



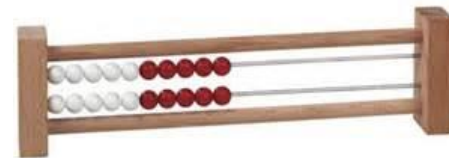
KCM

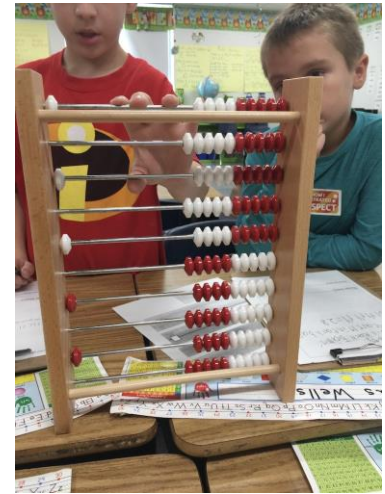
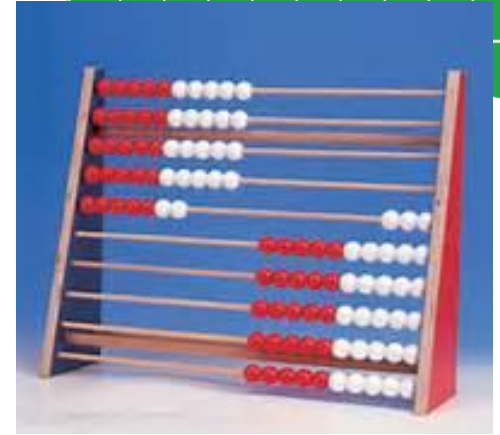
KENTUCKY CENTER
FOR MATHEMATICS

How to Make and Use a
Bead Rack
for
Building Number Sense

Bead Racks...

- The Rekenrek, or bead rack, was designed by Adrian Treffers, a mathematics curriculum researcher at the Freudenthal Institute in Holland, to support the natural development of number sense in children.
- Smaller versions consist of two rows of 10 beads. Larger versions have ten rows of ten beads. Each row is made of five red beads and five white beads. This allows students to make mental images of numbers.
- This tool provides learners with the visual models they need to discover number relationships and develop a variety of addition and subtraction strategies, including doubles plus or minus one, making tens, and compensation, thereby leading to automaticity of basic facts.







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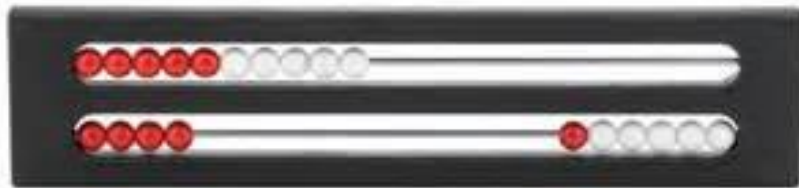
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A KCM HOW-TO
VIDEO

So I have a bead rack ...

now what???

- The first time you use the bead rack orient students to the setting by asking what they notice.
- Set some conventions.
 - White on the right
 - Beads on the right are out of play, Push to the left, beads on the left are in play.



- <https://apps.mathlearningcenter.org/number-rack/?46tpls32>

A teaching progression:

- Build the number. w/10
- Quick images w/10
- 2 rows – small doubles
- Doubles +/- 1
- 10 +
- Large doubles
- Doubles +/-1

