Building Multiplication Tables

Grade 3

Activity 321

Relevant Chapters in the *Digi-Block Comprehensive Teacher's Guide:*
    Book III: 3-2, Combining Equal Groups of Single Blocks, pp. 80-83

Overview

Students use blocks on the array mat to build a table of basic multiplication facts.

Objectives

Thinking Skills: Students use skip counting and known facts to find products.

Mastery Skills: Students learn to model single digit multiplication in an array.

Materials

Each group of 2-4 students needs:
- At least 100 single blocks
- 1 Array Mat
- 1 Activity Sheet #1
- 1 Activity Sheet #2 (for Closure)

Class Introduction   **(10 - 15 minutes)**

Have students sit in groups and pass out materials. Explain to students that today they are going to build a table of multiplication facts.

Model the x1 facts on the array mat and record on the activity sheet. Have students:
- Put one block on the array mat. Write the fact, 1 x 1 (1 group of 1) = 1, in the bottom, left cell of the activity sheet.
- Make a row of two blocks on the array mat. Write the fact, 1 x 2 (1 group of 2) = 2, in the next cell.
- Repeat with 3, 4, 5, ... 10 single blocks in the row and fill the bottom row of the activity sheet.

Model the x2 facts on the array mat and record on the activity sheet. Have students:
- Put two blocks in the first column. Write the 1 x 2 (1 group of 2) = 2 in the first cell of the next row.
- Make 2 columns of 2 blocks on the array mat. Write the fact, 2 x 2 (2 groups of 2)= 4, in the next cell in that row.
- Repeat with 3, 4, 5, ... 10 groups of 2 and fill in the second to the bottom row of the activity sheet.
- To find the total number of blocks, students can count by 2's.

Repeat with x3 facts. To find the products, students may:
- Count by 3's
- Use known facts: i.e., if students know 3 x 3 = 9 and 3 x 4 = 12, then 3 x 7 = 21.

Repeat with more facts until students are ready to continue modeling and recording on their own.

Activity   **(20 - 25 minutes)**

Have students continue to work with their group to model the facts to 10 x 10 and to record the facts on their activity sheet.
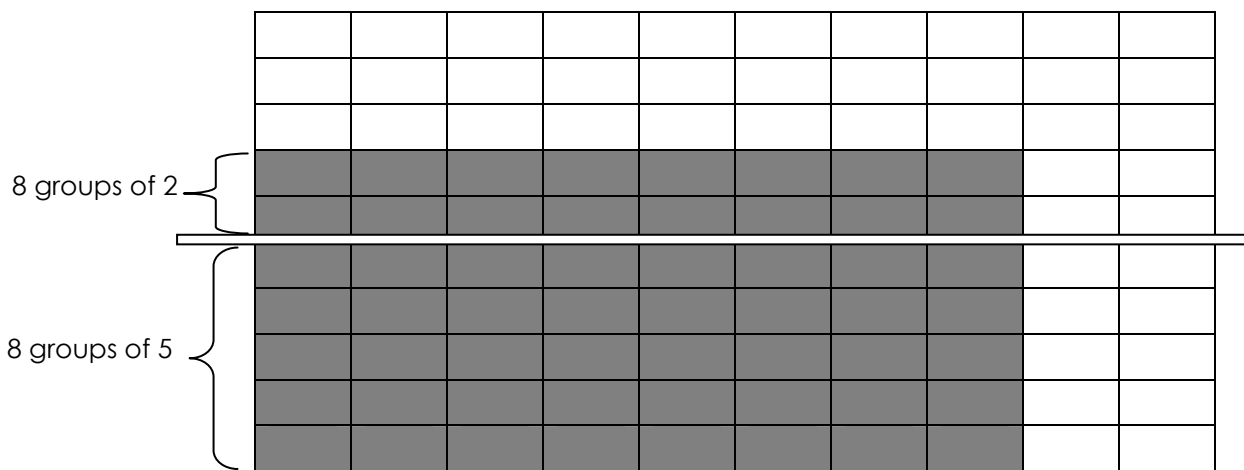
Closure   (**10 - 15 minutes**)

Pass out Activity Sheet #2 with the facts already placed in the chart. Have groups check their own fact charts and correct any mistakes.

