educators**

State or Regional Math Coordinators

Learning Target



- What: Learn about the EaMML model for building and sustaining mathematics teacher leaders.
- How:
 - Background prompting partnership
 - Components of teacher learning
 - Lesson Study
 - Emerging Teacher Leaders
- Why: To consider a similar model in your setting OR to get new ideas to add to your model.

Meet Your Elbow Partner

Mathematics Teacher Leadership Emoji Simile



Find someone nearby to be your elbow partner. Introduce yourself & use a simile sentence frame:

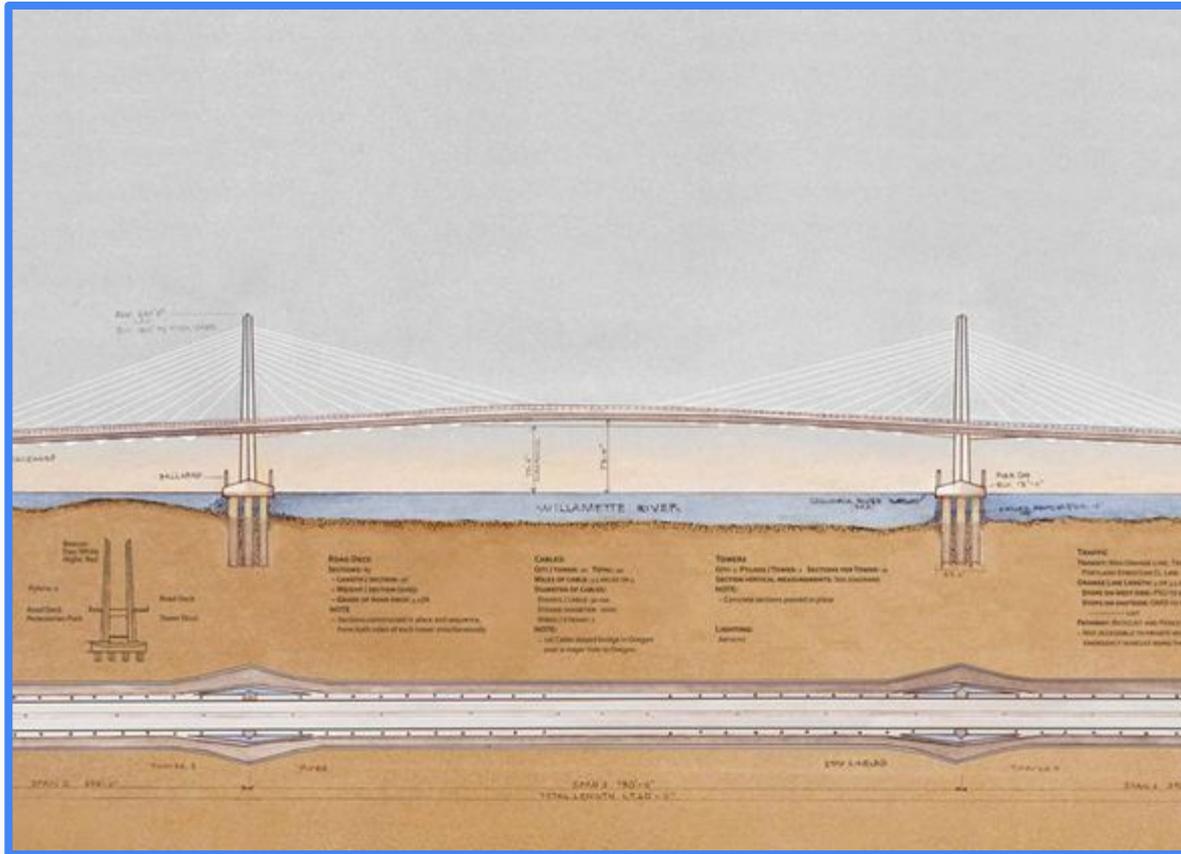
Mathematics teacher leadership is like _____ because _____.

