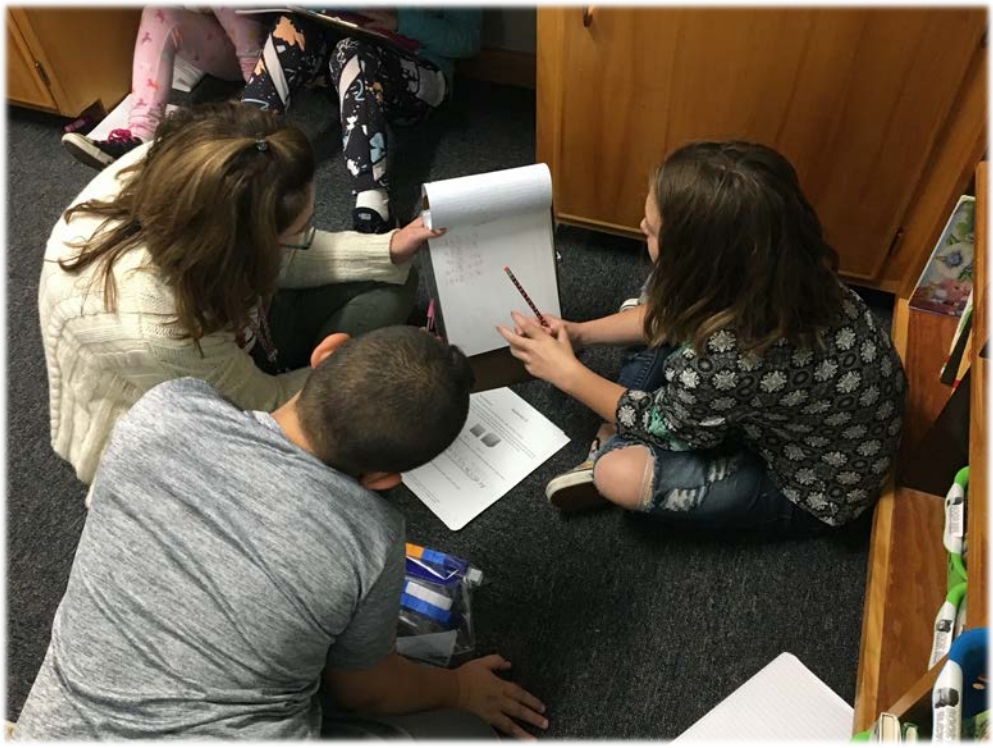
4th Grade Supporting Reflection Lesson Study

October 14, 2020

Research Question:

Supporting students to reflect on and communicate thinking to advance in learning



The lesson study team hypothesized that the following actions would be important elements in supporting students to reflect on and communicate their own thinking to advance in learning. Each hypothesis is listed below followed by the team's reflection.

Hypothesis 1 – Questions to reorganize and justify

Questions that promote reflection can be an invitation or an offer to

- *step back and reorganize what had been done thus far.*
- *justifying why their action is working.*

- During the number string, the teacher asked what other kids thought about students' strategies and whether it will work with other numbers.
  - How could we draw that?
  - Does it work all the time?
  - Did it work anywhere else?
  - Why?

    - What's going on here?
    - Have you noticed any patterns?
- The result of these questions prompted students to think about their thinking.
- Part of the reflection was asking students to think about why another students' strategy works.
- During the investigation, the teacher would ask questions that forced students to look for patterns and justify their thinking with their partners, which caused them to treat what they produced as an object of discourse.
- Asking students what they noticed and/or patterns in their work caused students to shift to treating what they produced as a new object of discourse.

Hypothesis 2 – Modeling students' thinking

Teachers should model students' thinking (develop a symbolic record) of the students' contributions in a bottom-up manner to initiate shifts in discourse to reflect on the students' prior activity.

- Modeling of students thinking during the conferrals, prompted students to think about what they have been doing.
- The teacher modeled students' thinking on t-charts to emphasize looking for the relationship between the factors and the products.
- The teacher modeled students' thinking on equations, expressions, arrays and 3-d arrays which allowed students to reflect on their own thinking to move forward.
- It is important for teachers to attend to which models to use to model students' thinking that will highlight the relationships that would be important for students to see.

Hypothesis 3 – Models and contexts work in tandem

Sentence frames can be used to initiate shifts in discourse so that what the students do (action) becomes an explicit object of discussion.

- The team used a sentence frame of …
    - "One pattern I noticed in the (squares or cubes) was …I think this pattern keeps happening because …."
- This frame shifted students from showing "what I did" to force sharing of what they noticed.
- This frame also forced the students to use the work they produced as evidence of what they noticed or what they are claiming.
- Other possibilities might be…
    - "A big idea about multiplication we discovered is ___. It should always work because ___" or …it should work with other problems because___"
    - "We figured out that__"

Hypothesis 4 – Teacher discourse moves

Re-voicing students and having students re-voice other students promotes reflective discourse.

- The teacher did a lot of re-voicing throughout this lesson which allowed students to clarify their own thinking, and the thinking of others.
- This also set the stage for students to engage with the reasoning of other students, hence treats what the student contributed as an object of discussion itself.
- The teacher explicitly followed a turn and talk, by listening to what the students said, asking if she can “warm-call”, then announce to the whole group that that students is going to make a claim.
- Asking for clarification through re-voicing consistently and pressing students to explain their thinking caused students to re-organize their thinking when their reasoning was not sound.