

ACTIVITY IA7.6: Using the Empty Number Line to Model Multiplicative Situations

Intended learning: To develop the concept of multiplication as repeated addition.

Instructional mode: Shorter, inquiry mode for whole group, small group, or individuals.

Materials: Chalkboard and chalk, whiteboard and marker, or chart paper and marker for modelling student strategies. Individual student slates (whiteboards, chalkboards, etc.) for use in solving the problem.

Description: This exploration allows students to develop the concept of using repeated addition to solve multiplicative problems. The empty number line (ENL) should be used to notate and communicate student problem-solving strategies. Begin with a context that is easily imagined by the students. *I just bought 7 packs of pencils for the classroom. Each pack has 5 pencils. How many pencils is that altogether?* Give students some time to solve the problem. Note student strategies while they are working. Carefully orchestrate the discussion by having students share their strategies in increasing complexity. For a student using repeated addition, use the ENL to notate their thinking (see Figure 7.18). Discuss advantages and potential disadvantages of the different strategies used.

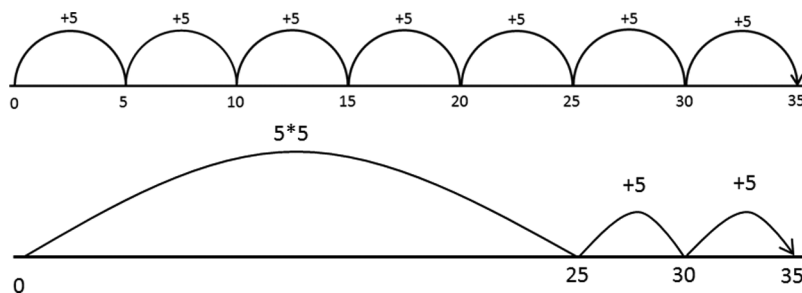


Figure 7.18 ENLs for seven groups of five

Responses, variations and extensions:

- A range of different strategies might be used to solve this problem.
- Some students may need materials to support their access to the problem.
- For many students, understanding the problem is the first step to successful problem solving. Teachers may need to pay particular attention to building vocabulary related to groups (i.e. packages, packs, sets, lots, flocks, herds).
- The empty number line can be used to model division as repeated subtraction.