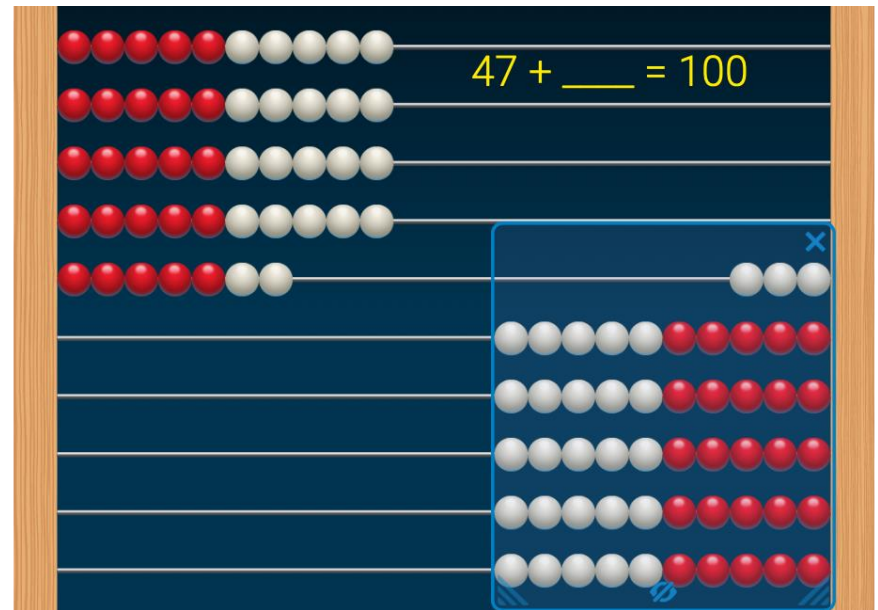
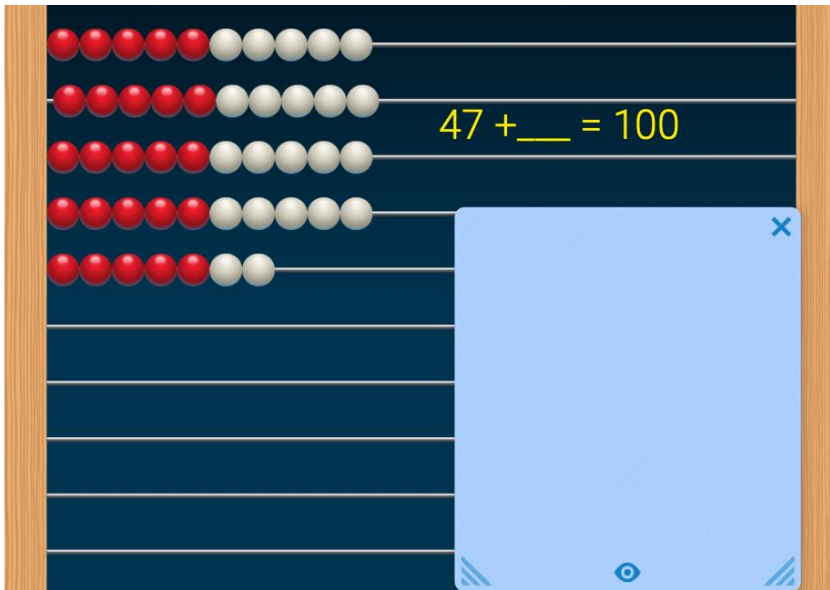
Activities:

