32. Square of Trinomials with the Peg Board - Analysis by Row

Material: Peg Board and Pegs, Paper and pencil

Aim: To represent multiplication of trinomials on the Peg Board.

Presentation:

1. Say, "Write the equation 235^2 and expand it: "

   $235^2 = (200 + 30 + 5) \times (200 + 30 + 5)$

2. Say, "Each factor or term is multiplied by each other factor or term."

First row:

200	x	200	=	40,000	(4 ten thousands - blue)
200	x	30	=	6,000	(6 thousands - green)
200	x	5	=	1,000	(10 hundreds - red)

Second row:

30	x	200	=	6,000	(6 thousands - green)
30	x	30	=	900	(9 hundreds - red)
30	x	5	=	150	(15 tens - blue)

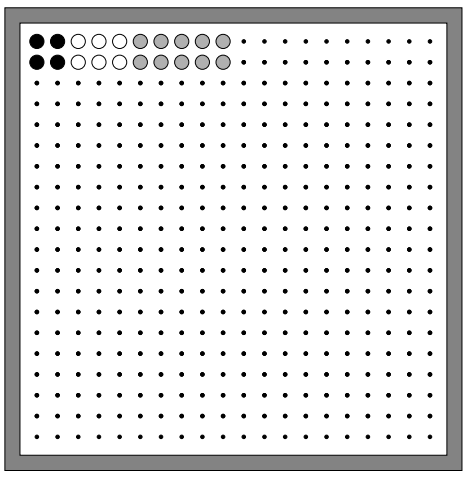
Third row:

5	x	200	=	1,000	(10 hundreds - red)
5	x	30	=	150	(15 tens - blue)
5	x	5	=	25	(25 units - green)

3. The child works with the peg board.

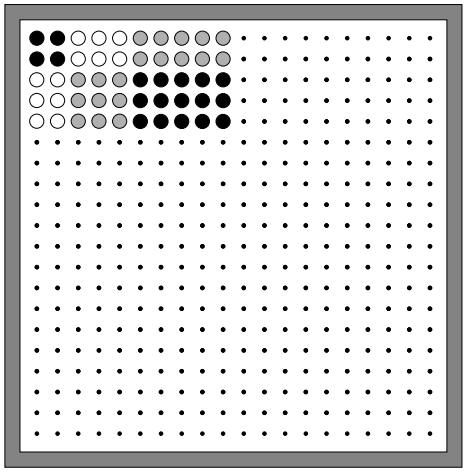
First row:

200	x	200	=	40,000	(4 ten thousands - blue)
200	x	30	=	6,000	(6 thousands - green)
200	x	5	=	1,000	(10 hundreds - red)



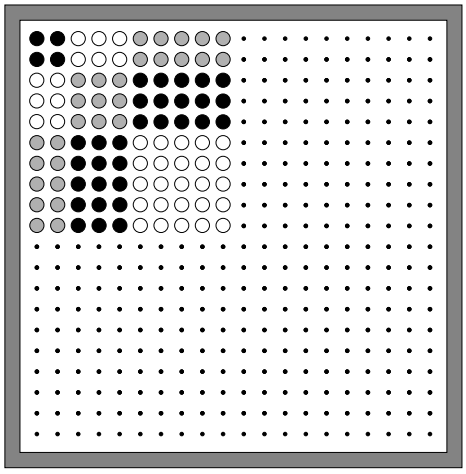
Second row:

30	x	200	=	6,000 (6 thousands - green)
30	x	30	=	900 (9 hundreds - red)
30	x	5	=	150 (15 tens - blue)



Third row:

5	x	200	=	1,000 (10 hundreds - red)
5	x	30	=	150 (15 tens - blue)
5	x	5	=	25 (25 units - green)



4. The child records the equation and represents the equation on graph paper.

5. After the child has worked with this material, introduce the Square Guides.

   The Square Guides are then displayed in the classroom.

Practice Problems

1) Expand the equation.

2) Place the pegs after each row of multiplication.

3) Record the equation and represent it on graph paper.

1) 235^2	2) 243^2	3) 342^2	4) 342^2	5) 542^2
6) 263^2	7) 324^2	8) 421^2	9) 415^2	10) 523^2
11) 452^2	12) 634^2	13. 635^2	14) 514^2	15) 613^2
16) 561^2	17) 531^2	18) 247^2	19) 462^2	20) 642^2

33. Square of Trinomials with the Peg Board - Analysis by Column

Material: Peg Board and Pegs, Paper and pencil

Aim: To represent multiplication of trinomials on the Peg Board.

