Algebra Unit : Solving for X

71 pages

For Special Education

X = ?

By Christa Joy

Preview

Excerpts from power point
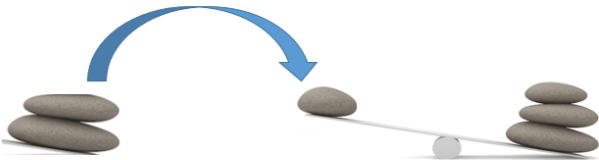
There are some simple rules we need to follow.

1. Both sides of the equation must have the same value.

The equation must be balanced to be true.

2. What you do to one side of the equation, you **HAVE** to do the other side.

This will keep our equation balanced.

Let's do that again:

$$\require{cancel}\cancel{1} + x = 11$$

6

If we take 1 away form the left side,

We have to take 1 away from the right side to keep it balanced.

$$\cancel{1} + x = \cancel{11}$$

6   10

Now we have a new equation:

$$6 + x = 10$$

This is still the same equation because we kept it balanced.

What is X Teacher Directions and Problems to Use

- This activity is meant to give your students practice solving for x using manipulatives.

- I would recommend using the common practice of:
  - Build it using the manipulatives
  - Draw it on the paper template or laminated copy with dry erase markers
  - Write the final equation

- I also cannot underestimate the amount of practice students with disabilities need with these manipulatives

- *Work through multiple problems with your students, slowly increasing in difficulty*

- *Students will need either fluency in decomposing numbers or extra practice to make this more successful.*

- *There is some mental math necessity in the form of decomposing numbers and fluency with basic single digit facts.*

$$4 + x = 8$$

$$5 + x = 10$$

$$3 + x = 9$$

$$2 + x = 5$$

$$9 + x = 10$$

$$x + 6 = 15$$

$$x + 12 = 18$$

$$x + 10 = 20$$

$$x + 12 = 19$$

What is X Student Manipulatives

- *Make one copy of balance for each student, printed on cardstock and laminated*
  - *There are two versions, one with visual placement holders for the cards for students who need the extra structure*
- *Make one copy of number cards on cardstock and laminate*
- *Make one copy of color cards on cardstock or make using construction paper and laminate*

Problem goes here

Rules:

1. Both side_ _f the equation must have the same value.

2. Wh__ _ou _ _o one side of the equation, you must do
to t__ ou__.

Problem goes here

=

Number Cards : make as many copies as needed

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
8	9	10	11	12	13	14	15
16	17	18	19	0	1	2	3
4	5	6	7	8	9

X markers
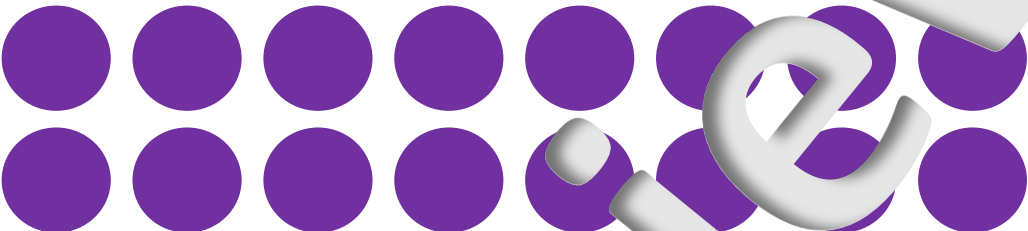
Make as many copies as needed on cardstock, for those students who need the additional visual support.

