Quick Images: Identifying Amounts™

Using the Quick Images™ manipulative is a great way to engage students in communicating their mathematical thinking while offering opportunities for students to subitize and conceptualize numbers. The ideas here can be used as stand-alone activities, as a supplement to an existing math curriculum, or incorporated into a professional development program for teachers.

Getting to know the lesson:

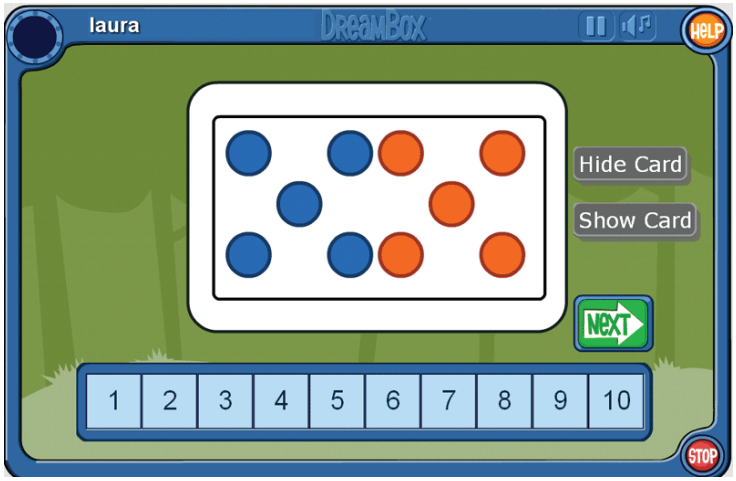
This lesson engages students to:

- Organize and analyze visual images in mathematical ways by building on small subitizable units such as 2, 3, and 4
- Use number relationships
- Connect visual images to their numeric representation
- Privilege the 5 and 10 structures

Variations of DreamBox Learning's Quick Images:

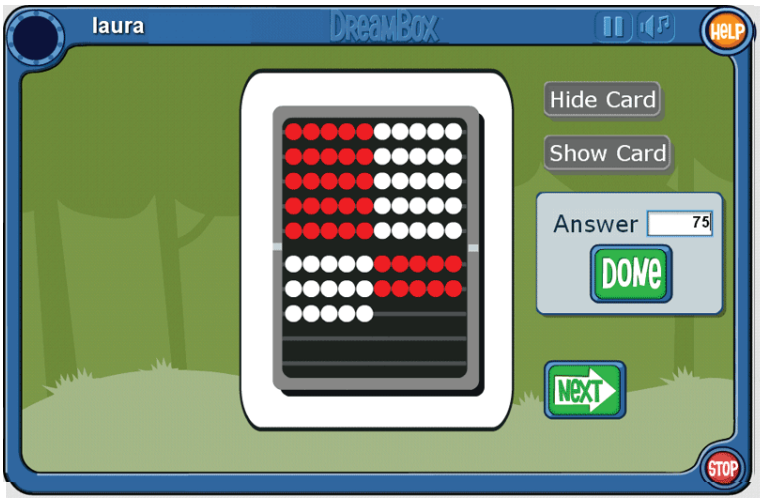
- Numbergram™: from 4 to 10
- Tenframe from 4 to 10
- Tenframe from 11 to 20
- Tenframe from 21 to 40
- One-Wire Mathrack from 4 to 10
- Two-Wire Mathrack from 11 to 20
- Two-Wire Mathrack from 4 to 20 – Displayed as Doubles
- Ten-Wire Mathrack from 20 to 100 – Multiples of 10 Only
- Ten-Wire Mathrack from 21 to 50
- Ten-Wire Mathrack from 41 to 100

Getting to know the Quick Images manipulatives:



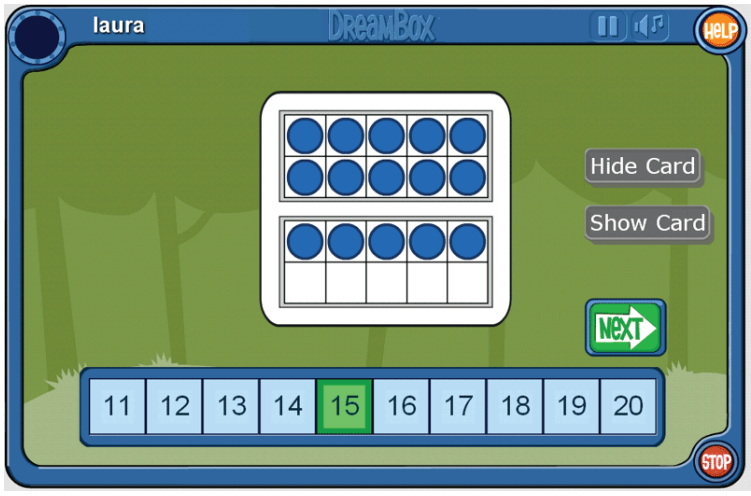
The Numbergram™:

- Uses dot arrangements similar to those on standard dice, which are familiar to many children
- Encourages reflective thinking about patterns to construct number relationships
- Supports the development of spatial relationships through recognition of sets of objects in patterned arrangements



The mathrack:

- Uses 1, 2, or 10 wires with 5 red beads and 5 white beads on each wire
- Offers visual support for seeing the quantities of 5 and 10 as a whole
- Supports the use of 5s, 10s, and doubles as anchors for supporting automaticity of the basic facts



The tenframe:

- Uses a 2 x 5 array on which counters are placed from left to right across the top, and then left to right across the bottom
- Offers visual support for seeing the quantities of 5 and 10 as a whole
- Supports the use of 5s and 10s as anchors for early number sense

All three of these manipulatives support students in conceptualizing numbers as groups rather than individual objects to be counted, combining numbers to make other numbers, and investigating relationships between numbers. These relationships form the basis for efficient computation and flexible, quick recall of math facts.

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DreamBox LEARNING

Ideas for using Quick Images lessons in the classroom:

A common routine for Quick Images includes three steps:

- Flash image for a short period of time (~3 seconds) and provide students with time to see (but not to count) the total number of objects
- Flash image a second time and provide students with time to revise thinking (repeat if needed)
- Display the image and discuss the mental images students formed and how they determined the total quantity

Variations on the routine:

- Vary the length of the "flash" depending on students' ages, number of objects, and experience with this type of activity. (Example: 2nd graders playing with the 10-wire mathrack for the first time may need a longer flash than they do with the 2-wire mathrack.)
- Allow students to draw the image (in math notebooks, on individual white boards, etc.) after the first or second flash and revise drawing on subsequent flashes
- Use an interactive whiteboard (or poster paper or a regular white board) to "record" students' mental images.

Ideas for questions to ask students when discussing:

- How many dots did you see? (tenframe, Numbergram)
- How many beads did you see? (mathrack)
- How did you think about this image? What did you see?
- How many more dots/beads are needed to make 10 (20, 50, 100, etc.) altogether?
- What is a number sentence that can be made using this image?

Other ideas:

- Use Quick Images at the beginning of a lesson to introduce or review a concept that will be a part of the lesson (such as doubles or multiples of 10)
- Use Quick Images to close a lesson and review concepts taught in the lesson (such as making 10)
- Use Quick Images as a mini-lesson or short math activity before or after major transitions (lunch, recess, specialist classes, etc.)[1]

[1] For suggestions of minilessons see Fosnot, C.T. and Uittenbogaard, W. (2007). *Minilessons for early number sense*. Portsmouth NH: Heinemann.