***Workshop* - Problems in Context: Planning for Authentic Tasks**

**Objectives**

The goals of this session are to:

* Discuss the differences between a task that is removed from, and a task that is grounded in, an authentic context
* Have teachers work through a real-world task
* Workshop/plan a future lesson that incorporates an authentic context

**Guiding Questions**

* Are the tasks we give to students disproportionately focused on skills and procedures?
* To what extent do we provide students with the opportunity to learn mathematics in a meaningful context?
* How do we plan a lesson that supports students’ learning as they engage with an authentic mathematical task?

**At a Glance**

* Brief overview of traditional vs. contextual approach.
* *Half-plus-seven* activity – mathematical task. Each teacher works through parts 1 and 2 of task, and looks over part 3.
* Whole group overview and discussion of *Half-plus-seven* activity.
* Presentation of planning guide for *Half-plus-seven* task.
* Workshop time: planning for a future lesson with planning guide.

**Materials**

Handout M4 (Workshop: Problems in Context, 9 pages)

**Procedure**

**Set-up:** Arrange desks or tables so that teachers have a clear view of the PowerPoint.

**Before We Begin:**

Facilitator welcomes teachers as they arrive.

* Encourage teachers to sit in pairs. They may work individually if they would like.

**Introducing the Session’s Focus: Problems in Context (5 minutes)** (slides 2-4)

Facilitator goes through Slides 2-4 of the PowerPoint. The purpose of these slides is to frame the focus of this session (mathematical tasks in context). The facilitator should try to avoid presenting direct instruction as “bad” and contextual learning as “good,” but rather utilize this portion of the session to point out limitations inherent to direct instruction and how it could be supplemented with contextual learning experiences.

***Half-plus-seven* Activity (20-25 minutes)** (pages 2-4, slides 5-14)

The half-plus-seven activity is adapted from the Mathalicious lesson “Datelines” (<https://www.mathalicious.com/lessons/datelines>)

Facilitator asks each teacher to work through parts 1 and 2 of the *Half-plus-seven* task (page 2), keeping the PowerPoint on Slide 5 or 6 while they work. When teachers have finished with parts 1 and 2, teachers should read through part 3 of the task (pages 3-4). Teachers can work individually, however the facilitator should encourage teachers to work with a partner. **(6-7 minutes)**

Facilitator then goes through Slides 6-14, explaining various components of the task. **(14-18 minutes)**

* Slide 7: Most students should have little difficulty completing this part of the task, until the last column of the table. This begins to get students thinking about how to use the half-plus-seven rule to figure out one’s own max age if the age of his/her date is given.
* Slides 8-9: This portion of the task asks students to represent the rule as an equation. It is a great opportunity for student discussion, especially when determining the reverse of the *half-plus-seven* rule.
* Slides 10-12 (pages 3-4): This portion of the task illustrates the *half-plus-seven* rule graphically as a system of inequalities. Students can be asked about the point of intersection, what the area to the left of that point represents (what does it reflect in this context?). Visually, students are able to see where actual couples fall, and whether or not they are in the “dating zone.”
* Slide 13-14: Overview of the various ways students are able to interact with mathematics through this task.

**Workshop (30 minutes)** (pages 5-9, slides 15-16)

Facilitator has teachers look over pages 5-6. When teachers are looking over page 5, facilitator recommends to teachers that they work through a task themselves before giving it to students. Teachers can discuss their initial thoughts with a partner during this time. **(5 minutes)**

Facilitator goes through the planning guide, within the context of the *Half-plus-seven* task (page 6, Slide 15). Facilitator discusses the intent behind the guide, which is to help teachers: *evaluate* the task, *troubleshoot* misconceptions and difficulties, and *support* their students in completing the task. **(5 minutes)**

**Planning a future lesson. (20 minutes)**

Facilitator refers teachers to pages 7 and 8 of the handout for examples of additional lessons involving tasks grounded in authentic contexts. Facilitator presents the final slide (Slide 16) and gives teachers the remaining time in the session to complete page 9 of the handout.