STUDENT ACHIEVEMENT PARTNERS

Experience the Content of the Lesson: Facilitation Guide
Decomposing the number 10

Prepare for the activity:

- Do the math yourself.
- Make copies of the Student Work for participants. You may choose to print page 1 for each participant or just display it. Print multiple copies of the playing card page for each participant so they can find more than one way to decompose the 10 hearts.
- Plan to lead the discussion in a way that allows you to model the instructional practices in the IPG. With an emphasis on:
    - 2A: The teacher makes the mathematics of the lesson explicit through the use of explanations, representations, tasks, and/or examples. The mathematics presented is clear and correct.
    - 2C: The teacher strengthens all students' understanding of the content by strategically sharing variety of students' representations and solution methods.
    - 3C: The teacher establishes a classroom culture in which students explain their thinking.
    - 3E: The teacher connects and develops students' informal language to precise mathematical language appropriate to their grade.
    - 3G: The teacher asks students to explain and justify work and provides feedback that helps students revise initial work.

Some ideas that may emerge from the conversation:
Facilitators should choose which points to address based on the needs of the participants and the time allotted for this activity

- The hearts are configured in a scattered arrangement that may make it more difficult for Kindergarteners to accurately count them.
- Since the total number of hearts is the same on all of the worksheets, the sum in all of the equations will be 10. Since the total remains the same, it is not necessary to count the hearts, or even add the two addends that are created in the decomposition to know that the total is 10.
- Representations of the same decomposition (e.g., 4 and 6) may look different, if different arrangements of 4 and 6 are circled. This does not represent a different decomposition since the two addends remain the same, regardless of position.
- There are 5 unique decompositions that can be created from 10 objects
    - 9 and 1
    - 8 and 2
    - 7 and 3
    - 6 and 4
    - 5 and 5

  It may be helpful to engage participants in a discussion about the connections between these different decompositions. For example, as one addend increases, the other addend decreases by the same number.
- The commutative property shows that there are two equations that can be written for each decomposition (e.g., 8+2=10 and 2+8=10.) *This idea relates to 1.OA.B.3 Apply properties of operations as strategies to add and subtract.*