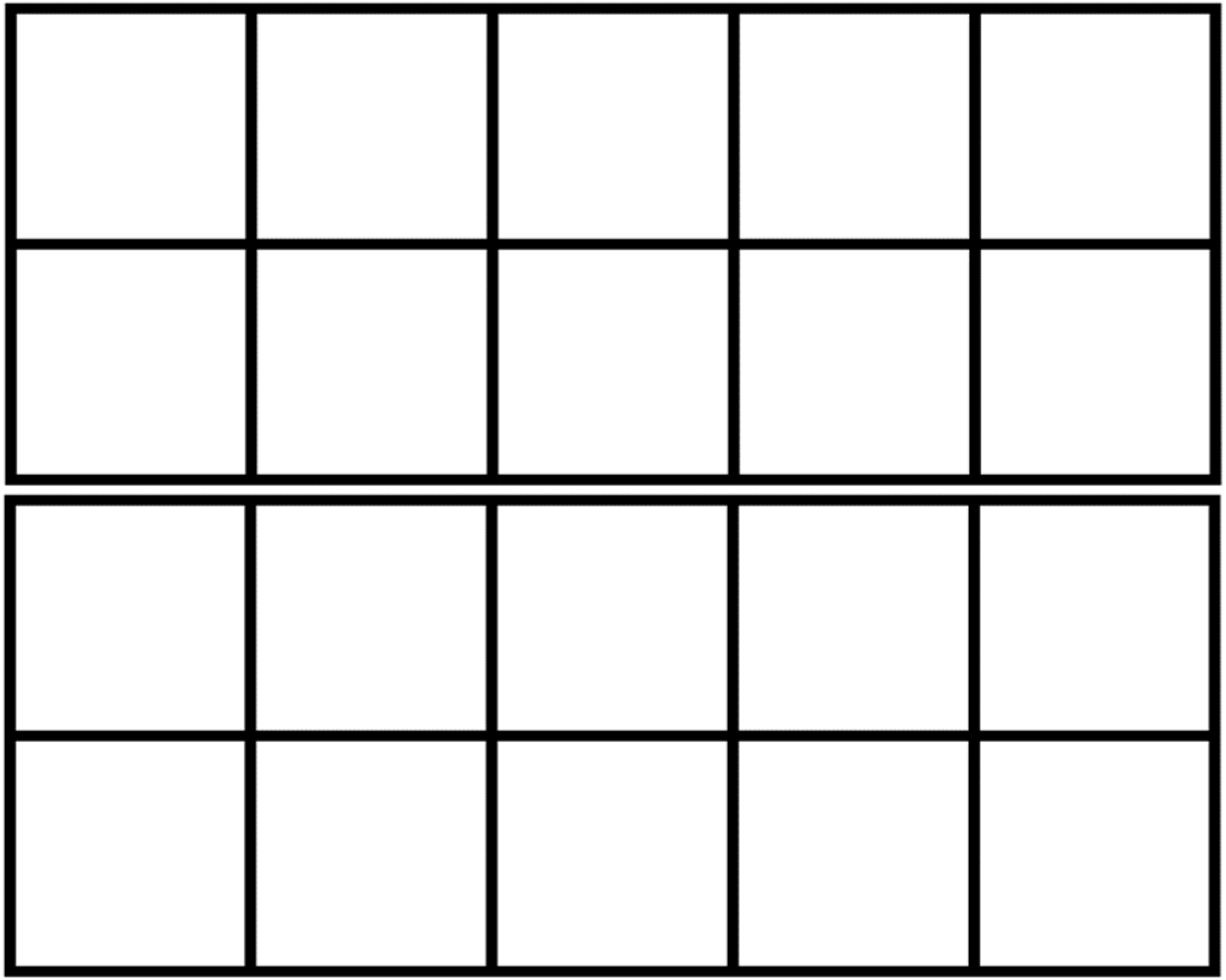
FRIENDS OF 10 – ADDITION, SUBTRACTION, COMMUTATIVITY.

INVESTIGATIONS OVERVIEW PAGE
THIS PAGE IS A SUMMARY OF THE INVESTIGATIONS THAT STUDENTS MAY ENGAGE IN TO DEEPEN THEIR RELATIONAL UNDERSTANDING.
INVESTIGATIONS WITH INSTRUCTIONS TO STUDENTS FOLLOW ON SUBSEQUENT PAGES.

