Goals for the series

Supporting your growth as a teacher:

- Learning mathematics
  - For yourself as a user and learner of mathematics
  - For the ways you have to know and use it as a teacher
- Skill with high-leverage mathematics teaching practices
- Increased capability in anticipating, interpreting, managing, and using students' ideas and ways of thinking
- Systematically learning from and improving teaching through video workshops

1.1a

Overview of Session 1

- Studying an example of mathematics teaching
- Working on a mathematics problem
- Introducing Classroom Connection Activities

1.1b

How many different three-digit numbers can you make using the digits 2, 4, and 7, and using each digit exactly once?

Show all the three-digit numbers you found.
Prove that you found all the possible numbers.

What might 6th graders think, and why?
How might they explain it?

1.2a

Context

- Entering 6th graders (11-year olds)
- Two week summer program (7th class session out of 10)
  - Combined work on missing skills and understanding with challenge and acceleration
  - Explicit work on reasoning, using representations, and using definitions
- Students came with a wide range of mathematical skills and varying degrees of interest in mathematics

1.2b

Mathematical background

- Students have worked independently on the problem
- The class has discussed the conditions of the problem:
  - Solutions must use the digits 4, 7, and 2
  - Solutions must use each digits exactly once
  - Solutions must be three-digit numbers
- The class has found six solutions, and they are discussing how they know they found them all

1.2c

Focus questions

- How are students thinking about this problem?
- What do you notice about the role or practices of the teacher?

1.2d

Studying mathematics teaching

- Records of practice
- Close attention to talk, student thinking, and teacher's moves and comments
- Detail and evidence
- Learning to see and hear practices of teaching

1.2e

The Pool Border Problem

How many square tiles does it take to build a border around a square "pool"? Find a way to know the number of tiles it will take without having to count, for any size pool.

1.3a

The Pool Border Problem: Partner work

How many square tiles does it take to build a border around a square "pool"? Find a way to know the number of tiles it will take without having to count, for any size pool.

With a partner:
- Take turns explaining how you know that your solution always works
- When listening: Attend to the logic of the explanation and be ready to ask questions or to restate the given explanation

1.4a

Classroom Connection Activities (CCAs)

"Professional homework" designed to:

- Connect professional development content with your own teaching
- Extend thinking about previous sessions
- Preview the content of later sessions

1.5a

Summary

In this session, you began work on:

- Seeing the mathematical work of teaching
- Interpreting student thinking
- Considering teaching practices

1.5b