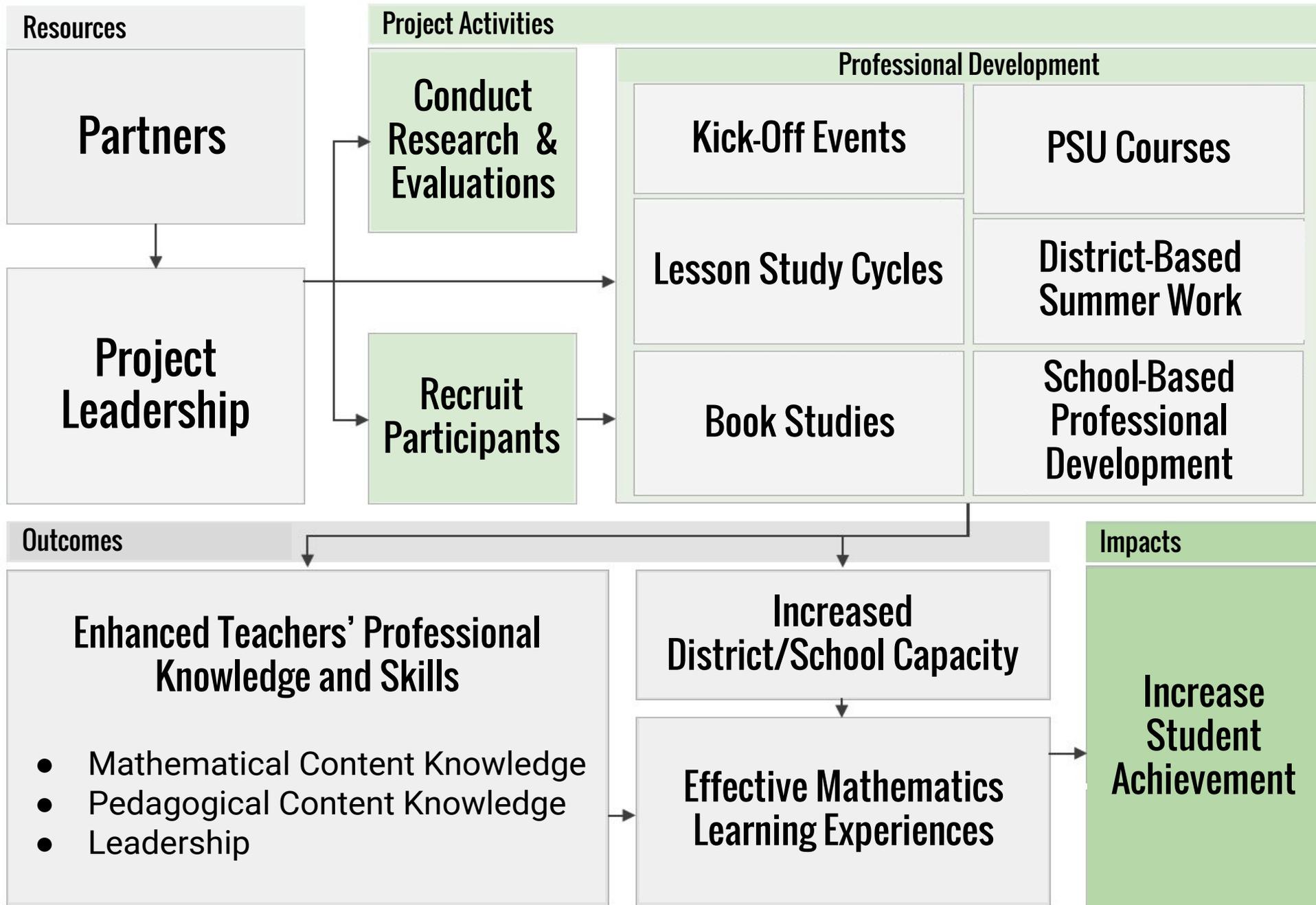
OR

Mathematics teacher leadership is not like _____ because _____.



Planning





Centennial School District

- 17 Elementary Teachers and Coaches
- 2 Elementary Administrators
- 5 Middle School Teachers
- 5 High School Teachers
- 1 High School Administrator
- 1 District Mathematics Specialist

David Douglas School District

- 30 Elementary Teachers and Coaches
- 1 Elementary Administrator
- 9 Middle School Teachers
- 1 Middle School Administrator
- 6 High School Teachers
- 1 High School Administrator
- 1 District Mentor
- 2 District Mathematics Specialists



