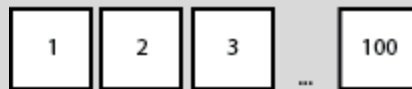
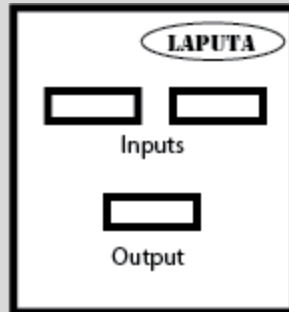


**Luputa Machine Problem:**



Bob recently came into possession of a vintage Laputan machine along with a deck of one-hundred cards, labeled 1 through 100. The Laputan machine operates as follows: given two cards with numeric labels  $E$  and  $F$  it shreds the cards and then recycles the resulting fibers into a new card upon which it prints the number:

$$E \times F + E + F$$

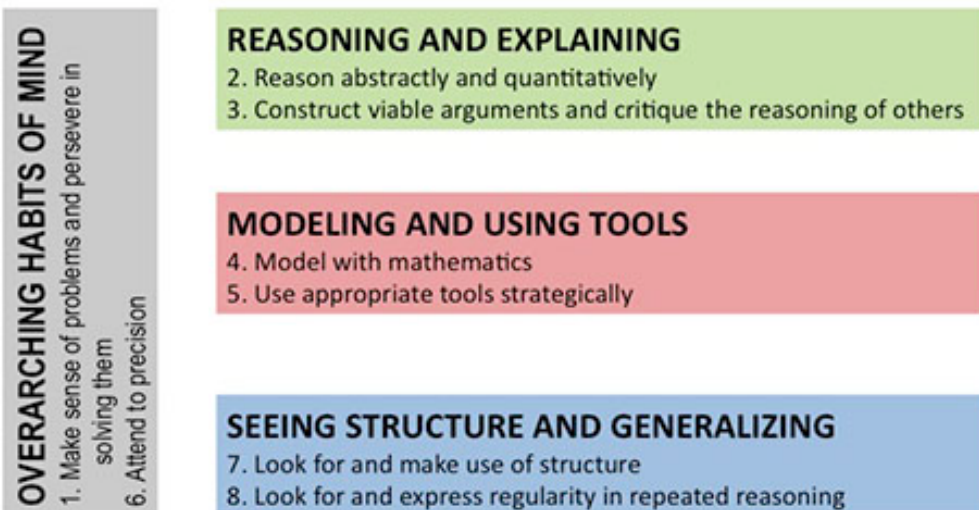
So, for example, if Bob inserted the cards labeled 5 and 80, he would receive from the machine a card labeled 485

$$5 \times 80 + 5 + 80 = 485$$

This would leave Bob with the ninety-nine cards 1, 2, 3, 4, 6, 7, 8, ..., 78, 79, 81, 82, ..., 99, 100, and 485. After inserting another pair of cards, Bob would be left with ninety-eight cards, and so on.

**What mathematical Questions might you ask about this machine?**

## CCSS Mathematical Practices



### Some Resources on CCSS Math Practices:

[mathpractices.edc.org/browse-by-mps](http://mathpractices.edc.org/browse-by-mps)

*Great resources from EDC, giving example problems and related MPs.*

[commoncoretools.me/wp-content/uploads/2014/02/Elaborations.pdf](http://commoncoretools.me/wp-content/uploads/2014/02/Elaborations.pdf)

*Description of enactment of MPs in Grades K-5*

[commoncoretools.me/wp-content/uploads/2014/05/2014-05-06-Elaborations-6-8.pdf](http://commoncoretools.me/wp-content/uploads/2014/05/2014-05-06-Elaborations-6-8.pdf)

*Description of enactment of MPs in Grades 6-8*

### Some Resources on Problem Solving:

[www.moems.org/zinger.htm](http://www.moems.org/zinger.htm)

*Only posts most recent months, but new problem each month. Also lists some books.*

[www.maa.org/math-competitions/teachers/curriculum-inspirations](http://www.maa.org/math-competitions/teachers/curriculum-inspirations)

*See 10 essays on problem solving strategies.*

[map.mathshell.org/stds.php?standardid=1784](http://map.mathshell.org/stds.php?standardid=1784)

*Interesting math problems for middle school and high school.*