POSTER PROBLEMS

SERP Strategic Education Research Partnership

6th and 7th Grade Mathematics Lessons

(CCSS Aligned)

Fully Designed Lessons Ideal for Diagnostic Teaching in Mathematics

Diagnostic teaching elicits what students do and do not understand, and then adjusts instruction accordingly. To support diagnostic teaching in mathematics, SERP developed a set of 12 "Poster Problems"—two-day lessons taught in six instructional phases. Lessons are centered around engaging problem contexts that highlight critical mathematics concepts targeted by the Common Core State Standards. The problems are designed to elicit a variety of approaches to solution, ranging from below grade-level mathematics all the way up to grade-level mathematics (or beyond!). The varied responses give teachers an ideal opportunity to link multiple representations as they strategically lead students through discussion to an understanding of the grade-level mathematics. "Teacher tune-ups" provided with each problem focus teachers' attention on the grade-level mathematics and on the variety of thinking they are likely to encounter among students.

Six Phases of Instruction over Two Days

LAUNCH

Teachers set the stage by leading an introductory discussion that orients students to the context of the problem.

POSE A PROBLEM

Teachers introduce a mathematical way of thinking about the context and engage students in a preliminary approach that opens the door to the workshop phase.

WORKSHOP

The workshop starts with a more challenging and more open-ended extension of the problem. In teams, students plan and produce mathematical posters to communicate their work.

POST, SHARE, COMMENT

Teams display their posters in the classroom, get to know other teams' posters, and attach questions/comments by way of small adhesive notes (or similar).

STRATEGIC TEACHER-LED DISCUSSION

Teachers then compare, contrast, and connect several posters. In the process they highlight a progression from a more basic approach to a more generalizable one. By doing this, teachers emphasize standards-aligned mathematics using student-generated examples.

FOCUS PROBLEM: SAME CONCEPT IN A NEW CONTEXT

Serving as a check for understanding, this more focused problem gives teachers evidence of student understanding.

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