UNDER CONSTRUCTION

Multnomah Education Service District

- 2 District Mathematics Specialists

RMC Research Corporation

- 1 Senior Research Associate

Portland State University

- 1 Professor of Mathematics
- 1 Professor of Mathematics Education

Foundation



CSD and DDS D Demographics

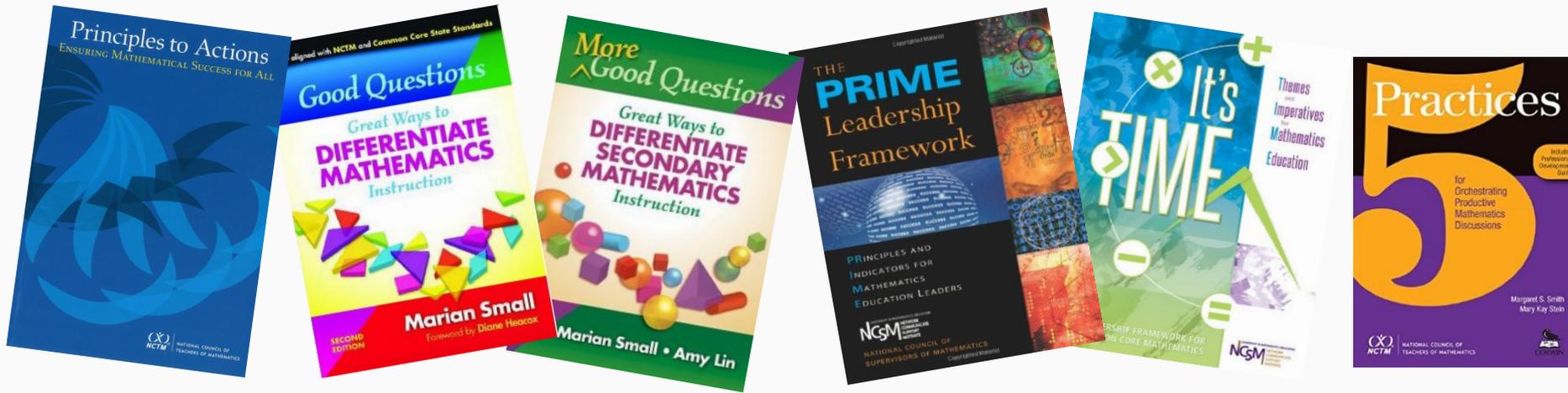
Source 2014/15 ODE Report Cards

	CSD				DDS D			
ENROLLMENT AND DEMOGRAPHICS	Grades K - 3	Grades 4 - 5	Grades 6 - 8	Grades 9 - 12	Grades K - 3	Grades 4 - 5	Grades 6 - 8	Grades 9 - 12
Total Enrollment	1,885	951	1,457	1,885	3,585	1,593	2,415	3,177
Regular Attenders	83.4%	83.5%	82.4%	74.8%	85.1%	89.0%	85.9%	72.3%
Economically Disadvantaged	District Average: 76.6%				District Average: 82.1%			
Students with Disabilities	13%	15%	16%	14%	10%	14%	14%	12%
English Learners	38%	42%	42%	34%	38%	45%	45%	41%
Different Languages Spoken	33	32	33	37	45	37	40	43
<i>Note: a "*" is displayed when the data must be suppressed to protect student confidentiality</i>								
WITHIN-YEAR MOBILITY	Grades K - 3	Grades 4 - 5	Grades 6 - 8	Grades 9 - 12	Grades K - 3	Grades 4 - 5	Grades 6 - 8	Grades 9 - 12
Students in this District	20.1%	15.0%	15.5%	18.3%	16.5%	15.4%	13.3%	16.8%

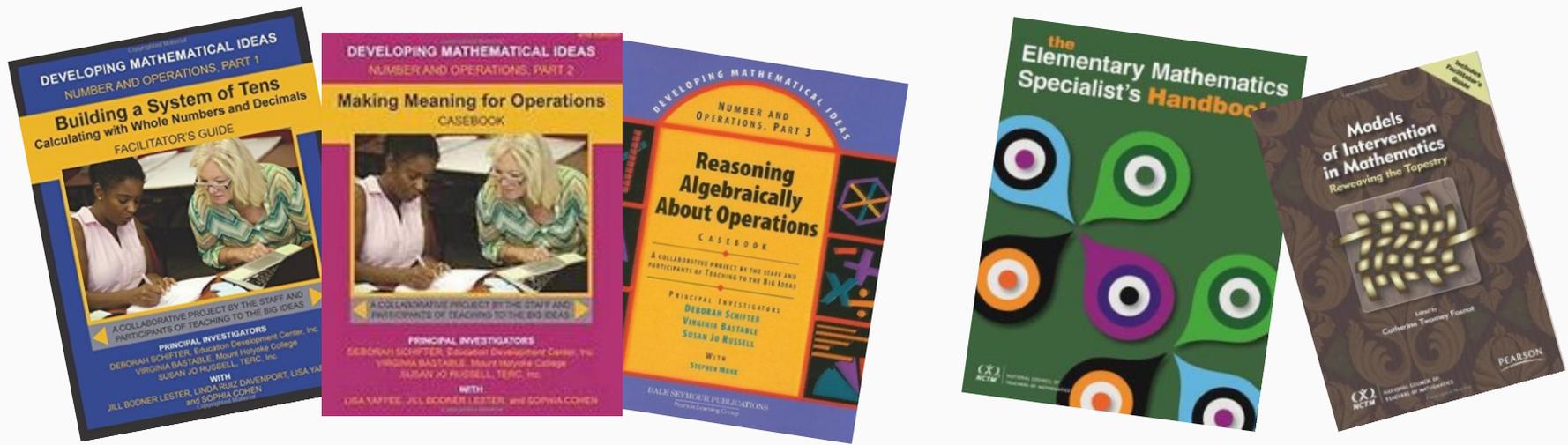
Mathematics Leadership Team Resources

Book Study

Grant Activities



Elementary Mathematics Instructional Leader Specialization Coursework



Building the Model

EMIL
Coursework

Kickoffs

PLTs/PLCs

Lesson
Study

Book
Study

Ongoing
teacher-led
PD

Coaching

Elbow Partner Talk Time

Do you have formal mathematics teacher leaders in your setting?