Highlight a harder fact; for example 8 x 7 and demonstrate ways to quickly find the product:
- Have students model this fact on the array may.
- Use a piece of string or heavy card stock to separate this fact into two easier facts (i.e., use "partial products.")
- For example, 8 x 7 = (8 x 5) + (8 x 2)

8 groups of 2

8 groups of 5

- Students can easily see that 8 x 7 = 40 + 16 when modeled this way.

Repeat with other difficult facts.

Assessment

As students are working, observe and note the following:
- Do students model the facts on the array mat?
- Do students write the products in the table?
- Which numbers do students count by fluently?
- Which facts do students use known facts?
- Which facts are particularly difficult for students to find?

Extension

- ❑ Make another table with facts up to 15. Have students use the array mat to find these products.
- ❑ Have students record ways to use known facts to find products. For example, to find 9 x 8, students can model 9 x 5 and 9 x 4.

Name _____

Building Multiplication Tables

	1	2	3	4	5	6	7	8	9	10
x 10										
x 9										
x 8										
x 7										
x 6										
x 5										
x 4										
x 3										
x 2										
x 1										

Name _____

Building Multiplication Tables

	1	2	3	4	5	6	7	8	9	10
x 10	10	20	30	40	50	60	70	80	90	100
x 9	9	18	27	36	45	54	63	72	81	90
x 8	8	16	24	32	40	48	56	64	72	80
x 7	7	14	21	28	35	42	49	56	63	70
x 6	6	12	18	24	30	36	42	48	54	60
x 5	5	10	15	20	25	30	35	40	45	50
x 4	4	8	12	16	20	24	28	32	36	40
x 3	3	6	9	12	15	18	21	24	27	30
x 2	2	4	6	8	10	12	14	16	18	20
x 1	1	2	3	4	5	6	7	8	9	10

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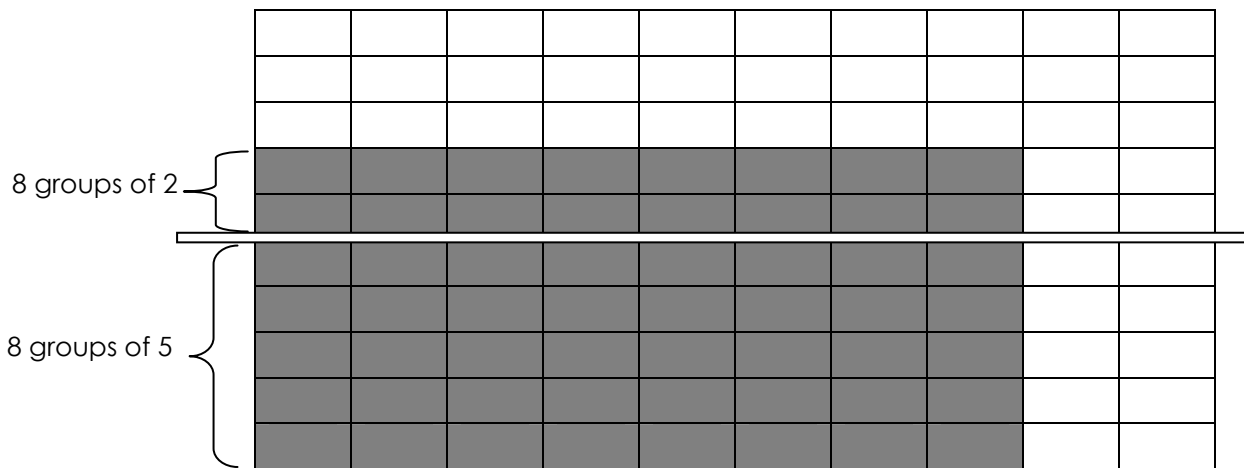
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x 7	7	14	21	28	35	42	49	56	63	70
x 6	6	12	18	24	30	36	42	48	54	60
x 5	5	10	15	20	25	30	35	40	45	50
x 4	4	8	12	16	20	24	28	32	36	40
x 3	3	6	9	12	15	18	21	24	27	30
x 2	2	4	6	8	10	12	14	16	18	20
x 1	1	2	3	4	5	6	7	8	9	10