Template cards: I used these cards as a visual reminder for the student to self-check if he/she was indeed taking some from each side. If there were not enough "x" tokens for both sides of the cards, or not enough of the same number for each side of the card, then they had to put it back.
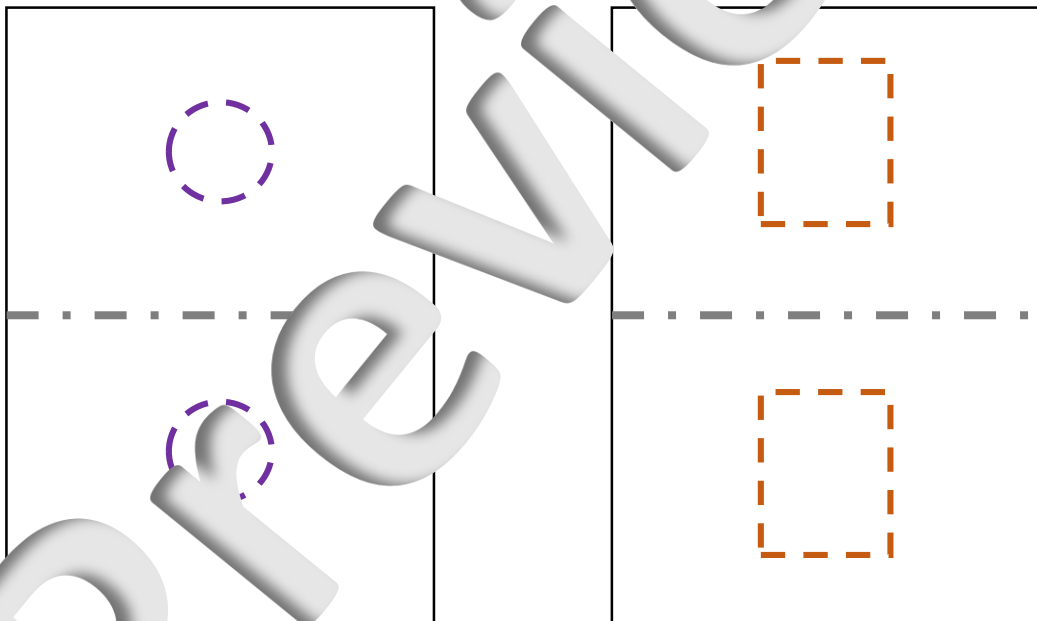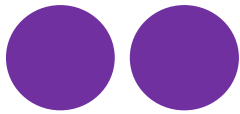
The following slides are provided as examples of how a student may work through a problem.

By

Christa Joy

Special Needs for Special Kids

$$10 + 2x = 16$$

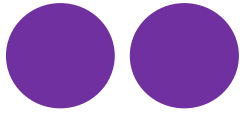10 ●● = 6

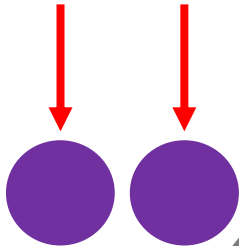**Rules:**
1. Both sides of the equation must have the *same value*.
2. When you do to one side of the equation, you *must* do to the other.

$$10 + 2x = 16$$

6

10

16

Rules:
1. Both sides of the equation must have the *same value*.
2. When you do to one side of the equation, you *must* do to the other.

This problems assumes your students have some basic knowledge of simple facts such as 3+3=6

$$10 + 2x = 16$$

3   3

6

Rules:
1. Both sides of the equation must have the **same value**.
2. When you do to one side of the equation, you **must** do to the other.

Always have students check their answers.

$$10 + 2x = 16$$

If x = 3, then does

$$10 + 2 + 3 = 16$$

YES!!

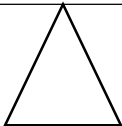# What is X worksheet set
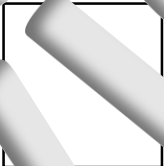
- There are 10 worksheets in this set with 2 problems per page.

- The focus in solving for x only.

- For students who need more visual support, provide the balancing template from the student manipulatives with outlined shapes.

- Solving for x:
  - Because it is important students continue to self-check their answer, I would have them go through the process on the back of the paper.
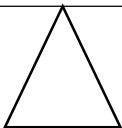
Name: _____

Solve the problem by drawing it in the box provided

$$6 + 4x = 14$$

$$X =$$

$$3 + 5x = 18$$

$$X =$$