

# Friends of 20.

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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.

# FRIENDS OF 20.

## 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: PLAYING CARDS, 10 FRAMES, COUNTERS, PENCIL, PAPER

### WHAT COULD WE DO?

Children:

- explain friends of 20 through addition, for example,



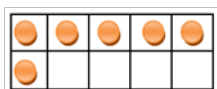
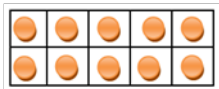
- record, for example, 16 and 4,  $16 + 4 = 20$

- relate friends of 20 to friends of 10, for example, 16 and 4, 6 and 4

- explain place value of 6 and 16, for example,



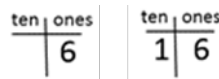
- explain friends of 20 through subtraction, for example,



- record, for example, 16 and 4,  $20 - 4 = 16$

- relate friends of 20 to friends of 10, for example, 16 and 4, 6 and 4

- explain place value of 6 and 16, for example,



### WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?

Children

- ask one another questions about friends of 20, for example:

- ▶ How many in the 10 frame on the left?
- ▶ How many in the 10 frame on the right?
- ▶ How many altogether?
- ▶ How many more to make 20?
- ▶ How are friends of 20 and friends of 10 related?
- ▶ What is the value of 6?
- ▶ What is the value of the 6 in 16?
  
- ▶ What number did we select?
- ▶ Did we select 4?
- ▶ Let's subtract 4 counters from the 10 frame on the right.
- ▶ How many counters do we have left?
- ▶ Do we have 6 counters left on the 10 frame on the right, and 10 on the 10 frame on the left?
- ▶ Do we have 16 counters left?
- ▶ Do we have 4's friend of 20 left?

# FRIENDS OF 20.

## 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.

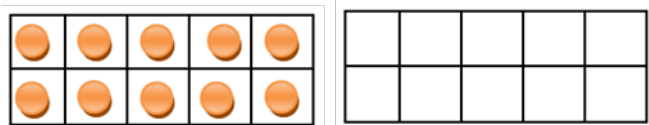
Have containers of 20 counters available (grouping 20 counters in small containers is very convenient).

Record, for example, Friends of 20

Select an Ace and another card to make a teen number, for example,



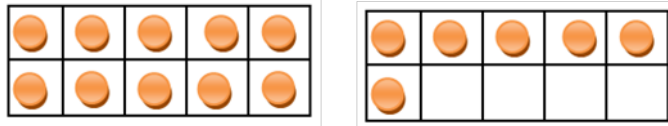
Display a [full 10 frame](#) on the left and an [empty 10 frame](#), on the right as in place value, for example,



### WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?

- ▶ Today brings an investigation about friends of 20.
- ▶ What do you know about friends of 20?
- ▶ Talk about friends of 20 with a friend.
- ▶ Is anyone ready to share what they are thinking about friends of 20?
  
- ▶ We've investigated Friends of 10 using addition.
- ▶ And we found that friends of 10 are 2 numbers that add together to make 10.
- ▶ **Today we're going to use our understanding of friends of 10 to investigate friends of 20.**
- ▶ Let's select an Ace and another card to make a teen number.
- ▶ What teen number did we make?
- ▶ Do we have 1 ten and 6 ones?
- ▶ Do we have 16?
- ▶ Here we have a full 10 frame and an empty 10 frame.
- ▶ How many spaces in two 10 frames?
- ▶ There are 10 spaces in one 10 frame.
- ▶ Are there 20 spaces in two 10 frames?
  
- ▶ How many in the 10 frame on the left?

Add 6 counters to the 10 frame on the right, for example,



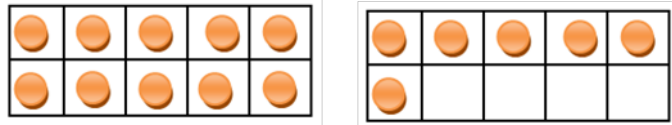
Record, for example,  $16 + 4 = 20$

Record, for example,  $16 + 4 = 20$

$$6 + 4 = 10$$

- ▶ Are there 10 in the 10 frame on the left?
- ▶ How many will we need to add to the 10 frame on the right to make 16?
- ▶ Will we need to add 6?
  
