



# Brick Math

## Lesson of the Month for January 2025

### Teacher's Lesson Guide

#### SUGGESTED BRICKS

Size	Number
1x1	10 each of 4 colors
1x2	6
1x3	6
1x4	5
2x2	5
2x3	5
2x4	5
1x10	3

Note: Using a baseplate will help keep the bricks in place. One baseplate is suggested for these activities.

Note: The bricks used may vary depending on students' ability to count. For example, if a student can see that a 1x3 brick is the same as three 1x1 bricks, they may use either configuration to show the number 3.

## from Brick Math Addition

# CHANGE UNKNOWN

#### Students will learn/discover:

- How to model problems with a missing addend in the change location, which is the second addend or value in the problem.

#### Why is this important?

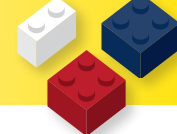
Modeling problems with missing addends in different locations helps students understand the part-part-whole relationships between numbers. In the *change unknown* problem, students find the missing addend through a variety of strategies.

#### Vocabulary:

- **Add:** To join or combine sets
- **Addend:** Term in an addition problem
- **Change unknown:** The addend to solve for when the start number and result are known
- **Sum:** The combined total of two or more sets

#### How to use the companion student book, *Addition–Student Edition*:

- After students build their models, have them draw the models and explain their thinking in the Student Edition. Recording the models on paper after building them with bricks helps reinforce the concepts being taught.
- Discuss the vocabulary for each lesson with students as they work through the Student Edition.
- Use the chapter assessments in the Student Edition to gauge student understanding of the content.



## Part 1: Show Them How

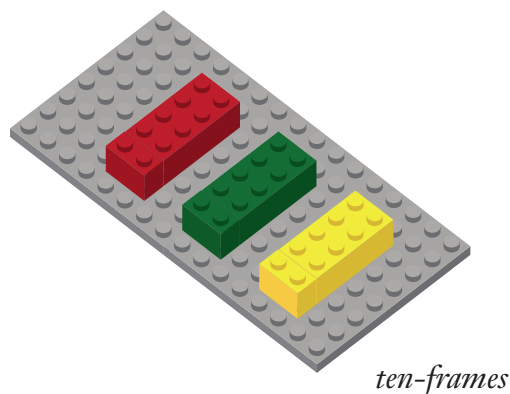
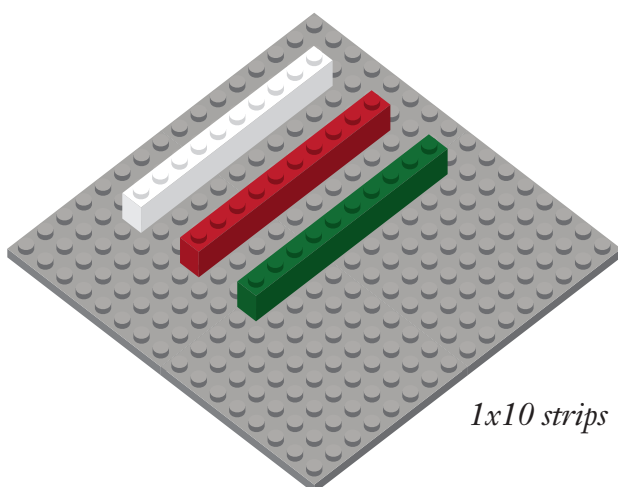
1. Show students this addition problem:  $4 + \square = 7$

If vocabulary has not been discussed previously, be sure to use and define the terms *addend*, *change unknown*, and *sum*.

Ask students how to go about finding the missing number (*addend*) that belongs in the box.

Show students how to model the problem. Build three 1x10 strips or ten-frames that represent the three numbers in the problem (the two addends and the sum).

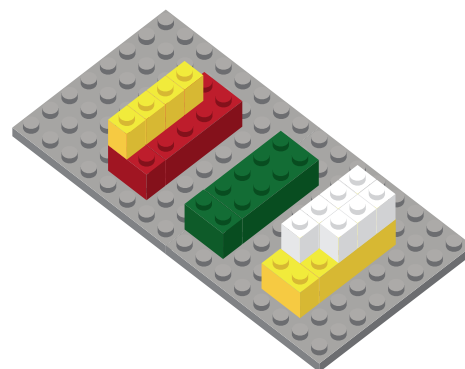
*Note:* ten-frame models are shown for this problem.

