Objective

To solve a linear equation, say $2x + 3 = 5$

Materials Required

Blue and red chart papers/rubber sheets, scissors, ruler, pencil, eraser, cardboard, white paper, adhesive.

Method of Construction

1. Take a cardboard and paste a white paper on it.
2. Cut some blue and red rectangular pieces (size $x \times 1$) and some blue and red square pieces (size 1×1) from the chart paper/rubber sheet as shown in Fig. 1.

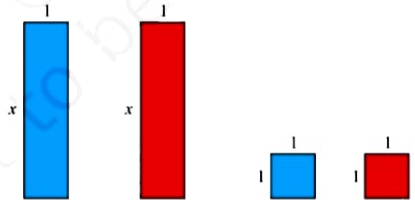

Fig. 1

3. Consider each blue rectangular piece as $(+x)$ and red rectangular piece as $(-x)$. Similarly consider the blue and red square pieces as $(+1)$ and (-1) respectively.

Demonstration

1. For the equation $2x + 3 = 5$, arrange 2 rectangular and 8 blue square pieces on the cardboard in the following manner (Fig. 2).

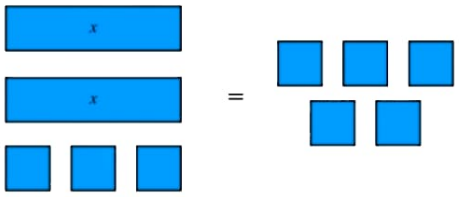

Fig. 2

2. Add three red small square pieces on both sides (Fig. 3).

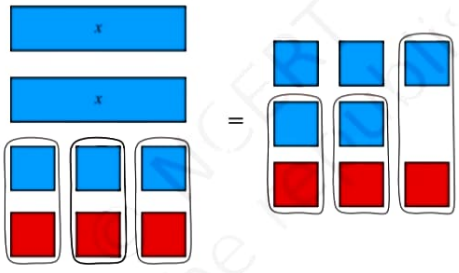

Fig. 3

3. Pair each red square with a blue square as shown in Fig. 3.
4. Remove these pairs to obtain Fig. 4.

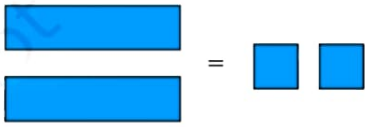

Fig. 4

5. Taking half the number of pieces on both sides we get Fig. 5.

Fig. 5

Thus, solution of the equation $2x + 3 = 5$ is $x = 1$.

This activity may be repeated by taking some more linear equations.

OBSERVATIONS

Equation	Pieces in LHS		Pieces in RHS		Pieces added on both sides		Solution
	Rectangle	Square	Rectangle	Square	Rectangle	Square	
$2x + 3 = 5$	2 Blue	3 Blue	0	5 Blue	0	3 Red	$x = 1$
$2x - 7 = 3$	2 Blue	7 Red	___	___	___	7 Blue	$x = 5$
$3x - 2 = x + 4$	___	___	1 Blue	___	1 Red	___	__ = __
$2x - 7 = 5 - 2x$	___	___	2 Red	___	2 Blue	___	__ = __

APPLICATION

This application is useful in explaining the process of solving an equation.