

DOTS AND BOXES

Exploding dots reveal the secret to understanding how numbers are written and added and multiplied and ...

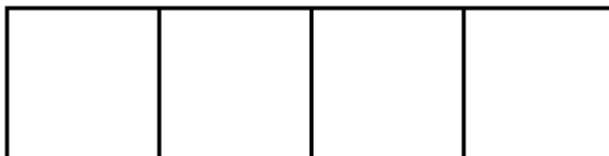
TOPICS COVERED: Place-value and its role in arithmetic algorithms.

A. GETTING STARTED

Here are some dots (nine of them, I believe):



and here are some boxes:

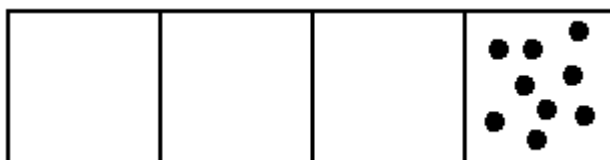


In the game we are about to play boxes explode dots! In fact, these boxes like to follow the following rule:

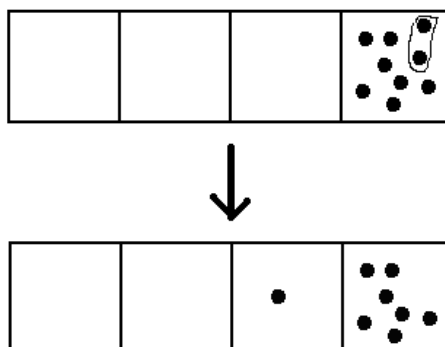
THE $1 \leftarrow 2$ RULE:

Whenever there are two dots in any one box they "explode," disappear and become one dot in the next box to their left

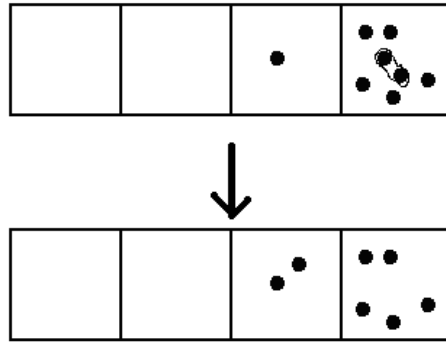
We start by placing our nine dots in the right-most box:



There are certainly two dots somewhere in this box and they explode to become one dot one place to the left. It does not matter which two dots we circle.



And it can happen again:



And again!

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