

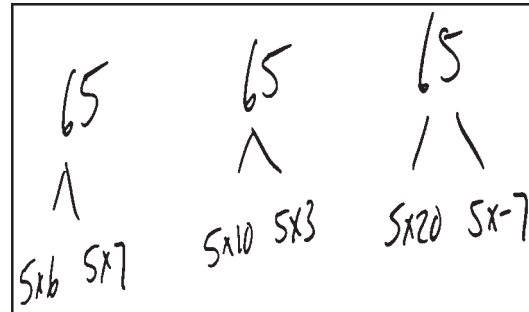
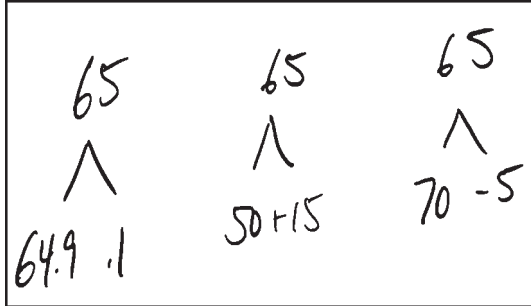


FLEXIBLE DECOMPOSITION

Name: *"Common or Unique?"*

Type: *Routine*

About the Routine: Brainstorming many ways to decompose a number develops flexibility and helps students consider patterns within decompositions (e.g., when one part of a number increases by two-tenths, another part decreases by two-tenths). In the "Common or Unique?" routine, students seek to find unique decompositions, pushing themselves to think of "less obvious" ways to break numbers apart. You might first begin with decomposing with addends (left example) before moving to decomposing with factors (right example).



Materials: Journals or personal dry erase boards

- Directions:**
1. Pose a number for students to decompose.
 2. Give students two to three minutes to decompose the number in as many ways as possible.
 3. Then, place students with partners to see which decompositions they have in common, labeling those with a "C."
 4. After comparing, have students label their unique decompositions with a "U."
 5. As a whole class, ask students to share some common decompositions. Record four to six ideas on the left side of a two-column chart. On the other side of the chart, record unique decompositions.
 6. Ask students what they notice within either collection. Then, ask what they notice between the two collections.

For example, a teacher poses 12.5. Students decompose it in a variety of ways in their journals until time is called. Partners then share ideas. Trey and Olivia both thought of 11 and 1.5, 10 and 2.5, as well as 6 and 6.5. Trey had a 6.25 and 6.25 as a unique decomposition and Olivia had 11.75 and 0.75 as a unique decomposition.