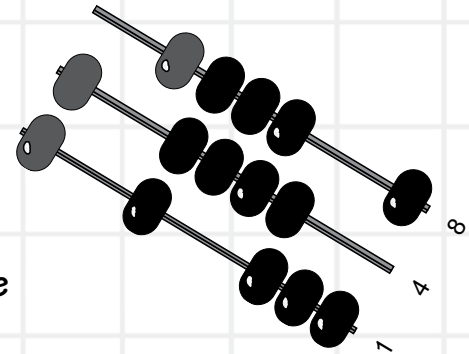


ACTIVITY!

Use an Abacus

Place numbers onto your abacus by pushing earthly and heavenly beads toward the midway mark of the skewer. For example, the number 7 consists of 1 heavenly bead (representing 5) plus 2 earthly beads (representing 2) at the midway point. Let's add 148 and 312 on our abacus.

1 Place the number 148 on your abacus by pushing 1 earthly bead toward the midway point of the leftmost skewer (first column), 4 earthly beads towards the midway point of the middle skewer (second column), and 1 heavenly bead and 3 earthly beads to the midway point of the rightmost skewer (third column).



$\frac{5 \text{ side}}{\sqrt{\text{bar}^2}}$

Count to 99 on Your Fingers

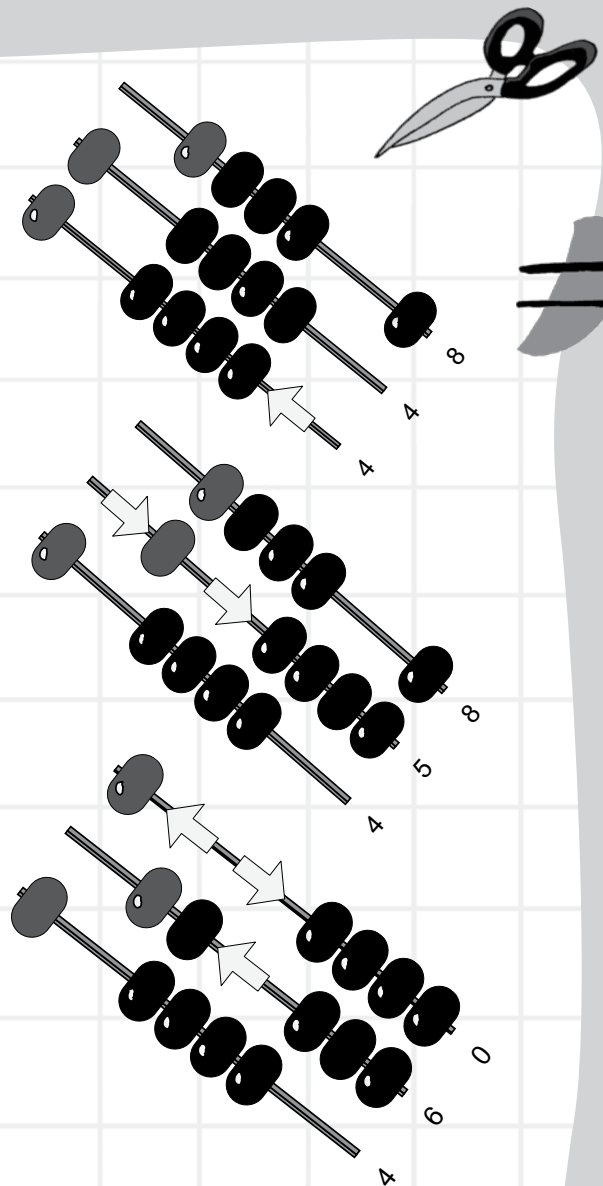
Most people count to 10 on their fingers, but here is a simple way to count to 99 on your fingers. Think of your fingers as earthly beads on an abacus, with each finger having a value of 1. Your thumbs are heavenly beads, with a value of 5. Four fingers raised on your right hand represent the number 4. Your thumb and four fingers are 9. Your left hand is the tens' column, representing the numbers 10, 20, 30, and so on.

ACTIVITY!

2 To add 312, add 3 to the first column by pushing 3 more earthly beads towards the midway point. This adds 300.

3 Then, add 1 to the second column. This is a little more challenging because there are no more earthly beads left in the second column to move. To solve this problem, you will need to move the 4 earthly beads away from the midway point and bring 1 heavenly bead there. This adds 10.

4 To add 2 to the third column, you will need to “carry” a bead to the second column, because $2 + 8$ equals 10. Push all beads in the rightmost column away from the midway point and add 1 earthly bead to the second column.



Read your answer by looking at the value of the beads: 460. This may seem like a difficult way to add numbers, but with practice, abacus users' motions become as automatic as typing.

⊕ CONNECTION ⊖

An abacus uses a mix of a base-10 system and a base-5 system. The heavenly and earthly beads represent numbers in base-5 but each column represents a base-10 place value.

