

Equivalent Number Sentences

Explaining the Equals Sign Means Equality.

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Differentiate and Assess

Not every student will be ready to investigate this concept at this Level and so we will need to differentiate to ensure every student is learning at their leading edge. Select the Differentiate button on this screen.

Integrate

Every mathematical concept is integrally related to other mathematical concepts. Teaching and learning related concepts simultaneously develops deep relational understanding. Select the Integrate button on this screen.

Intervene

Some students may not yet be ready to investigate this concept at any Level, and so we will need to provide some intervention. Select the Intervention button on this screen.

EQUIVALENT NUMBER SENTENCES EXPLAINING THE EQUALS SIGN MEANS EQUALITY.

EXPLICIT TEACHING PLAN OVERVIEW PAGE

THIS PAGE IS A SUMMARY OF THE EXPLICIT TEACHING PLAN, INCLUDING STRATEGIC QUESTIONS, AND DESCRIBING THE SEQUENCE WHICH WILL OCCUR OVER MULTIPLE LESSONS.

RESOURCES: COUNTERS, PLAYING CARDS, PENCIL, PAPER

WHAT COULD WE DO?

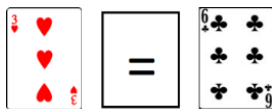
Children:

- explain the equals sign means equality, for example,



- solve equivalent number sentences, for example, $2 + 5 = __ - __$
could be $2 + 5 = 8 - 1$, $2 + 5 = 9 - 2$, $2 + 5 = 10 - 3$

- use cards to create equivalent number sentences, for example, $3 = 5 - 2$ or $3 + 2 = 5$



WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?

Children

- ask one another questions about equivalent number sentences involving addition and subtraction, for example:
 - ▶ What does the equals sign mean?
 - ▶ How can we make both sides of the equals sign equal?

- ▶ How could we record this as an equivalent number sentence?
 $2 + 5 = __ - __$

- ▶ How could we make both sides of the equals sign equal?

EQUIVALENT NUMBER SENTENCES EXPLAINING THE EQUALS SIGN MEANS EQUALITY.

EXPLICIT TEACHING PLAN

FULL EXPLICIT TEACHING PLAN, EMBEDDING DEEP RELATIONAL UNDERSTANDING, METALANGUAGE, AND QUESTIONS THAT MAY BE USED OVER MULTIPLE LESSONS.

WHAT COULD WE DO?

Children think about, talk and listen to a friend about, then have the opportunity to share what they already know.

Record, for example, addition is joining groups together

Record, for example, subtraction is taking away from 1 group

Display a large equals sign, for example, =

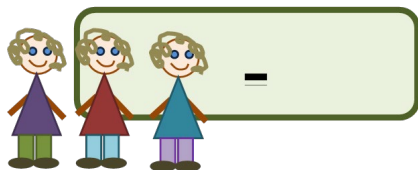
WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?

- ▶ Today brings an investigation about addition and subtraction.
- ▶ What do you know about addition and subtraction?
- ▶ Talk about addition and subtraction with a friend.
- ▶ Is anyone ready to share what they are thinking about addition and subtraction?

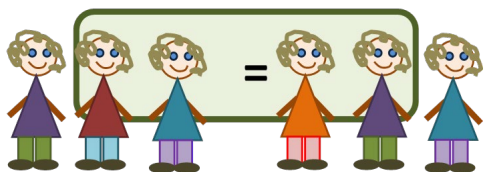
- ▶ We've investigated addition and subtraction.
- ▶ And we found that addition is joining groups together.
- ▶ And we found that subtraction is starting with one group and taking away from it.

- ▶ Today we're going to investigate number sentences involving addition and subtraction.
- ▶ What do you know about this symbol?
- ▶ Does it say 'equals'?
- ▶ What does it mean? Let's investigate!

Select 3 children and place them on the left side of the equals sign, for example,



Children to suggest how to make the right side equal by adding 3 children , for example,



Record, for example, 3

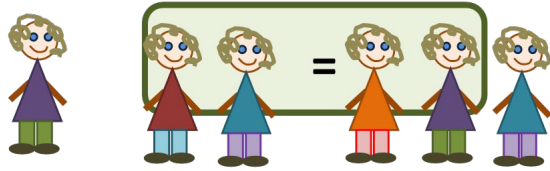
Record, for example, $3 = 3$

- ▶ How many children on the left side of the equals sign?
- ▶ Are there 3 children on the left side of the equals sign?
- ▶ How could we make the right side of the equals sign equal to the left side?
- ▶ Could we add some children to the right side of the equals sign?

- ▶ How many children would we need to add to the right side of the equals sign to make both sides equal?