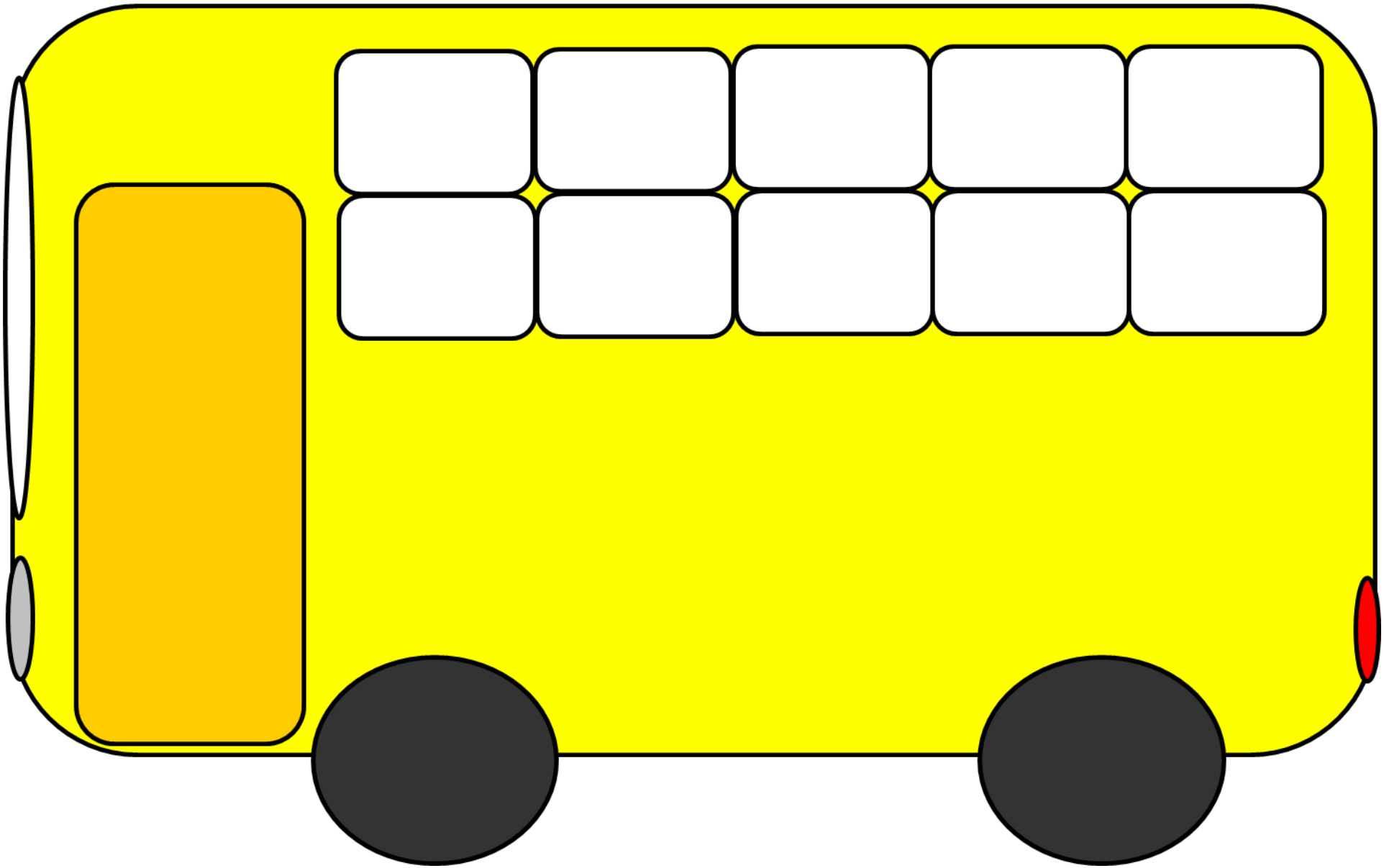
- In pairs, children select a number and place the corresponding number of counters onto an empty 10 frame. They record their 10 frame, their counters and their friends of 10 in an addition number sentence. They tell a friend the number in the top row, the number in the bottom row, the number altogether, and the number they need to make 10. They record their friends of 10. Reflection: What are friends of 10?
- In pairs, children select a number and place the corresponding number of counters onto an empty 10 frame. They record their 10 frame, their counters and their friends of 10 in an addition number sentence. They tell a friend the number in the top row, the number in the bottom row, the number altogether, and the number they need to make 10. They swap the places of the numbers and explain friends of 10 through commutativity for example 4 and 6, 6 and 4. Reflection: How can friends of 10 swap places?
- In pairs, children select a number and remove the corresponding number of counters from a full 10 frame. They record their 10 frame, their counters and their friends of 10 in a subtraction number sentence. They explain that if they subtract a number from 10, they will have the number's friend of 10 left. Reflection: What are friends of 10 using subtraction?
- In pairs, each child has a calculator. They enter the number 10. They select a number. They subtract the single-digit number, predicting what number they think will result explaining using friends of 10. Reflection: What are friends of 10?
- In pairs, children have 4 sets of single-digit numeral cards or a pack of playing cards. Children place 6 cards face up in a row. Children take turns to select 2 cards that are friends of 10. The 2 cards taken are replaced and the game continues until all the cards have been taken. If no friends of 10 are in the row, cards are added to the row until there are friends of 10.
- Children play skittles, identifying the number knocked over using the friend of 10 of the number still standing.
- In pairs, children have a 10 Frame Bus. One child places some counters on the bus in the top row to act as children, explaining 'There are ... children on the bus'. The second child says the number of empty seats on the bus.
- In pairs, children have a 10 Frame Bus. Children place 10 counters o the bus to act as children. One child takes some counters of the bus. The other child works out how many children are left on the bus, using friends of 10 through subtraction.

