

Problem-Based Task Example

Standards addressed in this task:

- CCR Standards for Mathematical Practice: MP 1, MP 2
- CCR Content Standards: Level D, 7.RP.2

ANI 2.0 uses different types of problem-based tasks to promote conceptual understanding. A **problem stem** is a word problem in which the question has been removed.

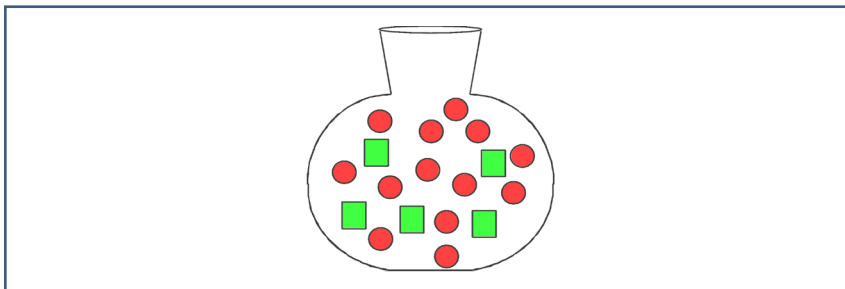
Candy Jar Problem Stem*

A candy jar contains 5 Jolly Ranchers (JRs) and 13 jawbreakers (JBs). Suppose you had a new candy jar with the same ratio of Jolly Ranchers to jawbreakers, but it contained 100 Jolly Ranchers.

With the question removed, participants are asked to identify all the **quantities and relationships** they see in the problem stem.

Quantities	Relationships
<ul style="list-style-type: none"> • The number of JRs • The number of JBs • The number of candy jars 	<ul style="list-style-type: none"> • For every 5 JRs, there are 13 JBs • For every 13 JBs, there are 5 JRs • For every JR, there are 2.6 JBs

After making the important distinction between a mathematical quantity and a mathematical relationship, participants create a **diagram**, allowing connections to be made among verbal, contextual, and visual representations.



The activity concludes with **participant reflections** on (1) the core mathematics of the task, (2) how this approach can support learners in understanding and solving word problems, and (3) the types of questions that can now be posed.

* The Candy Jar problem stem and diagram are adapted from Smith, M. S., Silver, E. A., Stein, M. K., Boston, M., & Henningsen, M. A. (2005). *Improving instruction in rational numbers and proportionality: Using cases to transform mathematics teaching and learning, Volume 1*. New York: Teachers College Press.