Presentation:

1. Say, "Write the equation 111^2 and expand it: "

   $111^2 = (100 + 10 + 1) \times (100 + 10 + 1)$

2. Say, "Each factor or term is multiplied by each other factor or term."

First column:

100	x	100	=	10,000	(1 ten thousand - blue)
100	x	10	=	1,000	(1 thousand - green)
100	x	1	=	100	(1 hundred - red)

Second column:

10	x	100	=	1,000	(1 thousand - green)
10	x	10	=	100	(1 hundred - red)
10	x	1	=	10	(1 ten - blue)

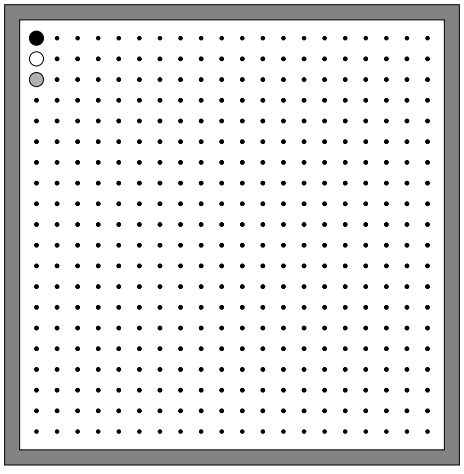
Third column:

1	x	100	=	100	(1 hundred - red)
1	x	10	=	10	(1 ten - blue)
1	x	1	=	1	(1 unit - green)

3. The child works with the peg board.

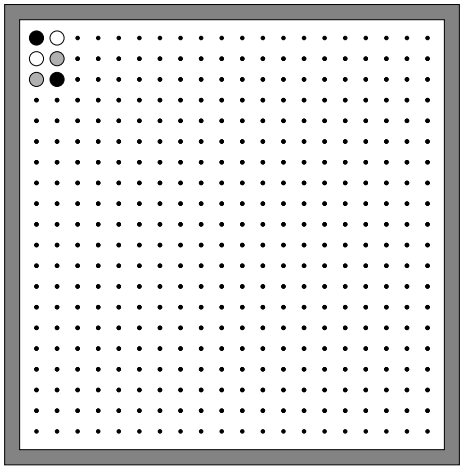
First column:

100	x	100	=	10,000	(1 ten thousand - blue)
100	x	10	=	1,000	(1 thousand - green)
100	x	1	=	100	(1 hundred - red)



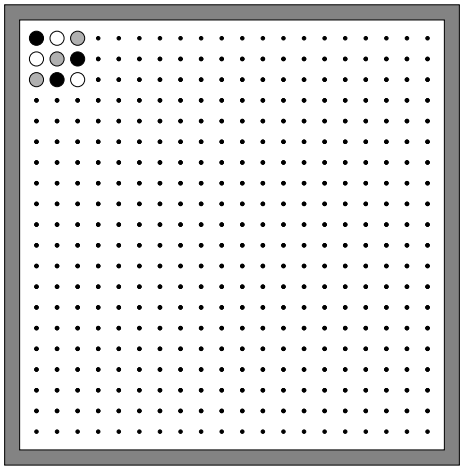
Second column:

10	x	100	=	1,000 (1 thousand - green)
10	x	10	=	100 (1 hundred - red)
10	x	1	=	10 (1 ten - blue)



Third column:

1	x	100	=	100 (1 hundred - red)
1	x	10	=	10 (1 ten - blue)
1	x	1	=	1 (1 unit - green)



4. The child records the equation and represents the equation on graph paper.

5. After the child has worked with this material, introduce the Square Guides.

   The Square Guides are then displayed in the classroom.

Practice Problems

1) Expand the equation.

2) Place the pegs after each column of multiplication.

3) Record the equation and represent it on graph paper.

1) 235^2	2) 243^2	3) 342^2	4) 342^2	5) 542^2
6) 263^2	7) 324^2	8) 421^2	9) 415^2	10) 523^2
11) 452^2	12) 634^2	13. 635^2	14) 514^2	15) 613^2
16) 561^2	17) 531^2	18) 247^2	19) 462^2	20) 642^2