As they develop their understanding of friends of 10, children will apply their understanding to add and subtract numbers bridging 10 using place value.

Empty 10 frame (print, cut out and distribute two 10 frames to each child) back



10 Frame Bus (back)



Friends of 10– Addition, Commutativity, Subtraction

Select a card to make a number that is neither too easy nor too challenging to find its friend of 10.

Place the corresponding number of counters onto a 10 frame.

Ask and answer the 4 questions:

- How many in the top row?
- How many in the bottom row?
- How many altogether?
- How many more to make 10?

Record your 10 frame.

Record your friends of 10.

Reflection: What are friends of 10?

Friends of 10– Addition, Commutativity, Subtraction

Select a card to make a number that is neither too easy nor too challenging to find its friend of 10.

Place the corresponding number of counters onto a 10 frame.

Ask and answer the 4 questions:

- How many in the top row?
- How many in the bottom row?
- How many altogether?
- How many more to make 10?

Record your 10 frame.

Record your friends of 10 using addition.

Place your number's friend of 10 onto another 10 frame.

Ask and answer the 4 questions:

- How many in the top row?
- How many in the bottom row?
- How many altogether?
- How many more to make 10?

Record your 10 frame.

Record your friends of 10 using addition.

Reflection: How can friends of 10 swap places?

Friends of 10– Addition, Commutativity, Subtraction

Place 10 counters onto a 10 frame.

Select a card to make a number that is neither too easy nor too challenging to find its friend of 10 through subtraction.

Take away the number of counters named on the card.

Identify the number of counters left on the 10 frame.

Record your 10 frame.

Record your friends of 10 using subtraction.

Explain that if you subtract your number from 10, you will have your number's friend of 10 left.

Reflection: What are friends of 10 using subtraction?

Friends of 10– Addition, Commutativity, Subtraction

Sit with a friend.

Enter the number 10 on a calculator.

Select a single-digit number.

Use your friends of 10 to predict what number will be the result if you subtract your number.

Subtract the single-digit number.

Explain your friends of 10 using subtraction to a friend.

Reflection: What are friends of 10?

Friends of 10– Addition, Commutativity, Subtraction

Sit with a friend.

Have 4 sets of single-digit numeral cards or a pack of playing cards.

Place 6 cards face up in a row.

Take turns to select 2 cards that are friends of 10.

Replace the 2 cards taken.

The game continues until all the cards have been taken.

If no friends of 10 are in the row, cards are added to the row until there are friends of 10.

Reflection: What are friends of 10?

Friends of 10– Addition, Commutativity, Subtraction

Play skittles.

Set up 10 skittles.

Roll a ball at the 10 skittles.

Identify the number of skittles knocked over, and the number of skittles still standing, using friends of 10 of the number.

Reflection: What are friends of 10?

Friends of 10– Addition, Commutativity, Subtraction

Have a 10 frame bus.