- ▶ How could we record this number sentence?
- ▶ How many on the left side of the equals sign?
- ▶ How many on the right side of the equals sign?
- ▶ Is this number sentence true?
- ▶ Do you think there is anything missing?
- ▶ Do we need an addition symbol, a subtraction symbol, a multiplication symbol or a division symbol in a number sentence?
- ▶ Are both sides of the equals sign equal?
- ▶ Does the equals sign mean that both sides are equal?
- ▶ So if we have an equals sign, and both sides of the equals sign are equal, is the number sentence true?

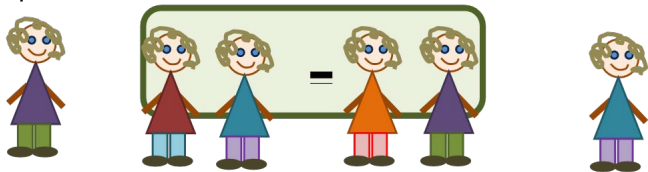
Move 1 child away from the other 2 on the left side of the equals sign, for example,



Record, for example, $1 + 2$

Record, for example, $1 + 2 = 3$

Move one child away from the other two on the right side of the equals sign, for example,

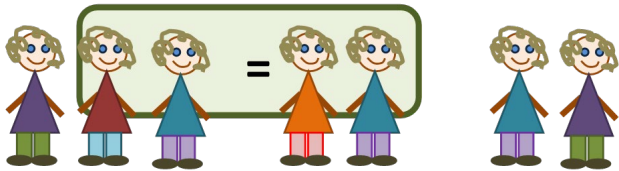


Record, for example, $1 + 2$

- ▶ How could we record this number sentence?
- ▶ How could we record the children on the left side of the equals sign?
- ▶ Could we record 1 plus 2?
- ▶ How could we record the children on the right side of the equals sign?
- ▶ Could we record 3?
- ▶ What does our number sentence say?
- ▶ Does our number sentence say, 1 plus 2 equals 3?
- ▶ Is this number sentence true?
- ▶ Is the left side of the equals sign equal to the right side of the equals sign?
- ▶ Are both sides of the equals sign equal?
- ▶ How could we record this number sentence?
- ▶ How could we record the children on the left side of the equals sign?
- ▶ Could we record 1 plus 2?

Record, for example, $1 + 2 = 2 + 1$

Add one child to the right side of the equals sign, for example,



Record, for example 3

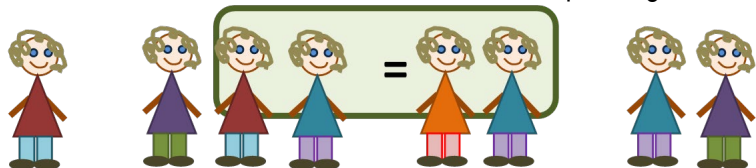
Record, for example $3 = 2 + 2$

- ▶ How could we record the children on the right side of the equals sign?
- ▶ Could we record 2 plus 1?
- ▶ Could we record, 1 plus 2 equals 2 plus 1?
- ▶ Is this number sentence true?
- ▶ Is the left side of the equals sign equal to the right side of the equals sign?
- ▶ Are both sides of the equals sign equal?

- ▶ Let's add 1 child to the right side of the equals sign
- ▶ Let's record our number sentence.
- ▶ How could we record the children on the left side of the equals sign?

- ▶ Could we record 3?
- ▶ How could we record the children on the right side of the equals sign?
- ▶ Could we record 2 plus 2?
- ▶ Could we record, 3 equals 2 plus 2?
- ▶ Is this number sentence true?
- ▶ Is the left side of the equals sign equal to the right side of the equals sign?
- ▶ What does the left side of the equals sign equal?
- ▶ Does the left side of the equals sign equal 3?
- ▶ What does the right side of the equals sign equal?
- ▶ Does the right side of the equals sign equal 4?

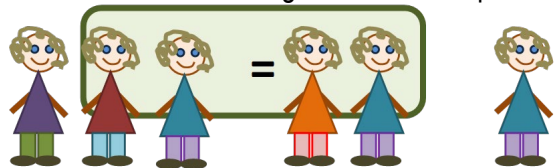
Children add another child to the left side of the equals sign, for example,



Record, for example, $1 + 3$

Record, for example, $1 + 3 = 2 + 2$

Children subtract a child from the right side of the equals sign, for example,



- ▶ What could we do make the number sentence true?
- ▶ Could we add one to the left side of the equals sign?
- ▶ Is the number sentence true now?
- ▶ Is the left side of the equals sign equal to the right side of the equals sign?
- ▶ What does the left side of the equals sign say?
- ▶ Does the left side of the equals sign say 1 plus 3?
- ▶ What does the right side of the equals sign say?
- ▶ Does the right side of the equals sign say 2 plus 2?
- ▶ What does the left side of the equals sign equal?
- ▶ Does the left side of the equals sign equal 4?
- ▶ What does the right side of the equals sign equal?
- ▶ Does the right side of the equals sign equal 4?
- ▶ Does 1 plus 3 equals 2 plus 2?
- ▶ Is this number sentence true now?
- ▶ Is the left side of the equals sign equal to the right side of the equals sign?
- ▶ Do both sides of the equals sign equal 4 now?
- ▶ What else could we do make the number sentence true?
- ▶ Could we subtract one from the right side of the equals sign?
- ▶ Is the number sentence true now?
- ▶ Is the left side of the equals sign equal to the right side of the equals sign?
- ▶ What does the left side of the equals sign say?