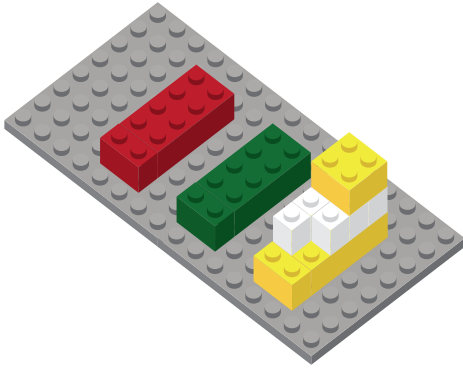
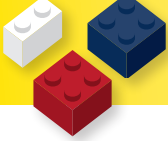


Place 4 studs on the left ten-frame to represent the *addend* in the starting place.

Do not place any studs on the center ten-frame to represent the missing addend in the *change location*.

Place 7 studs on the right ten-frame to represent the *sum*.





Ask students how to determine the missing number using addition strategies. *Note:* Do not suggest subtraction—this is an addition problem!

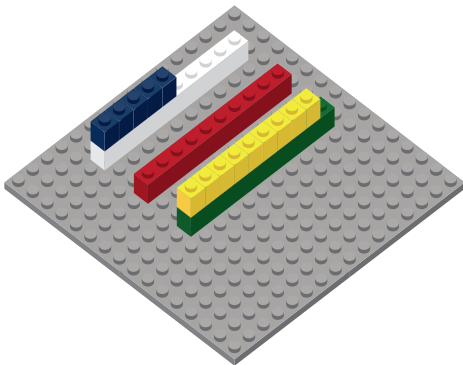
Students could use strategies like counting up, one-to-one correspondence or matching to find the solution. If students see for themselves the idea of using subtraction to find the missing addend and can explain the process, then you can use the strategy. Keep in mind that this is an example of a strategy, not a procedure.

Show students how to compare the two numbers to find the solution by taking the four studs off the left ten-frame and placing them on top of the seven studs that show the sum. The number of studs uncovered (3) reveals the number of studs needed in the change location.

Have students draw the model and explain the parts of the problem.

Students should understand that the start number is 4. Counting up from 4 (“5, 6, 7”) uses three numbers. This shows that the missing addend is 3. The sum is 7.

**2.** Show students this addition problem:  $5 + \square = 9$



Ask students how to go about finding the missing number (*addend*) that belongs in the box.

Show students how to model the problem. Build three 1x10 strips or ten-frames to represent the three numbers in the problem (the two addends and the sum). *Note:* 1x10 strip models are shown for this problem.

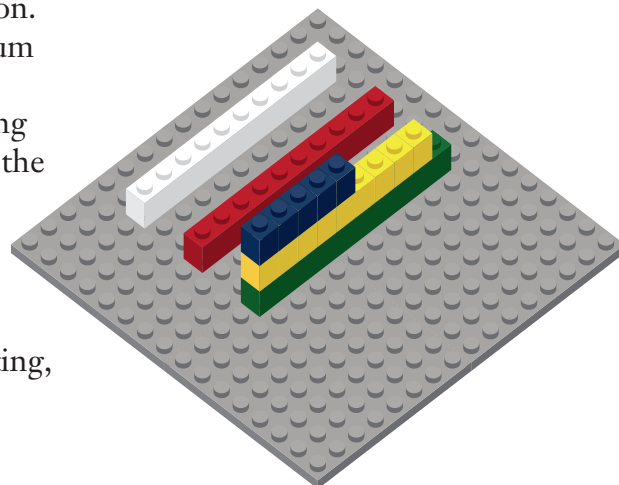
Place 5 studs on the left strip to represent the addend in the starting place.

Do not place any studs on the center strip to represent the missing addend in the change location.

Place 9 studs on the right strip to represent the sum.



Ask students how to use this model to find the solution. Students could compare the starting addend to the sum to determine the change unknown addend. Another method is to take the 5 bricks representing the starting number and place them on the 9 bricks representing the sum, and then count up to fill the spots, “6, 7, 8, 9,” showing that 4 numbers are needed to make the sum.



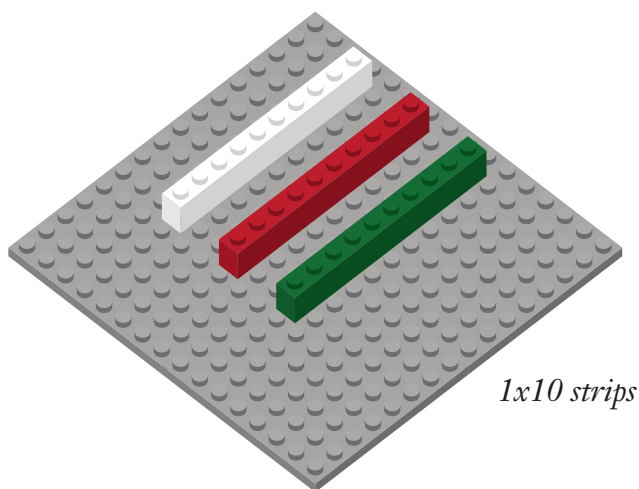
Have students draw the model and describe it in writing, showing both addends and the sum.

