Multiplication: Equal Groups

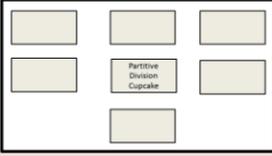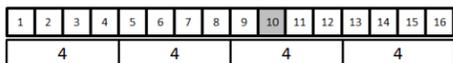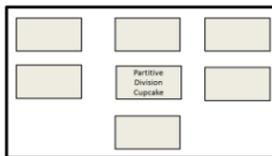| Level AA	Level A Counts One-to-One	Level B Additive Composition Counts Many-to-One	Level C Partial Multiplicative Reasoning	Level D Flexible Multiplicative Reasoning

Level AA only
Form equal groups one by one. Share Equal groups one by one.
"Make 3 groups of 4"   "Share 12 into 4 groups. "

Equal Groups Model   **Array**

"How many groups are there?"
"How many are in each group?"
"Write a repeated addition problem."
"Can you skip count to find the total?"

Equal Group Pictorial Cards or Numeral Cards

☆☆☆☆☆	☆☆☆☆☆	☆☆☆☆☆
5	5	5

"How many groups are there?"
"How many are in each group?"
"Write a repeated addition problem."
"Can you skip count to find the total?"

Part Whole Model

18		
6	6	6

"How many groups are there?"
"How many are in each group?"
"Write a repeated addition problem."
"Can you skip count to find the total?"

Screened Array Rotate
Commutative Property
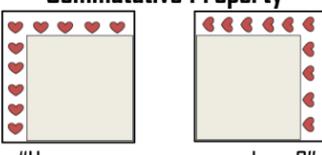
"How many groups are there?"
"How many are in each group?"

"Use the multiplier and multiplicand
to create a multiplication equation."
"What is the total?"
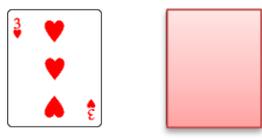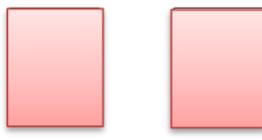
Commutative Property

"How many groups are there?"
"How many are in each group?"

"Use the multiplier and multiplicand
to create a multiplication equation."
"What is the total?"

Part Whole Model

Multiplication Product Unknown		
6	6	6

"How many groups are there?"
"How many are in each group?"

"Use the multiplier and multiplicand
to create a multiplication equation."

Equal Groups +1 Group

"Write a multiplication equation for this picture."
"Write a missing factor equation for this picture"
"If one more group was added what would the equation be for multiplication
and division?"

Division Connection/ Missing Factor

Measurement Division Screen	**Partitive Division Screen**
"There are 14 cupcakes put into groups of 2." How many groups are there? ___ x 2 = 14	There are 14 cupcakes put into 7 groups. How many are in each group. 7 x ___ =14
Part Whole Partitive 18 Partitive Division " 18 into 3 groups?" " How many in each group? " 3 x ___ = 18	**Whole Measurement** 18 6 ⎪ Measurement Division " 18, 6 to a group." " How many groups?" ___ x 6 = 18

Division: Partitive and Measurement

Level AA	Level A Counts One-to-One	Level B Additive Composition Counts Many-to-One	Level C Partial Multiplicative Reasoning	Level D Flexible Multiplicative Reasoning

Number Line with Measurement Number Cards

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4				4				4				4			

" How many 4's will fit into 16?"

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2	2	2	2	2	2	2	2								

" 16 divided into 8 equal groups"

100 Array with Quick Screens
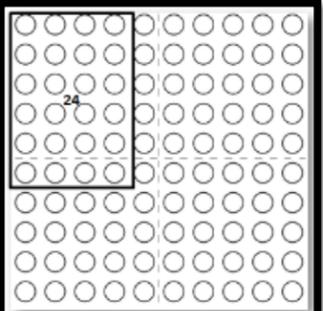
Divide twenty-four
into four to a group.
Write an equation.

Divide twenty-four
into four equal
groups. Write an
equation

Groups Unknown

___ x 4 = 24

 # in Group Unknown

4 x ___ = 24

Equation Cards Scenarios

6	x	?	=	18
18	÷	6	=	?

Measurement Division Screen	**Partitive Division Screen**
"There are 14 cupcakes put into into groups of 2." How many groups? 14= ___ x 2 and 14 / 2=	There are 14 cupcakes put into 7 groups. How many in each? 14= 7 x ___ = and 14 / 7=
Part Whole Partitive 18 Partitive Division " 18 divided into 3 groups? "How many in each group? " 18= 3 x ___ and 18/3=	**Part Whole Measurement** 18 6 ⎪ Measurement Division " 18 divided into 6 to a group." " How many groups." 18= ___ x 6 and 18/6=

Extending Multiplication: Multiplicative Comparison / Rate

(All Levels)

Rate:

Equal Group Numeral Cards:

5	5	5	5	5	5

"Every second I am going to put a 5 card down. If I put down a card for 6 seconds what would be the total?" Write an equation.

An apple cost $2.00 per apple. How much would 7 apples cost?

Write an equation.

The woodpecker can peck a tree 7 times in one second. How many pecks if he pecked for 10 seconds?
Write an equation.

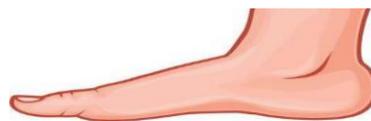The faucet drips 4 drops every minute. After 8 minutes how many drips total?
Write an Equation.

Multiplicative Comparison

If Jason has $5 and Cindy has 3 times as much. How much does Cindy have?

Maria's mother's foot is twice as long as Maria's foot. Maria's foot is 6 centimeters. How long is Maria's mother's foot?

Roberto has 4 marbles. His brother has 4 times as many marbles. How many does his brother have?
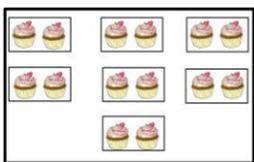
Multiplicative Connections: Inverse Relationship

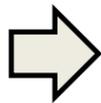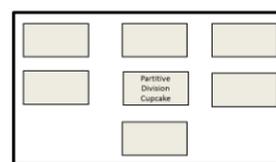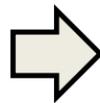|		Level B Developing Multiplicative Reasoning	Level C Partial Multiplicative Reasoning	Level D Flexible Multiplicative Reasoning
" Write a multiplication problem." 7 x 2=14		" There are 14 cupcakes. 2 cupcakes per group How many groups? Write an equation. " ___ x 2 =14 14/2=7	"14 cupcakes divided into 7 groups. How many groups. Write an equation. " 7 x ___=14 14/7=2	Write both a multiplication and division equation for this picture? If there was one more group, what would the equation be? If there was one less group what would the equation be? If we did not know how many groups what would the equation be? If we did not know how many in each group what would the equation be?

18 | 6 | 6 | 6 |
" Write a multiplication problem."

3 x 6=18
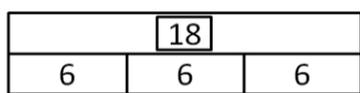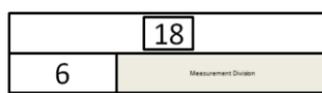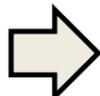
18 | 6 | Measurement Division |
"How many 6 will go into 18. Write and equation "

___ x 6=18   18/6=3
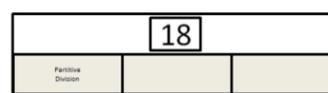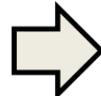
18 | Partitive Division | | |
"18 divided into 3 equal groups. How many groups."

3 x ___=18   18/3=6