

Interactive Technologies in STEM Teaching and Learning

Open Task

# Apple Boxes Grade 3 Operations and Algebraic Thinking

**Topic:** Represent and Solve Problems Using Multiplication

**Task Background**

In this task, students develop an understanding of the meaning of multiplication of whole numbers through a problem involving equal-sized groups, arrays, and/or area models. Students are given a situation with a farmer who needs to pack apples and the students need to help find possible boxes that can hold all the apples. The combination of a story context, tools to represent the context, and open task structure supports students’ ability to represent and solve problems using multiplication. Example representations and/or tools could include10-frames, multi-link cubes or the *Number Frames* app[[1]](#footnote-1).

**Content Standards**

* *Operations and Algebraic Thinking*
* Represent and solve problems involving multiplication and division.
* Understand properties of multiplication

**Practice Standards**

* *Make sense of problems and persevere in solving them*  
  Students persevere to understand and solve the problem.
* *Model with mathematics*

Students create representations and number sentences associated with the problem.

* *Use appropriate tools strategically*  
  Students use tools and/or hands-on manipulatives to show or create representations associated with the problem.

**Materials**

Students can use paper and writing tools, concrete or virtual manipulatives (Number Frames), and/or a screen-recording app.

**Apple Boxes Problem**

**Problem:**

Joe works at an apple orchard. He has 24 apples that he needs to pack in a box. There are many different size boxes he can choose from in the packing room.

* He wants to find a box that will hold all 24 apples.
* He wants to fill the box completely leaving no empty spaces in the box.
* Each box is a rectangle shape.

Pair up with a partner and talk about the problem.

* Use the Number Frames app to find 3 or more different size boxes he could use to pack all 24 apples.
* Show the boxes you were able to create to pack all the apples. Create a number sentence for each box you and your partner found.

1. Apps © 2005-2017 Math Learning Center [↑](#footnote-ref-1)