- Meet me in the middle (5)
- I have _____, I need _____

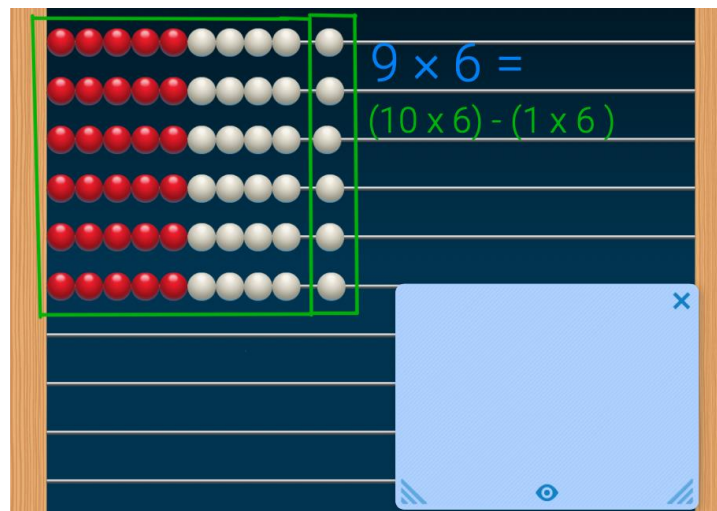
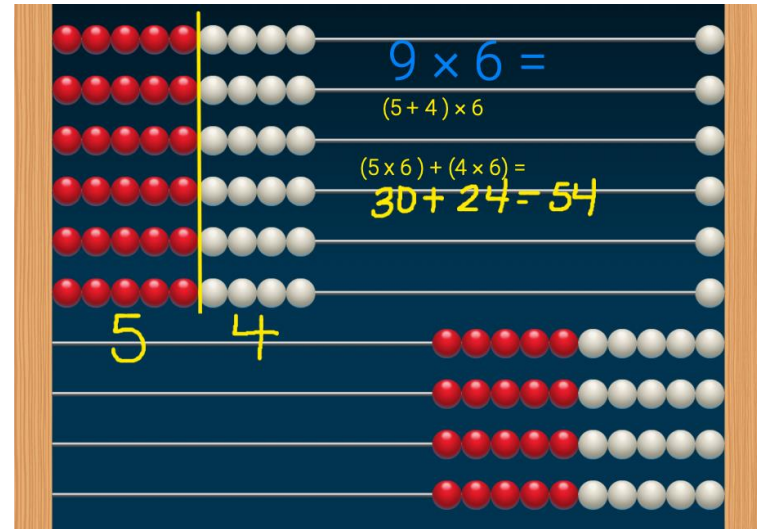
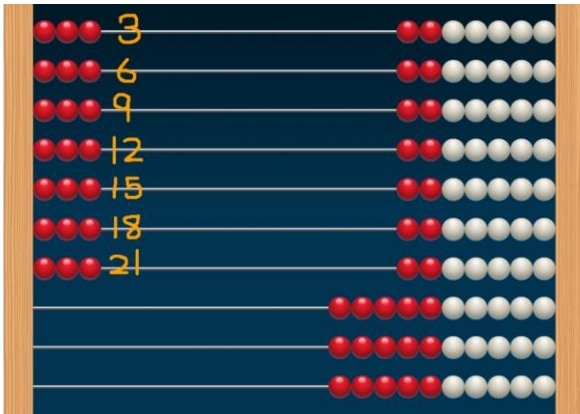
Arithmetic Rack Bingo



Addition to 100




Multiplicative Thinking



Resources and Links

- [math learning center resources](#)
- [math learning center number-rack app](#)
- [math-recovery/arithmetic-rack-bingo](#)



the **rekenrek**


Learning to Think Mathematically with the Rekenrek
A Handbook for Educators, A Tool for Young Children
Jeff Frykholm, Ph.D.

[Download English Version](#)

[Download Spanish Version](#)

Book for Educators

This book provides educators with the theoretical basis, practical knowledge, and expertise to use a powerful mathematical tool called the Rekenrek. Building on the idea that children must be able to “see” numbers within other numbers (e.g., 7 might be thought of as “5 and 2 more”), this book helps children recognize number combinations of 5 and 10, develop a rich sense of numbers between 0 and 20, and build a powerful set of intuitive strategies for addition and subtraction of both single- and double-digit numbers.



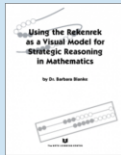
the **rekenrek**

Learning to Think Mathematically with the Rekenrek
Supplemental Activities
Jeffrey Frykholm, Ph.D.

[Download](#)

Supplemental Activity Book

This compilation of student-ready activities builds upon the contexts and learning objectives in Learning to Think Mathematically with the Rekenrek (listed above). Students solve imaginable and accessible problems using the key mathematical principles accessed through the rekenrek model, including cardinality, one-to-one-relationships, part-part-whole relationships, and subitizing.



Using the Rekenrek as a Visual Model for Strategic Reasoning in Mathematics
by Dr. Barbara Reardon

[Download](#)

Activity Book

Ten activities along with an introduction to using the Rekenrek or Number Rack. Includes correlations to the Common Core State Standards.