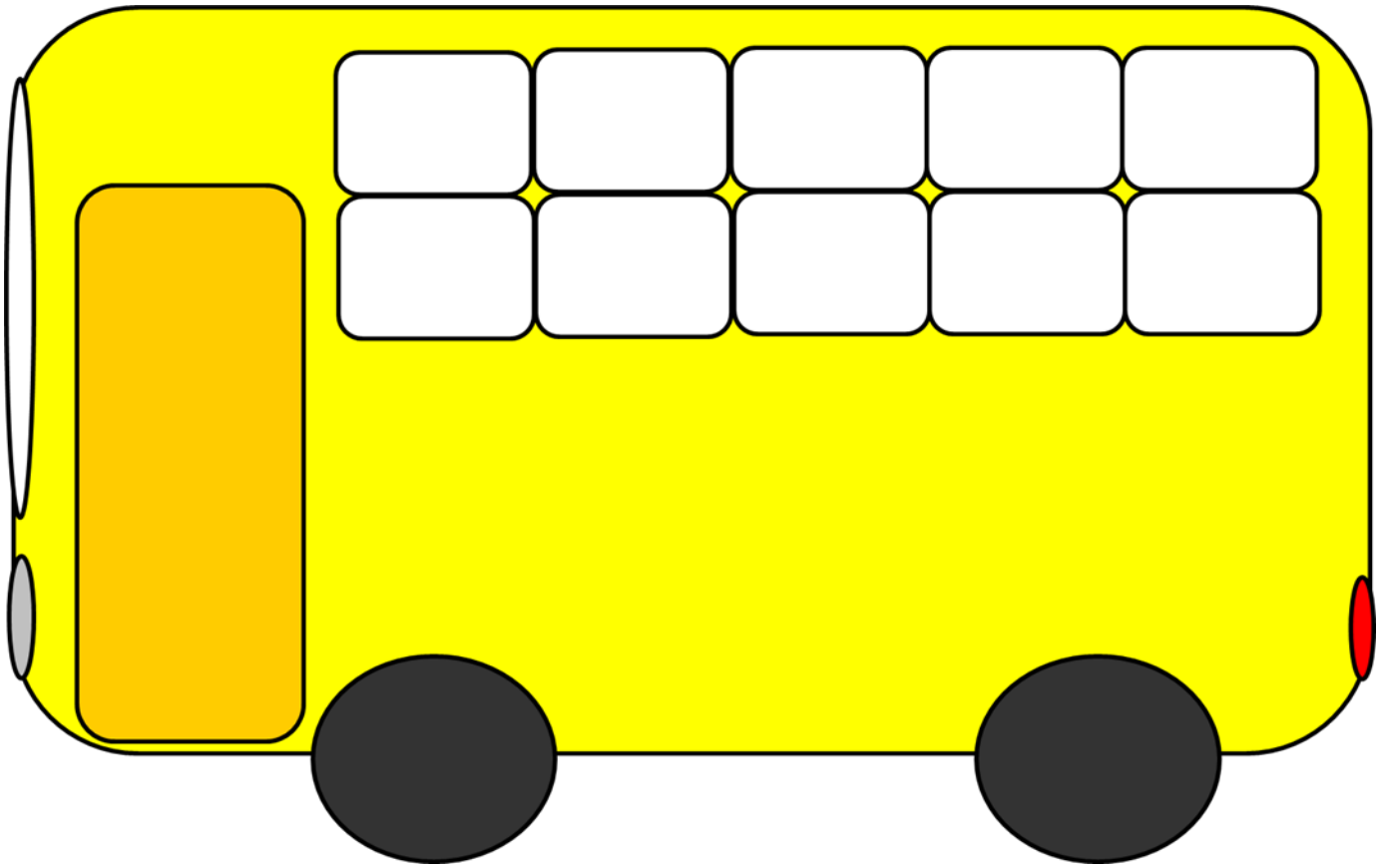
Select a numeral card.

Place that number of counters onto the 10 frame bus as children, filling from the top row on the left first.

Identify the number of ‘children’ you need to fill the bus.

Record your friends of 10 through addition.

Reflection: What are friends of 10?



Friends of 10– Addition, Commutativity, Subtraction

Have a 10 frame bus.

Place 10 counters onto the 10 frame bus as children.

Select a numeral card.

Take the number of ‘children’ off the 10 frame bus, emptying from the bottom row on the right first.

Identify the number of ‘children’ left on the bus.

Record your friends of 10 through subtraction.

Reflection: What are friends of 10?