- ▶ Let's add 6 to the 10 frame on the right.
- ▶ Now we're going to ask 4 important questions:
- ▶ How many in the 10 frame on the left?
- ▶ Are there 10 in the 10 frame on the left?
- ▶ How many in the 10 frame on the right?
- ▶ Are there 6 in the 10 frame on the right?
  
- ▶ How many altogether?
- ▶ Are there 16 altogether?
  
- ▶ How many more to make 20?
- ▶ Do we need 4 more to make 20?
- ▶ So if we have 16, and we need 4 more to make 20, what is 16's friend of 20?
- ▶ Is 16's friend of 20, 4?
- ▶ Let's record this!
  
- ▶ Let's look at our friends of 20.
- ▶ Our friends of 20 are 16 and 4.
- ▶ Think about our friends of 10.
- ▶ What is 6's friend of 10?

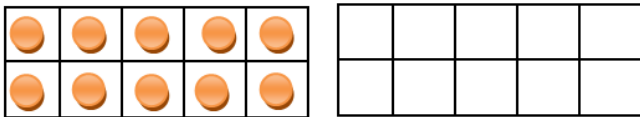
Display the 10 frames with the full 10 frame on the left and the 6 counters in the 10 frame on the right as in place value, for example,



- ▶ Is 6's friend of 10, 4?
- ▶ And what is 16's friend of 20?
- ▶ Is 16's friend of 20, 4?
- ▶ Can we use our friends of 10 to work out our friends of 20?
  
- ▶ Do we have 1 ten and 6 ones?
- ▶ If we add 4 ones, will we have 2 tens?
- ▶ Can we use our ones number's friend of 10 to make another 10?
- ▶ Let's look at the 10 frame on the right.
- ▶ Are there 6 in the 10 frame on the right?
- ▶ How are friends of 20 like friends of 10?
- ▶ If we have 6, do we need 4 more to make 10?
- ▶ If we have 16, do we need 4 more to make 20?
- ▶ If we add 4 ones, will have another ten?
- ▶ Will we have 2 tens?
- ▶ Will we have 20?
- ▶ Can we use friends of 10 to work out friends of 20?

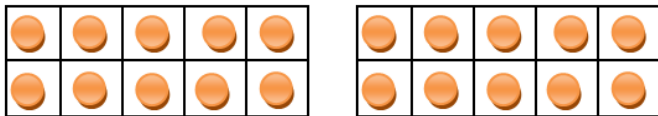
Children think about, talk and listen to a friend about, then have the opportunity to share what they already know.

Display a full 10 frame and an empty 10 frame and, for example,

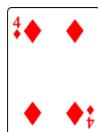


Have containers of 20 counters available for each child.

Add 10 counters to the empty 10 frame, for example,



Select a card to make a single-digit number, for example,

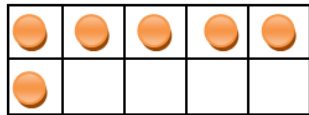
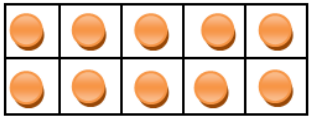


Subtract 4 counters from the 10 frame on the right, for example,

- ▶ Today brings an investigation about friends of 20.
- ▶ What do you know about friends of 20?
- ▶ Talk about friends of 20 with a friend.
- ▶ Is anyone ready to share what they are thinking about friends of 20?

▶ **Today we're going to use our understanding of friends of 10 through subtraction to investigate friends of 20 using subtraction.**

- ▶ Here we have a full 10 frame and an empty 10 frame.
- ▶ We want to start with 20. How many will we need to add to the empty 10 frame so we'll have 20?
- ▶ Will we need to add 10 to the empty 10 frame?
- ▶ Let's add 10 counters to the empty 10 frame.
- ▶ Let's select a card to make a single-digit number.
- ▶ What number did we select?
- ▶ Did we select 4?



Children explain there are 6 counters left on the 10 frame on the right, and 10 on the 10 frame on the left, 16 counters.

Record, for example,  $20 - 4 = 16$

▶ Let's subtract 4 counters from the 10 frame on the right.

▶ How many counters do we have left?

▶ Do we have 6 counters left on the 10 frame on the right, and 10 on the 10 frame on the left?

▶ Do we have 16 counters left?

▶ Do we have 4's friend of 20 left?

▶ Let's record this!

10 Frames (print, cut out and distribute 1 full and 1 empty 10 frame to each child)