# CHANGE UNKNOWN

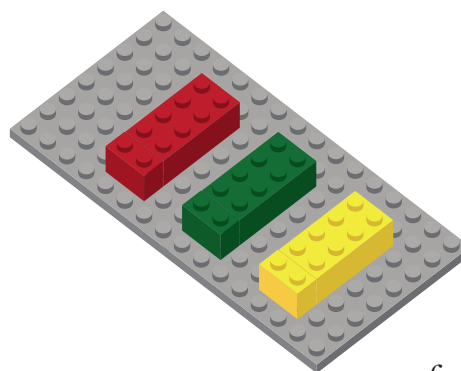
## Part 1

1. Problem:  $4 + \square = 7$

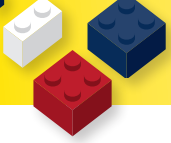
Think about how to find the missing number (addend) that belongs in the box. Build three  $1 \times 10$  number strip models or three ten-frame models to represent the three numbers in the problem (the two addends and the sum).



*1x10 strips*



*ten-frames*



On the left strip or ten-frame, place 4 studs to represent the \_\_\_\_\_ in the starting location.

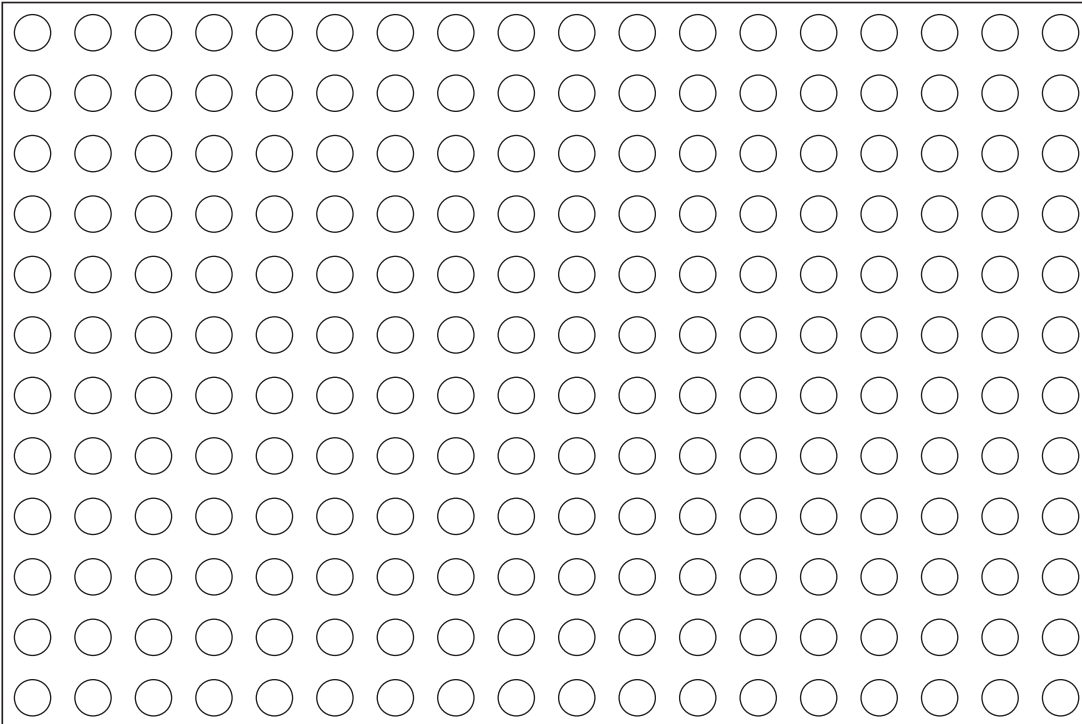
On the center strip or ten-frame, do not place any studs. This represents no number in the \_\_\_\_\_ location.

On the right strip or ten-frame, place 7 studs to represent the \_\_\_\_\_.

Find the missing number (addend) using addition strategies. Hint: use strategies like counting up, one-to-one correspondence, or matching to find the solution.

Show how you can use comparisons of the two numbers in the problem to find the missing addend.

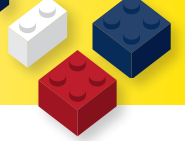
Draw the model. Label it and explain the parts of the problem.



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**2.** Problem:  $5 + \square = 9$

Build three 1x10 number strip models or three ten-frame models to represent the three numbers in the problem (the two addends and the sum).

Build a model that shows the math sentence.

Model how to find the solution, which is the missing addend.

Draw the model and explain your solution. Be sure to show both addends and the sum in your model.

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