- If so, discuss their:
 - Selection
 - Professional learning/training
 - Role within your Professional Development Model
- If not, discuss the possibilities.

2:16

3 min

Bridging the Chasm:

- Lesson Study
- Mathematics Leadership Cadre



What is Lesson Study?

A “comprehensive and well-articulated process for examining practice” - Fernandez, Cannon, & Chokshi, 2003, p. 171

A community of teachers collaborates to develop a lesson which involves

- aligning the lesson with goals,
- detailing possible teacher moves and questions, and
- predicting students’ responses and/or typical misconceptions.

A teacher implements the lesson with others observing and collecting student-based data. Finally, the group meets to discuss the lesson and decide the extent to which the instructional goals were met. - Stepanek, Appel, Leong, Mangan, & Mitchell, 2007

What is a Lesson Study Lesson?

Tools:

- Task Analysis Guide
- Thinking Through a Lesson Protocol
- Bring-Do-Leave Instructional Planning Guide

- High Cognitive Demand Tasks
- Maintain the cognitive demand of the task that prompts student discourse
- Anticipate possible student responses, strategies, and misconceptions
- Intentionally plan teacher moves and questions to foster high level student discourse.

Lesson Study Agenda

Goal:

Deepen understanding about student thinking (including common misconceptions) and learning trajectories.

Pre-observation meeting

- Overview of Lesson Study Protocols
- Do the math of the lesson
- Analyze the cognitive demand
- Predict student thinking, refine to prompt high level discourse

Observe the Lesson

Post-observation meeting

- Lead Teacher Reflects on Lesson
- Student Discourse Coding
- Observations about the data
- Inference Dialogue
- Implications for classroom practice

Lesson Study Learning

Teacher Learning

- “Overall, I see so much value in the creation of authentic experiences for students with mathematics.”
- “Using low floor high ceiling tasks is critical. I loved that this task was accessible to most of my students, but also rich enough that my class could continue diving into it for two days following the lesson study. I want to continue to provide opportunities like this.”
- “Lesson study has caused me to look more carefully at tasks within the curriculum and make decisions about which tasks can be used as written and which need adapting.”
- “I have learned to listen to students share their thinking... then analyze their thinking in order to ask questions and plan next steps.”

Lesson Study Learning

Facilitator Learning

- “It has been effective to continuously revisit *Principles to Actions*. Where the book was philosophical for teachers last spring they know see it as a tool to apply to their classroom practice.”
- “The skills developed through facilitating lesson study are woven into all aspects of my job.”
- “The lesson study is having an impact on district teachers. How can what we’ve learned about lesson study be taken into other schools/districts? What is possible without grant funding?”

Elbow Partner Talk Time

Do you have something similar to our Lesson Study in your setting?

2:16

- **If so**, how is it going?
 - What are insights can you share?
 - How do you pay for (or avoid) sub coverage?
- **If not**, what do you think of the concept?
 - How might this model work in your setting?
 - How might you pay for (or avoid) sub coverage?

Emerging Teacher Leaders

Selected a subgroup of teachers and coaches to lead professional learning in buildings

*Viva la
revolution!*

ca·dre

/'kadrē, 'kādrē, 'kad ,rā, 'kād ,rā/ 

noun

a small group of people specially trained for a particular purpose or profession.

synonyms: **corps, body, team, group, nucleus, core**

- a group organized to lead or instruct a larger group.
- a tightly knit group of zealots who are active in advancing the interests of a revolutionary party.



Math Leadership Cadre

Purpose:

- develop **teacher leadership**
- **expand influence** of grant work into the districts at large
- drive **systemic change**
- build long-term **sustainability**

Professional Learning:

- deepened understanding of **district vision**
- working with **adult learners**
- characteristics of **effective math PD**



Influence vs. Authority

- Who is in your sphere of **influence**?
- What seems most **critical** to share with them?
- In what **context** might you share?
- Who might you **collaborate** with?
- What **resources** will you need?
- Create an **action plan**.

Elbow Partner Talk Time

Who are the **grassroots leaders** who can influence the implementation of your district's vision for math instruction?

How are they being **equipped** and **empowered** to influence colleagues?