Record, for example, 3

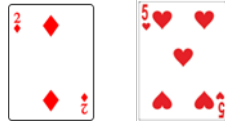
Record, for example, $3 = 2 + 1$

Display an equivalent number sentence, for example,

___ + ___ = ___ - ___

Select cards to place in the left side of the number sentence, for example,

Record, for example, $2 + 5 = \underline{\quad} - \underline{\quad}$



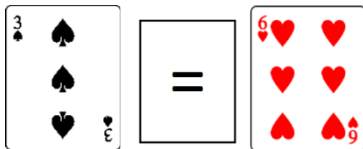
- ▶ Does the left side of the equals sign say 3?
 - ▶ What does the right side of the equals sign say?
 - ▶ Does the right side of the equals sign say 2 plus 1?
 - ▶ What does the left side of the equals sign equal?
 - ▶ Does the left side of the equals sign equal 3?
 - ▶ What does the right side of the equals sign equal?
 - ▶ Does the right side of the equals sign equal 3?
 - ▶ Is the left side of the equals sign equal to the right side of the equals sign?
 - ▶ Is this number sentence true now?
-
- ▶ Here we have a number sentence.
 - ▶ What does the equals sign mean?
 - ▶ Does the equals sign mean both sides are equal?
 - ▶ Let's select numbers to place on the left side of the equals sign.
 - ▶ Could we record 2 plus 5?
-
- ▶ What does the left side of our equals sign equal?
 - ▶ Does the left side of our equals sign equal 7?
 - ▶ What does the right side of our equals sign have to equal?
 - ▶ Does the right side of our equals sign have to equal 7 as well?
 - ▶ What numbers could we place on the right side of the equals sign to make a subtraction that equals 7?

Record 10 minus 3, on the right side of the equals sign, for example,
 $2 + 5 = 10 - 3$

Display 2 number cards and [a card with an equals sign](#) recorded on it, for example,



Place 1 of the cards on the left side of the equals sign and 1 of the cards on the right side of the equals sign, for example,



Record, for example, $3 = 6$

Children suggest how we could make the number sentence true.

Record, for example, $3 + 3 = 6$

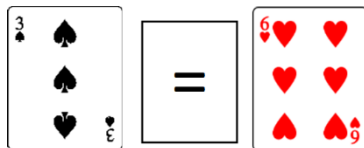
- ▶ Could we use 10 minus 3?
- ▶ Could we use 9 minus 2?
- ▶ Could we use 8 minus 1?
- ▶ Could we use any numbers that subtract to make 7?
- ▶ Let's use 10 minus 3.
- ▶ Is this number sentence true?
- ▶ Are both sides of the equal sign equal?
- ▶ Do both sides equal 7?

- ▶ Let's select some cards to make a number sentence.
- ▶ What numbers did we select?
- ▶ Did we select 3 and 6?
- ▶ Did we select an equals sign?

- ▶ Let's put 3 on the left side of the equals sign, and 6 on the right side of the equals sign.

- ▶ How could we record our number sentence?
- ▶ Could we record 3 equals 6?
- ▶ Is our number sentence true?
- ▶ How could we make our number sentence true?
- ▶ Could we add 3 to the left side of the equals sign?

Display the cards and equals sign again, for example,



Children suggest how we could make the number sentence true.

Record, for example, $3 = 6 - 3$

- ▶ What does our number sentence say now?
- ▶ Does our number sentence say $3 + 3 = 6$?
- ▶ Is our number sentence true now?
- ▶ Is the left side of the equals sign equal to the right side of the equals sign?
- ▶ What does the left side of the equals sign equal?
- ▶ Does the left side of the equals sign equal 6?
- ▶ What does the right side of the equals sign equal?
- ▶ Does the right side of the equals sign equal 6?
- ▶ Is the left side of the equals sign equal to the right side of the equals sign?
- ▶ Do both sides of the equals sign equal 6?

- ▶ How else could we make our number sentence true?
- ▶ Could we subtract 3 from the right side of the equals sign?

- ▶ What does our number sentence say now?
- ▶ Does our number sentence say $3 = 6 - 3$?
- ▶ Is our number sentence true now?
- ▶ Is the left side of the equals sign equal to the right side of the equals sign?
- ▶ What does the left side of the equals sign equal?
- ▶ Does the left side of the equals sign equal 3?

- ▶ What does the right side of the equals sign equal?
- ▶ Does the right side of the equals sign equal 3?
- ▶ Do both sides of the equals sign equal 3?

Equals sign (print, cut out and distribute 1 to each child) [back](#)

